Note: When any ambiguity of interpretation is found in this provisional translation, the Japanese text shall prevail.

Part I: SPECIFICATION

Chapter 2 Requirements for Unity of Application

Chapter 2 Requirements for Unity of Application

Patent Law Section 37

Where there are two or more inventions, they may be the subject of a patent application in the same request provided that these inventions are of an invention claimed in one claim (hereinafter referred to as "the specified invention") and of another or other inventions having the relationship as indicated below with respect to such specified invention:

(i) inventions of which the industrial applicability and the problem to be solved are the same as those of the specified invention;

(ii) inventions of which the industrial applicability and the substantial part of the features stated in the claim are the same as those of the specified invention;

(iii) where the specified invention relates to a product, inventions of process of manufacturing the product, inventions of process of using the product, inventions of process used for handling the product, inventions of machines, instruments, equipments or other things used for manufacturing the product, inventions of products solely utilizing the specific properties of the product, or inventions of things used for handling the product;

(iv) where the specified invention relates to a process, inventions of machines, instruments, equipments or other things used directly in the working of the specified invention;

(v) inventions having a relationship as provided for in Cabinet Order.

1. Requirements for Unity of Application

(1) Meaning of the term of “unity of application”

“Unity of application” refers to the scope of inventions that could be filed for patent in a single application, and is synonymous to the “unity of invention” in Western counterparts.

(2) Purport of requirements for unity of application

The provision concerning unity of application (Patent Law section 37) is designed to provide for convenience of applicants, third parties and the Patent Office, by allowing two or more inventions which are technically closely interrelated to be filed for patent in a single application. In other words, the requirements for unity of application prescribe cases where two or more inventions which could also be separately filed for patent, may be filed in a single application.

(3) Principle of requirements for unity of application

Requirements for unity of application are met when the invention defined in each claim of an application is associated with a specified invention in a relation prescribed under any one subparagraph of Patent Law section 37. (inventions satisfying such conditions are hereafter referred to as “related inventions.”) The term “specified invention” herein stands for an invention described in a particular claim, in a patent application containing two or more claims. (See “2.3”).

A single patent application may contain no more than one specified invention, the reason for which is to preclude infinite expansion of the scope of unity of application by serially linking the relationships between specified and related inventions.

1.1 Relationship under Section 37(i)

Patent Law section 37(i) provides for unity of application between specified invention and related inventions for which the industrial fields of application and the problems to be solved are both the same.

Specified and related inventions falling under this relationship must be expressed in the same category, i.e. “product and product” or “process and process.”

(Note) The following examples of cases falling under Patent Law section 37(i) may also fall under section 37(ii).

1.1.1 Same Industrial Field of Application

By “industrial field of application” is meant the technical field to which the invention belongs, and technical fields directly associated with said field. “Same industrial field of application” refers to cases wherein the specified and related inventions share a common "industrial field of application," which may be typified as follows:

(1) When the technical fields of the specified and related inventions are identical

(2) When the technical fields of the specified and related inventions overlap one another

(3) When the technical fields of the specified and related inventions have direct technical interrelationship

In applying Ministerial Ordinance under Section 36(iv), when, as in the invention developed based on a new idea completely different from the prior art, it is considered that the existing technical field to which the invention pertains is not envisaged, the description of the new technical field developed by the invention may be enough and the description of the existing technical field must not be mandatory. Thus, in this case, the new technical field and the technical field bearing a direct relationship to the field thereof shall be deemed as the field of industrial application under Section 37.

(1) When technical fields are identical

When the technical fields for the specified and related inventions are identical, their industrial fields of application are considered to be the same.

(Example 1)

Specified invention:

Automatic transmission using fluid coupling.

Related invention: 1

Automatic transmission using metallic belt.

Both inventions belong to the same technical field of “automatic transmissions.” Hence, their industrial fields of application are the same.

(Note) The examples presented are hypothetical examples designed to facilitate understanding. Assumption is made that the inventions presented in the examples are not identical to one another. The same applies hereafter.

(2) When technical fields overlap

When the technical fields of the specified and related inventions are related to each other as generic and specific concepts, and hence overlap one another, their industrial fields of application are considered to be the same.

(Example 2)

Specified invention:

Magnetic recording medium coated with a double layer of magnetic substances X and Y.

Related invention:

Floppy disc comprising a magnetic disc coated with a double layer of magnetic substances X

and Y, and contained in a jacket of certain construction.

The technical fields of both inventions are “magnetic recording medium” and “floppy disk,” respectively, and have the relationship of a generic and a more specific concept, thus the technical fields are overlapping with each other. Therefore, the field of industrial application of both inventions is deemed to be the same.

(3) When technical fields have direct technical relationship

The following examples are the cases where “the technical fields technically have a direct relationship to each other.” In this case, the fields of industrial application of both inventions are the same.

(Example 3)

Specified invention:

Driving means for automatic doors powered by linear motor.

Related invention:

Automatic door of certain construction provided with driving means powered by linear motor.

These inventions each belong to the technical fields of “driving means” and “automatic doom.” Since it is mentioned in the first claim that the driving means is intended for use in the field of automatic doors, the technical fields of the two inventions have direct technical interrelationship, and hence their industrial fields of application are considered to be the same.

(Note) The technical fields of two inventions may be found to have direct technical interrelationship, by describing the inventions as in the present example, though application to automatic doors of the driving means of the specified invention may not immediately be considered as being appropriate, supposing there had been no mention of application to automatic doors of the driving means of the specified invention.

(Example 4)

Specified invention:

Fiber A (incombustible fiber) composed of certain substances.

Related invention:

Nonflammable curtain made of fiber A composed of certain substances.

The two inventions each belong to the technical fields of “fiber A” and “nonflammable curtains,” wherein the application of technology related to fiber A to the field of nonflammable curtains is considered quite appropriate. The technical fields for the two inventions therefore have direct technical interrelationship, and their industrial fields of application are considered to be the same.

(Example 5)

Specified invention:

Bolt provided with male thread of certain configuration.

Related invention:

Nut provided with female thread of certain configuration.

The two inventions each belong to the technical fields of “bolts” and “nuts,” whereas bolts and nuts are commonly used in combination. The technical fields of the two inventions therefore have direct technical interrelationship, and hence their industrial fields of application are considered to be the same.

1.1.2 Same Problems to be Solved by Inventions

By “problems to be solved by the invention” is meant problems having been unsolved prior to application which the invention is intended to solve. The problem to be solved therefore must be objectively grasped from the description in the entire specification in relation to prior arts.

In application of Ministerial Ordinance under Section 36(4), on the other hand, the “problem to be solved” is deemed to be those by the claimed invention regardless of whether the problem had been unsolved or not by the time of filing the application, and this constitutes a difference between “problem to be solved” under Section 37(i) and that of Ministerial Ordinance mentioned above. Furthermore, in application of above-mentioned Ministerial Ordinance, if it is recognized that the problem to be solved was not envisaged as in case of an invention developed based on a new idea completely different from the prior art or based on the discovery resulted from try and error, the description of the problem to be solved is not mandatory. In this case, however, unless the unsolved technical problem to be solved by the invention as of the filing can be conceived based on the entire description of the specification and drawings taking into consideration the common general knowledge as of the filing, it is deemed that there is no relationship under Section 37(i) due to the lack of a problem to be solved.

“Same problems to be solved by the inventions” refers to problems to be solved that are common to the specified and related inventions. Cases where one or more of the problems to be solved by the inventions are identical, or where they overlap, fall under this condition.

(Example 6)
Specified invention:
Electroconductive ceramic composed of silicone nitride and titanium carbide.
Related invention:
Electroconductive ceramic composed of silicone nitride and titanium nitride.

The common unresolved problem prior to application of the two inventions is to provide electroconductivity to ceramics comprising silicone carbide as the main ingredient, in order to enable electrodischarge machining.

(Example 7)
Specified invention:
Electroconductive ceramic composed of silicone nitride and titanium carbide.
Related invention:
Electroconductive ceramic composed of silicone nitride and titanium nitride with ceramic fibers further added.

The problem to be solved by the specified invention is to enable electrodischarge machining, while the problem to be solved by the related invention is to enable electrodischarge machining while reinforcing the ceramic. The problems that the inventions are to solve therefore overlap, in enabling electrodischarge machining, and are common to both inventions.

1.1.3 Examples

(Example 8)
Specified invention:
Electroconductive ceramic composed of silicone nitride and titanium carbide.
Related invention:

Electroconductive ceramic composed of silicone nitride and titanium nitride.

Both inventions belong to the technical field of electroconductive ceramics, and hence share the same industrial field of application. The problems to be solved by the inventions are also the same, as explained in 1.1.2 (Example 6). The two inventions therefore satisfy the conditions prescribed under Patent Law section 37(i).

(Example 9)
Specified invention:
Transmitter provided with time axis expander for video signals.
Related invention:
Receiver provided with time axis compressor for video signals received.
Related invention:
Transmission equipments for video signals comprising a transmitter provided with time axis expander for video signals and a receiver provided with time axis compressor for video signals received.

The inventions of this example constitute so-called subcombinations and combination.“ Subcombinations” refer to inventions of equipments or subprocesses, which when combined, make up inventions of combined equipments comprising combinations of two or more equipments, or combined processes comprising combinations of two or more subprocesses (hereafter referred to as “combinations”).

In this example, the specified invention relates to the technical field of transmitters for video signals, while the related inventions each relate to technical fields of receivers for video signals and transmission equipments for video signals. It is considered that combination of technology in the field of transmitters for video signals with technology in the field of receivers for video signals, or application of said technology to the field of transmission equipments for video signals, is quite appropriate, and that the industrial fields of application for these inventions are therefore the same. Meanwhile, the problem to be solved by these inventions is common, which lies in enabling transmission of video signals through a narrow frequency band. The three inventions therefore satisfy the conditions prescribed under Patent Law section 37(i). According to the concept described above, the requirement of Patent Law section 37(i) would still be met even in the absence of the combination claim.

1.2 Relationship under Section 37(ii)

Patent Law section 37(ii) provides for unity of application between specified and related inventions for which the industrial fields of application and the substantial parts of the matters defining the inventions are both the same. Specified and related inventions falling under this relationship must be expressed in the same category, i.e. “product and product” or “process and process.”

1.2.1 Same Industrial Field of Application

The determination for identity of industrial fields of application is similar to that described in “the relationship under Section 37(i) (refer to 1.1.1).”

1.2.2 Same Substantial Parts of Matters defining Inventions

The substantial parts of the matters defining the inventions in claims refer to new matter corresponding to the problems to be solved by the invention. “Same substantial parts of the matters defining the inventions in the claims” refers to cases wherein the specified

inventions and related inventions share common new matter corresponding to the problems they are to solve. The identity of substantial parts here holds not only in cases where the substantial part of the matter defining the specified invention serves as the substantial part of the matters defining the related invention, but also in cases where the related invention has, as its substantial part, the entire part thereof or has, as its entire part, the substantial part thereof.

In applying Ministerial Ordinance under Section 36(iv), as in an invention developed based on a new idea completely different from the prior art or an invention developed from discoveries resulted from the trail and error, where it is recognized that the problem to be solved is not envisaged, description of the problem must not be mandatory. In this case, when the matters defining the inventions in the claims are new, the above-mentioned matters shall be deemed to be the substantial part.

1.2.3 Intermediate and Final Product

In order that an invention related to an intermediate and an invention related to a final product meet the relationship under Section 37(ii), the following requirements (a) and (b) must be satisfied.

(a) An intermediate and a final product have the same substantial structural element.

(i) The new fundamental form in chemical structure of the intermediate is common to that of the final product; or

(ii) The chemical structures of both products are technically closely related to each other.

(b) The intermediate and the final product are technically related to each other, in other words, the final product is manufactured directly from the intermediate, or manufactured through a small number of the other new intermediates including the same substantial structural element.

When either the requirement of (a)(i) or (a)(ii) is met, the requirement of the sameness of the substantial part of the matters defining the inventions in claims under Section 37(ii) is satisfied with. When the requirement of (b) is met, the requirement of the sameness of the field of industrial application is satisfied with.

Even when the structure is unclear, the intermediate and the final product may meet the relationship under Section 37(ii). For example, the intermediate with clear structure and the final product with unclear structure, or the intermediate with unclear structure and the final product with unclear structure may meet the relationship under Section 37(ii).

In this case, in order to meet the relationship under Section 37(ii), there must be sufficient evidence showing that the structures of the intermediate and the final product are technically closely related to each other, for example, to such a degree that the intermediate includes the same substantial component as that of the final product, or the intermediate incorporates the substantial component into the final product.

In cases where the individual intermediates used in different processes to manufacture one final product include the same substantial component, the inventions related to the final product and the individual intermediates can be included in one application since both the field of industrial application and the substantial part of the matters defining the inventions in claims are the same.

In cases where the intermediate and the final product are defined in claims so as to comprise a compound group, the respective intermediate compounds must correspond to one of the final products defined in the claims. However, since some of the final products may not have a corresponding intermediate compound, the two groups do not necessarily

correspond to each other.

The showing that the intermediate has the other effects or exhibits other activity in addition to being used to manufacture the final product does not affect the judgment on Section 37(ii).

1.2.4 Examples

(Example 1)

Specified invention:

Polymeric compound A (transparent substance with improved oxygen barrier characteristics).

Related invention:

Food packaging container composed of polymeric compound A.

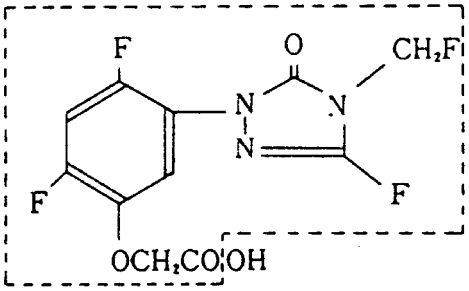
The specified invention relates to the field of transparent substance with oxygen barrier characteristics, while the related invention relates to the field of food packaging containers. Application of technology in the field of transparent substances with oxygen barrier characteristics to the field of food packaging containers is found to be quite appropriate, and hence the industrial fields of application for these two inventions are the same. Meanwhile, the related invention has, as the substantial pat of its matters defining the invention, polymeric compound A which is also the novel matters of the specified invention, and the substantial pats of the two inventions are therefore the same.

In conclusion the two inventions satisfy the conditions prescribed under Patent Law section 37(ii).

(Example 2)

Specified invention:

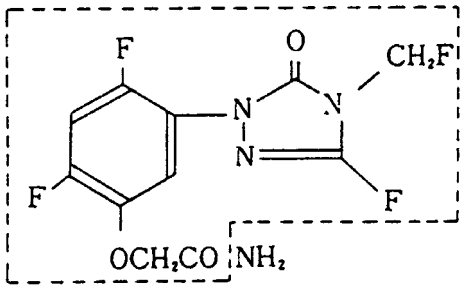
Compound (herbicidal) identified by the following general formula:



Fundamental form (X)

Related invention:

Compound (herbicidal) identified by the following general formula:



Fundamental form (X)

The two inventions relate to chemical substances. As an invention of chemical substance is considered to belong to the field of “substance of specific utility,” the industrial fields of application would be the same if the two substances have common utility.

The constitution of a chemical substance is considered to be the chemical substance

itself, and its matters defining the invention are generally represented by the chemical structure of the substance. Therefore, the substantial parts of the matters defining the two inventions of chemical substances would be the same, if the novel basic structure in the chemical structures of the chemical substances is in common. Also, for inventions of chemical substances whose novel basic structures are not considered the same, the substantial part of the matters defining the invention would still be deemed the same if the chemical structures of the two substances are considered to be technically closely related with each other (e.g. chain and ring compounds closed by method of ring closure commonly used in synthesizing ring compounds).

In the present example, the industrial fields of application are the same, since the utility of chemical substances of the two inventions is in common in that they both possess herbicidal property.

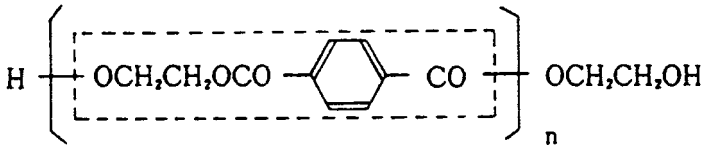
Also, the two substances have the same substantial parts of indispensable constituent features, since they share a common novel basic structure (X).

The two inventions therefore satisfy the conditions prescribed under Patent Law section 37(ii).

(Example 3)

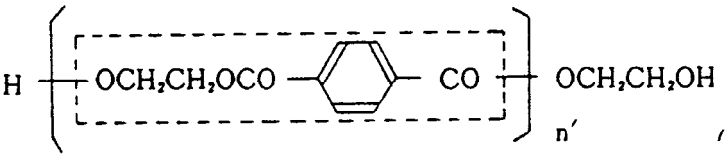
Specified invention:

Polymeric compound A identified by the following general formula wherein unit (X) is repeated: (useful as fiber material)



Related invention:

Compound B identified by the following general formula wherein unit (X) is repeated: (useful as intermediate for polymer compound A)



(initial condensation product)

The two inventions relate to so-called intermediate and final chemical product. An intermediate is a substance which is useful as raw material for the final product, and belongs to the technical field of "substance for producing another substance having specific utility." The substantial part of the matters defining the intermediate is grasped as mentioned in example 2, since an invention of intermediate is also an invention of chemical substance.

In the present example, application of technology in the field of substance B to the field of substance A is considered to be quite appropriate, since the principal use for substance B is found in being raw material for substance A. The industrial fields of application are therefore considered the same.

Meanwhile, the matters defining the two substances also are the same, as they share a common novel basic structure (repeating unit (x)).

The two inventions therefore satisfy the conditions prescribed under Patent Law section 37(ii).

1.3 Relationship under Section 37(iii)

Patent Law section 37(iii) provides for unity of application between the specified invention of a “product” and related inventions of “processes for manufacturing said product, processes for using said product, processes for handling said product, machines, instruments, equipments or other means for producing said product, products solely utilizing specific properties of said product, or products for handling said product.”

1.3.1 Processes for Manufacturing the Product, and Machines, Instruments, Equipments or Other Things for Manufacturing the Product

The processes or means pertaining to related inventions are those which, on their own merits, cause the raw material or work to be transformed into a product pertaining to the specified invention.

“Other things” of “machines, instruments, equipments or other things” are not limited to “equipments and the like,” and include all of other things that act on other materials etc. such as a catalyst or microorganism to change them into the given product.

Furthermore, unity of application shall be recognized if the “processes for manufacturing...” or “machines, instruments, equipments or other things for manufacturing...” are suited to producing the product of the specified invention, even if the same processes or means could be used in producing products other than that of specified invention.

(Example 1)
Specified invention:
Substance A.
Related invention:
Catalyst X for producing substance A.

Although catalyst X of the related invention does not fall under “equipments and the like,” it does fall under “other thing.”

(Example 2)
Specified invention:
Foundation pile provided with a bulbous enlargement at its base.
Related invention:
Process for the formation of bulbous enlargement wherein a cavity is formed in the ground using explosives, into which cavity concrete is poured.

The related invention of a process for forming a bulbous enlargement is suited to producing the foundation pile of the specified invention.

(Example 3)
Specified invention:
Clutch of specific construction
Related invention:
Process of manufacturing friction clutch of specific construction

The process of manufacturing the friction clutch of the related invention is suitable for manufacturing the clutch of the specified invention.

1.3.2 Process of using the Product and Product for Exclusively Using the Specific Characteristic of the Product

“Processes of using the product” refers to processes utilizing the characteristics or

functions of the product, while “products for exclusively using the specific characteristic of the product” refers to products for exclusively using the attribute of a certain product.

The invention of a process of using a “product” to manufacture “another product,” in cases where it is extremely appropriate that the “product” is used for manufacturing “another product” in view of the characteristic and function of the “product”, can be included in an invention of a process for using the characteristic and function of the “product”.

(Example 4)
Specified Invention:
Substance A.
Related invention:
Process for killing insects using substance A.

(Example 5)
Specified Invention:
Substance A.
Related invention:
Insecticide composed of substance A. Specified invention: Substance A

(Example 6)
Specified invention:
Compound A (useful as the intermediate of compound B)
Related invention:
Process of manufacturing compound B by reacting compound A with another compound
Related invention:
Process of manufacturing compound A

The relation between the specified invention and the first related invention is the so-called process of manufacturing an intermediate and a final product. Compound A is mainly used for the material of compound B of the first related invention. Manufacture of compound B by reacting compound A of the specified invention with another compound is extremely appropriate in view of the characteristic and function of compound A. The process of the first related invention is the process of using the characteristic and function of compound A of the specified invention. Thus, both inventions correspond to a product and a process for using the product. The second related invention corresponds to a process of manufacturing compound A of the specified invention. Three inventions in this example meet the requirements for unity of application.

(Example 7)
Specified invention:
A recombinant microorganism including DNA X
Related invention:
DNA X
Related invention:
Process of manufacturing polypeptide A by culturing recombinant microorganism including DNA X

The first related invention bears the relationship under Section 37(i) and (ii) with respect to the specified invention. Use of the recombinant microorganism of the specified invention for manufacturing polypeptide A is extremely appropriate in view of polypeptide A producing function of the recombinant microorganism. The second related invention is a process of using the characteristic and function of the recombinant microorganism of the

specified invention. Thus, both inventions correspond to a product and process of using the product. Three inventions, of this example, meet the requirements for unity of application.

(Example 8)
Specified invention:
Fuel burner A provided with a fuel inlet in the direction tangent to a mixing chamber
Related invention:
Process of manufacturing carbon black including a step for allowing a fuel to flow in the direction tangent to a mixing chamber of fuel burner A
Related invention:
Process of manufacturing fuel burner A including a step for forming a fuel inlet in the direction tangent to a mixing chamber

The fuel burner A of the specified invention is suitable for efficiently manufacturing carbon black. It is extremely appropriate that the fuel burner A is used for manufacturing carbon black. The process of the first related invention is a process of using the function of the fuel burner A of the specified invention. Thus, both inventions correspond to a product and process of using the product. The second related invention corresponds to a process of manufacturing the fuel burner A of the specified invention. Three inventions in this example meet the requirements for unity of application.

1.3.3 Handling Process for the Product, and Product for Handling the Product

"Handling a product" refers to the maintenance and/or extraction of the function of the product, by externally acting on the product, in principle without causing change to the essence of the product. Transportation and storage of the product, for example, fall under this category.

Unity of application shall be recognized if the "handling process for the product" or "product for handling the product" of the related invention is suited to handling the product of the specified invention, even if the same process or product could also be applied to handling products other than the product of specified invention.

(Example 9)
Specified invention:
Prefabricated house of certain construction.
Related invention:
Process for storing and transporting prefabricated houses of certain construction.

The storage and transportation process of the related invention maintains and extracts the function of the prefabricated house of the specified invention. The two inventions therefore relate to a product and a process for handling said product.

(Example 10)
Specified Invention:
Unstable chemical compound A.
Related invention:
Storage means for unstable chemical compound A.

The storage means of the related invention is for the maintenance of the functions of substance A of the specified invention. The two inventions therefore relate to a product and a product for handling the same.

1.4 Relationship under Section 37(iv)

Patent Law section 37(iv) provides for unity of application between a specified invention pertaining to a “process” and related inventions pertaining to “machines, instruments, equipments or other things” directly used in working of the invention of the process.”

1.4.1 Machines, Instruments, Equipments or Other Things Directly Used in the Working of Invention of Process

It is sufficient for the means of related inventions to be used directly in carrying out the process of the specified invention. In addition to machines, instruments and equipments, other things including catalysts, microorganisms, materials and matters to be processed are allowed to become related inventions. (See 1.3.1)

Unity of application shall be recognized even if the product of the related inventions could also be applied to carrying out processes other than the process of the specified invention, if they are suited to carrying out the process of the specified invention.

(Example 1)
Specified invention:
Process for producing antibiotic A by cultivating microorganism X.
Related invention:
Microorganism X.

Although microorganism X of the related invention does not fall under “equipments and the like” for carrying out the process of the specified invention, it does fall under “other things.”

(Example 2)
Specified invention:
Process for producing concrete products wherein ice granules are mixed into the cement together with aggregate, and then poured into molds.
Related invention:
Equipments of certain construction provided with an ice crushing unit and a mixing unit for mixing the crushed ice with cement and aggregate.

The equipments of the related invention comprising an ice crushing unit and a mixing unit is suited to carrying out the process of the specified invention for producing concrete products.

(Example 3)
Specified invention:
Method for measuring water depth comprising certain procedures.
Related Invention:
Distance measuring equipment of certain construction.

The equipment of the related invention is suited to measuring water depth, though it could be applied to making other forms of measurements also.

(Example 4)
Specified invention:
Process of preparing final product Z by oxidizing intermediate A
Related invention:
Process of preparing final product Z by reacting compound X and compound Y to prepare intermediate A and oxidizing the intermediate A
Related invention:
Intermediate A

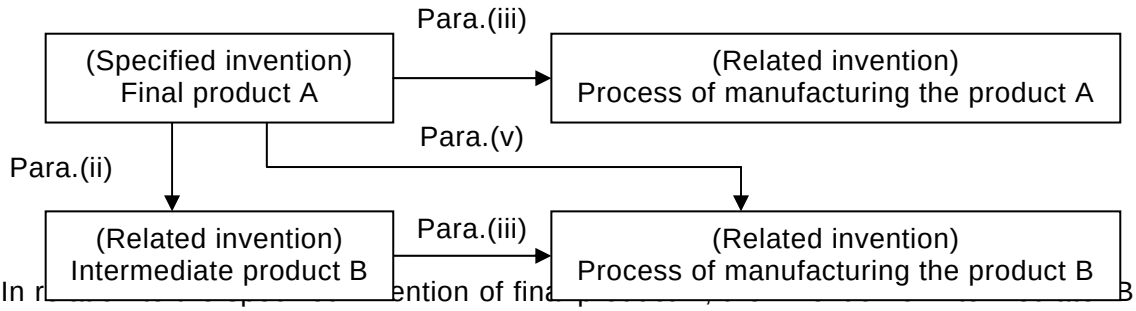
The first related invention bears the relationships under Section 37(i) and (ii) with respect to the specified invention. The intermediate of the second related invention does not correspond to “apparatuses” directly used in working of the preparing method of the specified invention, but corresponds to “other things.” Three inventions of this example meet the requirements for unity of application.

1.5 Relationship under Section 37(v)

Section 37(v) of Patent Law is a provision left to Cabinet Order. Specifically, it recognizes unity of application for related inventions satisfying the provisions of Patent Law section 37(iii) or (iv) in relation to other related inventions, claimed in the Scope of Claims, which in turn satisfy the provisions of Patent Law section 37(i) or (ii) in relation to a specified invention. (Section 2 of Enforcement Orders for Patent Law)

In the above-mentioned case, if neither invention having one of the relationships under Section 37(i) or (ii) with respect to the specified invention is not stated in claims, the application does not comply with the requirement under Section 37.

(Example 1)



In r ention of fina B falls under Patent Law section 37(ii), whereas the invention of process for producing intermediate B falls under Patent Law section 37(iii) in relation to the invention of intermediate B. The process for producing intermediate B therefore satisfies the provision of Patent Law section 37(v).

1.5.1 Product, Improved Product, and Process of Manufacturing the Improved Product

When the invention of improvement satisfies the provision of Patent Law section 37(i) or (ii) in relation to the specified invention of product, unity of application shall be recognized also for the invention of process for manufacturing said improved product, since the improved product and the process for manufacturing said improved product satisfy the provision of Patent Law 37(iii) (product and process for producing said product).

(Example 2)
Specified invention:
Spectacle frame made of titanium alloy.
Related invention:
Spectacle frame made of nitride coated titanium alloy.
Related invention:
Process for producing spectacle frames wherein titanium alloy is formed in one piece.
Related invention:
Process for producing spectacle frames wherein titanium alloy is formed in one piece, and then deposited with nitride by vacuum evaporation.

In relation to the specified invention, the first and second related inventions satisfy the provisions of Patent Law section 37(ii) and (iii) respectively. The third related invention relates to a process for manufacturing the product of the first related invention, and hence satisfies the provision of Patent Law section 37(v) in relation to the specified invention.

2. Examination on Requirements for Unity of Application

2.1 Basic Attitude

Failure to meet the requirements for unity of application (Patent Law section 37) constitutes a reason for refusal (Patent Law section 49), but does not constitute reason for opposition (Patent Law section 55) or reason for invalidation (Patent Law section 123). This is because Patent Law section 37 is a provision established for the convenience of applicants, third parties and the Patent Office, and unlike other reasons for refusal, does not directly inflict serious damage to third parties if overlooked, as it concerns minor procedural deficiency in that the application should have been divided into two or more, rather than substantive faults in the invention.

Accordingly, considering the purport of Patent Law section 37, it would be improper to make unnecessarily strict examination on the requirements for unity of application.

2.2 Notice of Reason for Refusal

Reasons for refusal concerning unity of application would occur when two or more separate inventions do not fall under the provisions of any subparagraph under Patent Law section 37. The reasons by which the inventions do not meet the requirements shall be indicated as concretely as possible.

In such instances, suggestions should be made on the division of application if it is expected to facilitate response by the applicant, and thereby contribute to expediting accurate examination. It should be noted however, that such suggestions are not legally binding.

When a divisional application is made on claims violating requirements for unity of application as a result of notice of reasons for refusal concerning unity of application, disallowing the divisional application on grounds of identity of inventions between the original and divisional applications (against section 39) would be contrary to the purport of Patent Law section 37. Therefore, notice of reasons for refusal that may lead to such results shall not be made.

2.3 Identification of the Specified Invention

The claim corresponding to the specified invention shall be chosen to maximize the benefit to applicants, or in other words so as to recognize unity of application as broadly as possible.

When there are two or more claims in the Scope of Claims, the invention described in one of the claims would be provisionally selected as the specified invention, in relation to which examination on the requirements for unity of application is to be made. If there is found as a result of the examination any claim which does not meet the requirements of the subparagraphs under Patent Law section 37, one of the other claims shall be selected one by one as the new provisional specified invention in relation to which examination on the requirements of unity of application is to be made.

For example, it is considered more efficient to perform examination on requirements under Patent Law section 37 by first selecting the invention described in a “product” claim as

the specified invention if there is one among two or more claims, and by first selecting the invention described in a “process” claim as the specified invention if there is no “product” claim.

Normally, for inventions satisfying the requirements prescribed in Patent Law section 37 (i) or (ii), no difference should occur in the outcome of examination on requirements under Patent Law 37 whichever claim is selected as the specified invention.

2.4 Examination on Related Inventions

When the requirements for unity of application are met among inventions described in independent form, lack of unity for inventions described in dependent form is expected to be rare. Therefore, it would normally suffice to examine the relationships between specified and related inventions only for claims written in independent form.

However, attention may be necessary in cases such as claims referring to other claims expressed in different categories, as these may affect the outcome of examination on the requirements for unity of application.

2.5 Relationship between the Provisions of Section 37 and Section 36(5), and Manner of Examination

Patent Law section 37 provides that two or more separate inventions in particular relationships may be filed in a single application, whereas Patent Law section 36(5) provides that identical inventions may be described in separate claims. This implies that a claimed invention would be in violation of the requirements of Patent Law section 37 only if it is neither identical to the specified invention or another related invention, nor in compliance with the provisions of any subparagraph under Patent Law section 37.

Therefore, in examination practice related to unity of application, examination as to whether each claim satisfies the requirements under Patent Law section 37 shall be made by first assuming that every claimed invention is different from one another, and then determining whether the claimed inventions that do not meet the requirements are identical to other claimed inventions.

If, as a result of such examination, a claimed invention is found to be identical to another claimed invention, its description in a single claim would be allowed under the provisions of Patent Law section 36(5). Notice of reasons for refusal on grounds of violation of the provisions under Patent Law section 37 would therefore be made only for those which are found to be different from any other claimed invention.

3. Examples

Matters that require attention for the use of examples

(1) These examples are prepared for demonstrating the Unity of Application based on the provisions of the Patent Law Section 37. It should be kept in mind that the details of statement are not complete, because descriptions of clams in each example include some simplifications in order to simplify the explanatory process of the Unity of Application in multiple applications.
(2) Each example shows requirements for the Unity of Application alone, under the assumption that an invention described in each claim constitutes a different invention and also includes novelty and inventive step. In addition, describing several claims of an invention, which can be considered the same invention, are allowed according to the provisions of Patent Law Section 36(5).
(3) Some examples satisfy multiple relationships indicated in each item of Patent Law Section 37 at the same time. In such a case, one of the principal relationships is explained.

3.1 The requirements for Unity of Application

3.1.1 The meaning of the term "Unity of Application"

The term "Unity of Application" indicates the range of inventions and devices, which can be filed in one application. This is a term synonymous with "Unity of Invention" in western countries.

3.1.2 The purport of the requirements for Unity of Application

The provisions of Unity of Application (Patent Law Section 37 and Utility Model Law Section 6) are meant to reduce the demand on applicants, a third party and the Patent Office, for the sake of convenience, by allowing the inventions and devices that are technically close to each other to be filed in one application. In another word, the requirements for Unity of Application provide the cases that two and more inventions and devices, which might be filed in different applications, can be filed in one application.

3.1.3 A general rule of the requirements for Unity of Application

Unity of Application satisfies the requirements, when inventions or device described in each claim included in one application for patent or one application for utility model registration meet any of the relationships provided by each item of Patent Law Section 37 or Utility Model Law Section 6 for the specified invention and device (the invention and device which satisfy such relationship are called related invention and device). The specified invention and device described here indicate the invention and device mentioned in a specified claim in an application for patent or an application for utility model registration including two and more claims.

3.2 Relationship under Patent Law Section 37(i)(ii)

The specified invention and related inventions should belong to the same category “a product and a product,” or “ a process and a process” to meet the provisions of Patent Law Section 37(i)(ii).

Judgement is made as to whether two or more inventions satisfy the relationship of (i) or (ii) of this section according to the industrial field of application and the problem to be solved or the substantial parts of matters in the claim. The requirement, the same industrial field of application, is common to Patent Law Section 37(i)(ii). In addition, the same industrial field of application indicates the case that the specified invention and related invention are in a common industrial field of application. The types are as follows:

(1) Where the specified invention and related invention have same technical field;
(2) Where the technical fields of the specified invention and related invention overlaps; and
(3) Where the technical fields of the specified invention and related invention are technically and directly related.

3.2.1 Relationship under Patent Law Section 37(i)

To judge as to whether or not the relationship prescribed under Patent Law Section 37(i) is satisfied, it is judged whether the specified invention and related invention have the same industrial field of application and deals with the same problem to be solved. The problems to be solved are technical problems to be solved that have not been solved at the filing time and would be solved by the invention.

The same problem to be solved denotes that the specified invention and related invention have a common problem to be solved, and it is considered whether one or more problems to

be solved in both inventions are the same or overlapped.

The following examples exemplify Patent Law Section 37(i) and may include the examples that meet the relationship prescribed under Item (ii) of the section at the same time; however, the explanation about same problems to be solved is given here.

[Example 1]

[Title of the Invention]

Flipper and shoe that is fitted to the flipper

[Claims]

1. A flipper comprising a flexible fin area (12) and a practically flat mounting area for shoe, and having a hole which an attaching screw for fitting the flipper to the shoe can go through in the area for mounting. (See Figure 1 and 2)
2. A shoe, which is fitted to the flipper and has a hole that an attaching screw for mounting the flipper can go through in the bottom. (See Figure 1 and 2)

[Excerpt from Detailed Description of the Inventions and Drawings]

This is the invention concerning a flipper and a shoe that is mounted to the flipper for underwater usage.

In this invention, the section of a shoe is made separately from the flipper for fitting any size of the foot, and the shoe can be attached to and removed from the flipper.

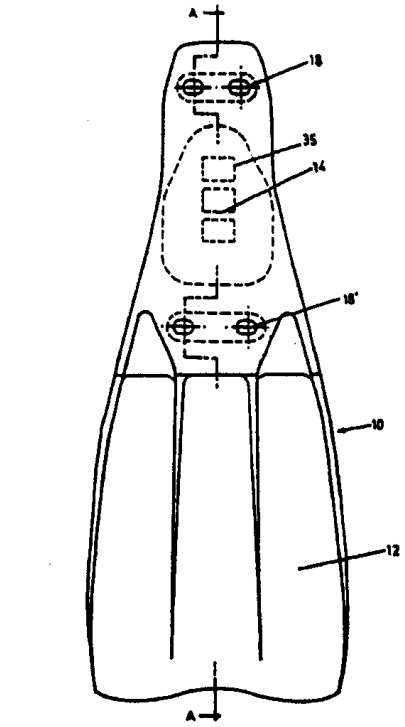


Figure 1

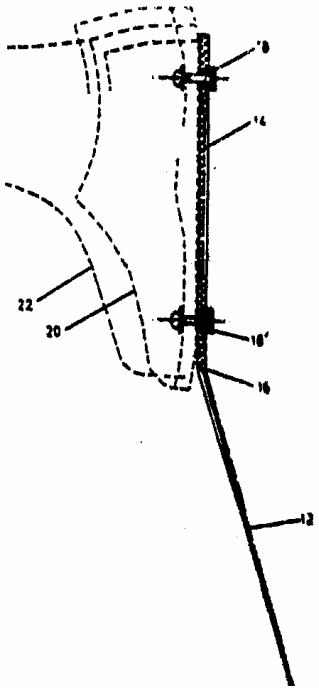


Figure 2

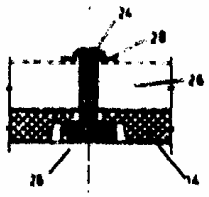


Figure 3

[Explanation]

The technical fields of the specified invention (claim 1) and related invention (claim 2) are flipper and shoe, respectively. However, the technical field of both inventions has direct relationship and the same industrial field of application since the shoe of related invention is used while fitted to the flipper. In addition, both inventions have the same problem to be solved: a flipper can be used for any foot.

[Concerned Section]

Patent Law Section 37(i)

[Example 2]

[Title of the Invention]

Multi shaft cooling system

[Claims]

1. Multi shaft cooling system comprising first and second main shafts with hollow chambers (1, 2) and the first and second radiators (81, 8) for diffusing the heat generated in this first and second main shafts (1, 2), characterized in that the first and second main shafts (1, 2) and said first and second radiators (81, 8) are serialized each other through the steam pipe (10, 101) rendering the steam of working fluid to be vaporized in the chamber of each of said second and first radiators (8, 81) and a fluid pipe (12, 121). rendering the working fluid to be condensed in the first and second radiators (81, 8) to each chamber of the first and second main shafts. (See Figure 1)
2. Multi shaft cooling system, which has following features; It is equipped with first and second main shafts with chambers (1, 11) and a single radiator (8) for diffusing the heat generated in this first and second main shafts (1, 11). The first and second main shafts (1, 11) mentioned above are connected to a radiator (8) mentioned above through a steam pipe (10,101) rendering the steam of working fluid to be vaporized in the chamber to the radiator (8,) and a fluid pipe (12, 121) rendering the working fluid to be condensed in the radiator (8) of the chamber. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This is an invention concerning a multi shaft cooling system for cooling bearing part of more than one main shaft in machine tooling. The type in which a device for radiation is equipped to each main shaft has been used as this kind of machine tool. However, it has a problem to be solved that the accuracy is sacrificed by mutual positioning fluctuation of main shaft because of different thermal deformation of each main shaft.

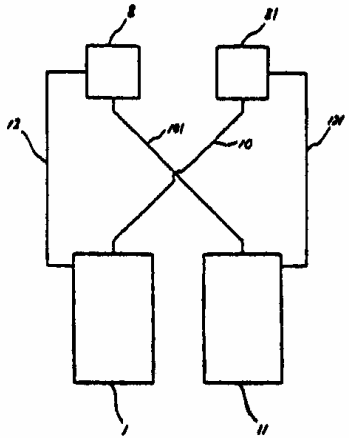


Figure 1

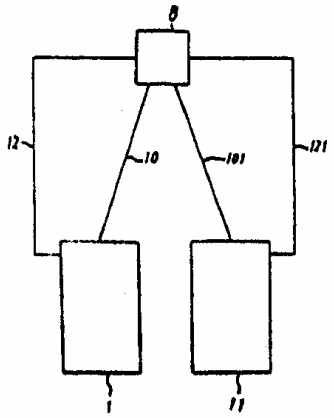


Figure 2

[Explanation]

Each technical field of the specified invention (claim1) and related invention (claim 2) is a multi shaft cooling system in a machine tool; therefore, the industrial fields of application are the same. In addition, both inventions have same problems to be solved: to control mutual positioning fluctuation of main shaft to a minimum and to improve processing accuracy of machine tool by equally cooling the bearings.

[Concerned Section]

Patent Law Section 37(i)

[Example 3]

[Title of the Invention]

Application device for corrugated board web

[Claims]

1. An application device for applying corrugated board web (1, 2) to a fixed back face (5) as a heating unit, comprising more than one application roller (7) and guides, characterized in that corrugated board web moves on the fixed back face (5) by leading, said application roller (7) applies corrugated board web (1, 2) at the working position of said fixed back face (5), said guides have endless chain (8) to which said application roller is supported and a sprocket to drive said endless chain (8) in an application device of corrugated board web to move the application roller (7) between a working position and an idle position, and the number of rollers in the working position can be changed corresponding to the desired face for application (B) by driving the endless chain (8) since said application roller is continuously positioned at a fixed length of the endless chain. (See Figure 1)
2. The application device for corrugated board web having said guides comprising endless chain (24) to which a forcing support member (27) that moves and supports the application roller (7) to the idle position in the upper part and supports are applied, and a sprocket (9) for driving the endless chain in the application device for corrugated board web. (See Figure 2 and 3).

[Excerpt from Detailed Description of the Invention and Drawings]

This invention is related to an application device for corrugated board web (double feathers device) for heating and adhering single faced corrugated board (2) to the liner (2) in a corrugated board manufacturing system.

The existing application device has such faults that cost of removing a roller is expensive, because, out of the rollers installed vertically, a desired number of rollers must be removed to change the adhesive strength and a large number of parts must be removed.

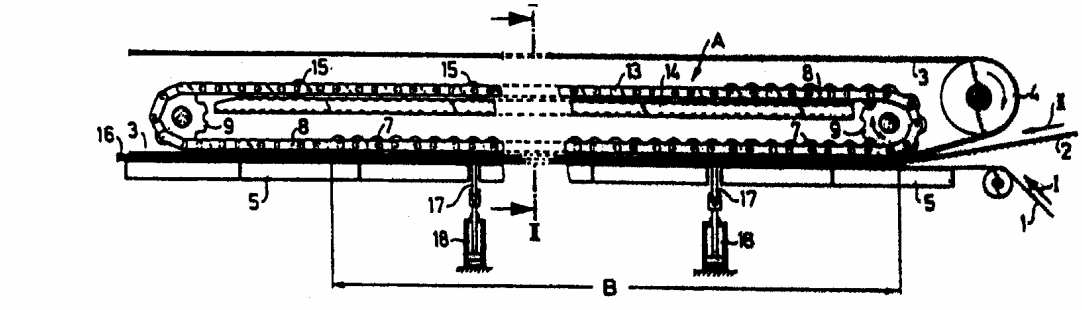


Figure 1

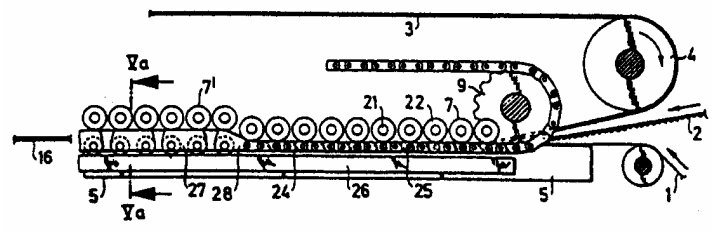


Figure 2

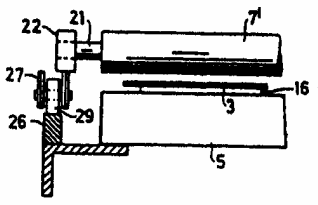


Figure 3

[Explanation]

The technical fields of the specified invention (claim1) and related invention (claim 2) are the

same; i. e., application device for web for corrugated board. Therefore, the industrial fields of application are the same.

In addition, both invention have the same problem to be solved; It makes possible that the number of application roller on working position is changed continuously for the desired face for application by a relatively simple mechanism.

[Concerned Section]

Patent Law Section 37(i)

[Example 4]

[Title of the Invention]

Thermal head driving circuit

[Claims]

1. A thermal driving circuit for the thermal head comprising:

A memory circuit (F1) for high or low memory signal outputs (1) upon clock countdown that stores and updates the dot information (DATA);

a gate (G1) which outputs chopped signals synchronizing with clock signals when the memory signal (1) is high and always outputs high signals when the memory signal (1) is low; and an AND gate (G2) which outputs the AND signal to heating element (H) of the thermal head as driving signals for heating element (H) of the thermal head by inputting output of this gate, clock signals and dot information data (DATA). (See Figure1, 2)

2. Thermal head driving circuit comprising:

A means for memory (F2) to store and update dot information data (DATA) upon clock countdown and to output high and low signals (1) for this dot information data;

A gate (G3) synchronizes with clock signals to output control signals (4) which divide the power source voltage (Q1, Q2, Z1, Z2) to a power source circuit applying pressure (a) to the heating element (H) of the thermal head when memory signals (1) for this memory measure (F2) are high; and

an AND gate (G4) to output driving signals (5) according to dot information data (DATA) to heating element of the thermal head by inputting clock signals and dot information data (DATA). (See Figure 3,4)

[Excerpt from Detailed Description of the invention and Drawings]

This invention is designed to stabilize the rise of the temperature of the thermal head in a thermal printer. The thermal printer with thermal head containing dot-heating elements has such problems to be solved that when continuous printing is done by applying fixed tension and signals at a regular interval to the dot-heating element, the next printing is done before the temperature goes down, and consequently the temperature of the head gradually rises. This situation causes unevenness in printing and finally eventually the head is damaged because the temperature goes up beyond the tolerance limit. This invention controls the operating power supply to the head by storing dot information and comparing with new information. Therefore, the invention has remarkable effects of keeping the temperature of the head face stable, resulting in stable printing density and preventing the damage to the head.

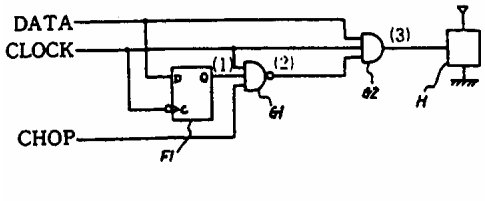


Figure 1

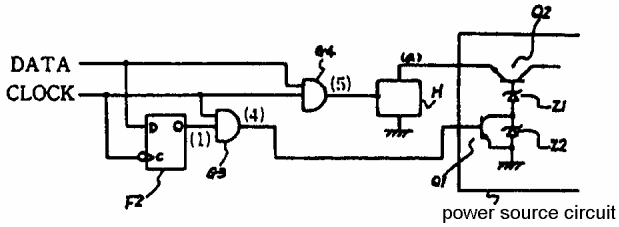


Figure 3

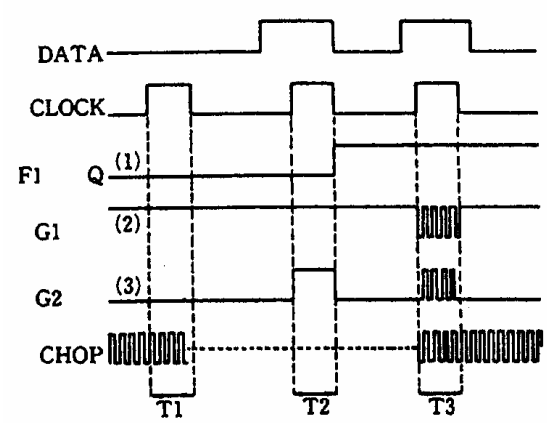


Figure 2

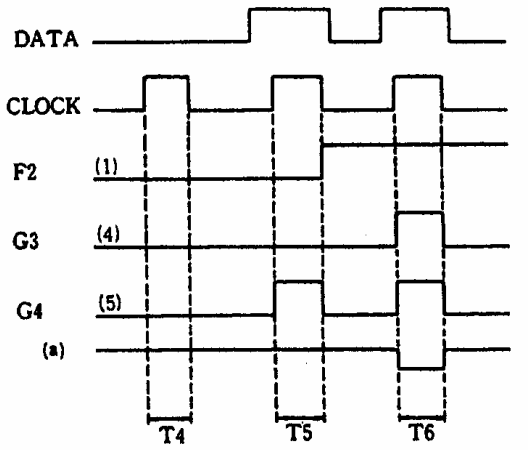


Figure 4

[Explanation]

Both technical fields of the specified invention (claim1) and related invention (claim 2) are the same thermal head driving circuit. Therefore, the industrial fields of application are the same. In addition, both inventions deal with the same problem to be solved: to keep the rise of temperature of the thermal head stable and keep the printing density stable in spite of that the temperature goes up unevenly by inputting information data applied to the thermal head at random.

[Concerned Section]

Patent Law Section 37(i)

[Example 5]

[Title of the Invention]

Transmission belt and Pulley

[Claims]

1. A belt with teeth having a concave and cylindrical stress release (23) at the connecting point, and the fringe of the stress release (23) that is 40-60% of half of entire fringe of the tooth (14) mentioned above. (See Figure 1)
2. Pulley with teeth having convex and cylindrical face on its shoulder (33), and entire fringe accounting for 40-60% of half of entire fringe of the tooth (16).

[Excerpt from Detailed Description of the invention and Drawings]

This invention relates to a belt transmission device consisting of a belt with teeth and a pulley with teeth. Shear fraction of a belt tooth with pulley tooth is prevented by making the connection of the tooth face and the bottom of tooth face of this belt tooth the specific size of cylindrical face, and making the shoulder of the tip of tooth biting this belt with tooth said cylindrical face as well. As a result, sear strength of this belt with teeth is improved. Trapezoid shaped belt tooth is known as this kind of a belt transmission device, but it has a fault of shear fracture of the belt tooth because of concentrated stress in the base of the tooth.

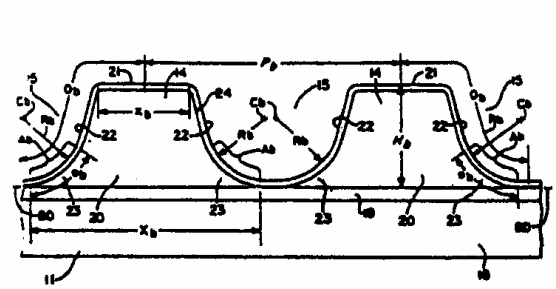


Figure 1

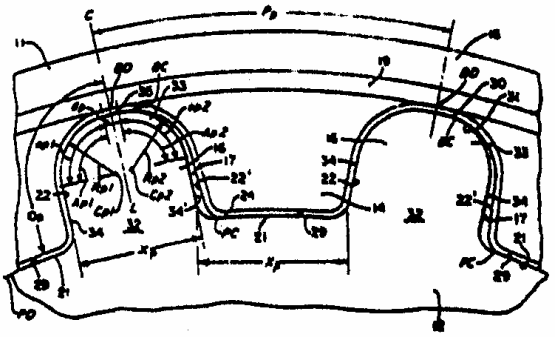


Figure 2

[Explanation]

The technical fields of the specified invention (claim1) and related invention (claim 2) are a belt with teeth and a pulley with teeth. A belt with teeth and a pulley with teeth are commonly used together as a construction element. Therefore, the technical fields of both inventions have a direct relationship and the industrial fields of application are the same. In addition, the problem to be solved is the same: to reduce the stress which is generated when the belt bites pulley in the base of tooth of the belt tooth, by specifying the shape of the bitten part of the belt tooth and pulley tooth.

[Concerned Section]

Patent Law Section 37(i)

[Example 6]

[Title of the Invention]

Gas automatic cut out gear

[Claims]

1. Gas automatic cut out gear comprising a bimetal (4) engaged with a bulb (3) and an incoming radiation plate (14) for transmitting the temperature of the burner to the bimetal, characterized in that the bulb (3) is closed by the deformation of said bimetal (4) when the temperature of the bimetal is lowered. (See Figure 1)
2. A gas automatic cut out gear having a permanent magnet (19, 21), at least two thermo-ferrites (20, 22, 23) which magnet line of this permanent magnet (19,21) goes through, a bulb (25) of which the switching position is kept by the magnetic attraction of these thermo-ferrites (20, 22, 23) and a incoming radiation plate which transmits the temperature of the burner to said thermo-ferrites (20, 22, 23), characterized in that said thermo-ferrites (20, 22, 23) have the different temperature of magnetism elimination. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention relates to a safety device in gas fittings for gaseous fuel to sense the temperature dropping by wind or boil off during burning and to automatically cut out the gas. A device using a complex electronic circuit and operated by commercial power is publicly known as this kind of a system. However it has a fear of secondary disaster such as fault current.

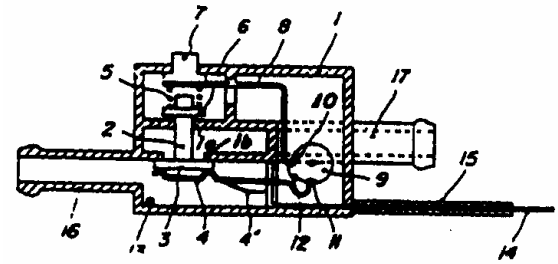


Figure 1

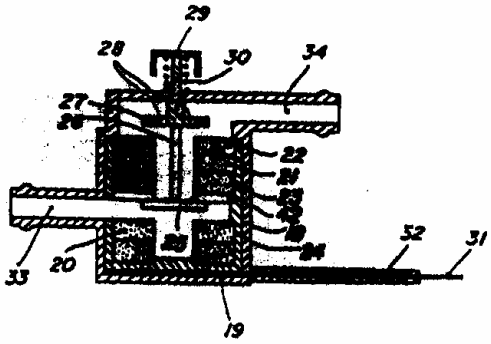


Figure 2

[Explanation]

Both technical fields of the specified invention (claim 1) and related invention (claim 2) are “gas automatic cut off device”, and the industrial fields of application are the same.

In addition, both of them try to solve the same problems to be solved: to prevent secondary damage such as fault current, excluding an electronic element.

[Concerned Section]

Patent Law Section 37(i)

[Example 7]

[Title of the Invention]

A part of male and female couplers comprising a quick releasing coupler

[Claims]

1. A part of the female coupler that composes a quick releasing coupler with a part of male coupler (12), comprising a roughly circular external cylinder (13) with a space (14) extended in axial direction for accepting a part of male coupler (12) in one of the edges, a lid to compose inside pass (16), a slidable poppet valve (39) included in the inside pass, a guiding part (41) formed next to the open space around outside of said poppet valve. (See Figure 1)
2. A part of a male coupler to compose a quick releasing coupler with a part of a female coupler which comprises: having space extending in axial direction (18) and a circular external cylinder with spherical seat (71) formed in the edge of said space, forming an inside pass in the space by fixing the cap body (20) and a cone with a head (57) next to the spherical seat (71) by fixing the cap body (20), and having a spring (72) to press a spherical valve (19) that is inserted in the cap body (20). (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

Both inventions are concerned with a female coupler and a male coupler in a quick releasing coupler. A female and male coupler only including a check valve or a quick releasing coupler combining them is publicly known as this kind of coupler. However, it has a fault of leaking fluid from the coupler because of the delay of activation in the check valve when the connection is released.

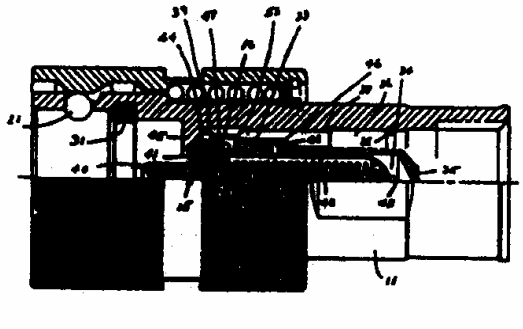


Figure 1

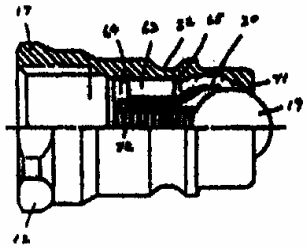


Figure 2

[Explanation]

The technical fields of the specified invention (claim 1) and related invention (claim 2) are female coupler and male coupler of quick releasing coupler. Since a female coupler and a male coupler are used together, the technical fields of both inventions are technically and directly related. The industrial fields of application are the same.

In addition, both inventions solve the same problem to be solved: to prevent fluid leaking from the coupler when the connection is released.

[Concerned Section]

Patent Law Section 37(i)

[Example 8]

[Title of the Invention]

Headlamp

1. A headlamp having a reflecting mirror (6) and a DC-lighted high-tension electric discharge lamp (3) kept horizontally at almost the focal point of said reflecting mirror (6), means of applying magnetic field (4,5) applying magnetic field in a roughly right angle to ark of the high tension electric discharge lamp (3), and a means of switching electrical current, which switches the direction of ark electrical current (27,28) of said high-tension electrical discharge lamp (3). (See Figure 1, 2)
2. A headlamp comprising a reflecting mirror (6), a DC-lighted high-tension electric discharge lamp (3) kept horizontally at almost the focus point of said reflecting mirror (6), a means of applying magnetic field (4,5) applying magnetic field in a rough right angle to ark of said high tension electric discharge lamp (3), and a means of controlling (37, 38) which variably control vector quantity of the magnetic field applied by the step of the applying magnetic field (4, 5). (See Figure 1, 3)

[Excerpt from Detailed Description of the invention and Drawings]

This invention concerns a headlamp, which can switch the main beam for regular driving to the reduced low beam for an oncoming car.

As this kind, a type using both low beam lamp and main beam lamp and switching them is used generally. Recently, using high light conversion efficiency is expected for energy saving. For this reason, using a high-tension electric discharge lamp is considered. However, using a high-tension discharge lamp for the both high and low beams in the present condition results in bulkier and heavier lamps because of the structure of the electric discharge lamp than bulbs currently in use.

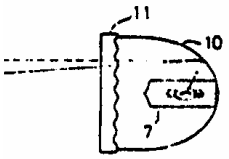


Figure 1

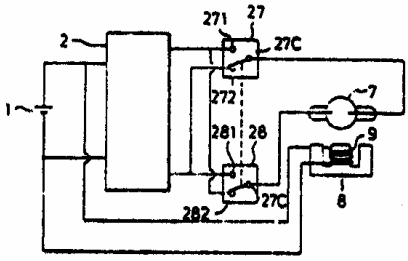


Figure 2

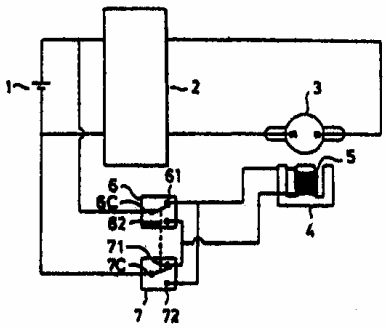


Figure 3

[Explanation]

Each technical field of the specified invention (claim1) and related invention (claim 2) is headlamp, and the industrial fields of application are the same.

In addition, they try to solve the same problems to be solved; to get low beam and main beam by bending the ark to upside and downside with just one high tension electric discharge lamp, and to make a headlight using a high tension electric discharge lamp of high light conversion efficiency smaller and lighter weigh.

[Concerned Section]

Patent Law Section 37(i)

[Example 9]

[Title of the Invention]

Measuring instrument for traverse for vehicles

[Claims]

1. A measuring instrument of traverse for vehicles to display the present position of a vehicle by calculating the travel bearing and mileage of vehicles, having an angle sensor (3) detecting the angle of steering wheel, a means of calculating the traveling bearing mentioned above according to the angle detected by the angle sensor (3) and the fixed initial value. (See Figure 1)
2. A measuring instrument of traverse for vehicles to display the present position of a vehicle by calculating according to traveling bearing and mileage of vehicles, having magnetic compass (1) detecting the traveling bearing of vehicles, a means of calculating traveling bearing (27) of vehicles according to the angle of a steering wheel detected by the angle sensor (3) and the fixed initial value, a means of calculating a position (5) which indicates the present position of a vehicle by switching the bearing detected by the magnetic compass to the traveling bearing according to the angle detected by the angle sensor when the error is more than the specified value. (See Figure 2)
3. A measuring instrument of traverse for vehicles having a means correcting the present position of a vehicle calculated according to the bearing detected by the magnetic compass to the position detected according to navigation radio, and a measuring instrument of traverse for vehicles which switches to the position calculated by the traveling bearing calculated according to the angle when the receiving level of the above navigational radio is below the specified value. (See Figure 3)

[Excerpt from Detailed Description of the invention and Drawings]

This invention related to a measuring instrument of traverse for vehicles, which indicates the present position of a vehicle by calculating according to traveling bearing and mileage. The traveling bearing of vehicles is calculated according to the angle of a steering wheel, and detecting the position according to navigational radio and detecting by magnetic compass are considered for indicating the position regardless of abnormal radio and magnetic activities.

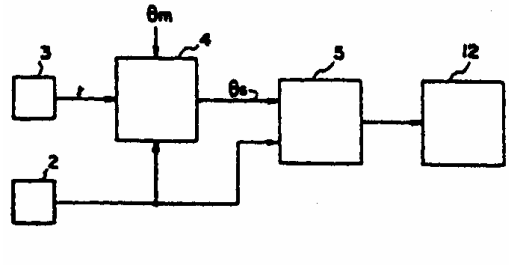


Figure 1

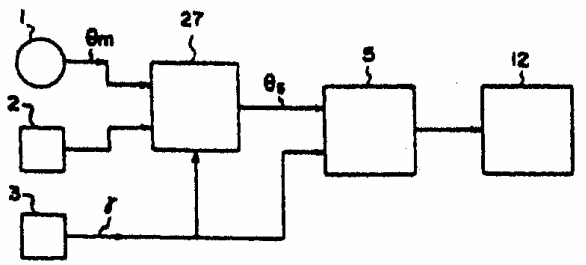


Figure 2

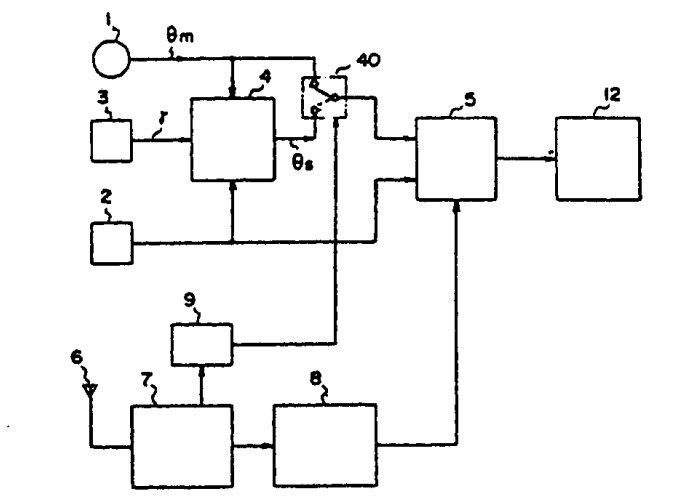


Figure 3

1 magnetic compass	2 traverse sensor
3 angle sensor	4, 5 calculator
6 receiving antenna	7 navigational receiver
8 calculator of receiving position	9 low level receiver
10, 33 switch	11 DC power
12 indicator	13, 13' vehicle
14 angle calculator	15,15' left front wheel
16, 16' right front wheel	27 travel bearing calculator
28 integrator	29, 32 timer
30 AND gate	31 comparison
34 inverter	40 switch

[Explanation]

The technical fields of the specified invention (claim1) and related invention (claim 2, 3) are measuring instrument of traverse for vehicles; therefore, the industrial fields of application are the same.

In addition, the specified invention (claim1,) and related invention (claim 2,3) are dealing with the same problem to be solved: to indicate the position in case of abnormal magnetic activities and radio reception.

[Concerned Section]

Patent Law Section 37(i)

[Example 10]

[Title of the Invention]

Dosimeter and reading device

[Claims]

1. A dosimeter comprising thermo-luminescence dust (2, 3) loaded in the base (1a, 1b) made of the material which can be heated by microwave radiation. (See Figure 1)
2. A reading device of a dosimeter comprising a reader consisting of a pair of coil (11) connected to microwave power source and a photo multiplier (12) placed by the side of each coil at right angle to the coil, and a means for arranging a dosimeter between the pair of coil (11) to detect a beam emitted by the thermo-luminescence dust with the photo multiplier (12). (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention related to a dosimeter, which uses light, emitted by the thermo-luminescence material mixed in the base as a beam by heating. In the prior art, it has been heated directly by a heater, the separation of the holder and base is needed to avoid heating the holder, which keeps the base including thermo-luminescence dust from being heated.

In this invention, it is heated by microwave instead of a heater, and the holder is not heated by microwave. As a result, it can be used without removing the base from the holder.

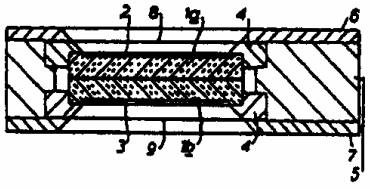


Figure 1

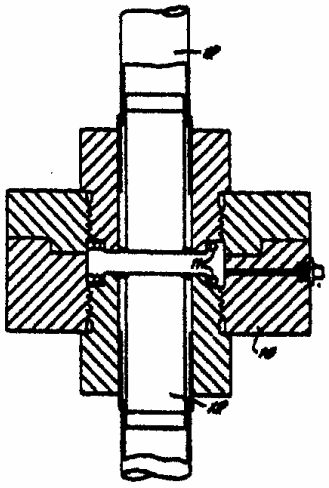


Figure 2

[Explanation]

A dosimeter of the specified invention (claim1) and a reading device of the related invention (claim 2) are used in combination, so that the technical fields of both inventions have a direct relationship. The industrial fields of application are the same.

In addition, they are dealing with the same problem to be solved: to avoid heating a holder when dosage is measured, using the technology of microwave heating.

[Concerned Section]

Patent Law Section 37(i)

[Example 11]

[Title of the Invention]

Multiplex transmission circuit and receiver circuit

[Claims]

1. A multiplex transmission circuit comprising an input register (304) storing a primary data character of start-stop system to be transmitted, an inputting process of a secondary data character (302) receiving the secondary data character such as status control signals, an output registers (305), a gate (330-332) transferring primary data characters to the output register (305) from the input register (304) when the output register is open and the input register is full, a transfer device (351) transferring a secondary character with given instruction bit to the output register (305) from the secondary data input system when the input register (304) is not full, a means to output data character in the output register to output line (110). (See Figure 1)
2. A distributing receiving circuit having input register (410) for storing the primary and secondary data characters received, an output registers (425) storing a primary data character and secondary data register (430) storing a secondary data character, and distributing data characters to an output register and secondary data register according to mark instruction bit. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

In data communication of computers, transmission of various secondary data such as supervisor, status control signals and channel confirmation signals is required. In the prior art, one of the channels is assigned specifically for transmission of secondary data when it is transmitted on time sharing multiplex.

This invention related to a multiplex transmission circuit in time sharing transmission in which control data are automatically inserted when the time slot assigned to each channel is open and setting the channel specified for the secondary data is not needed. This also concerns a distributing reception circuit, which is used for separating the secondary data from the signals transmitted by sharing time.

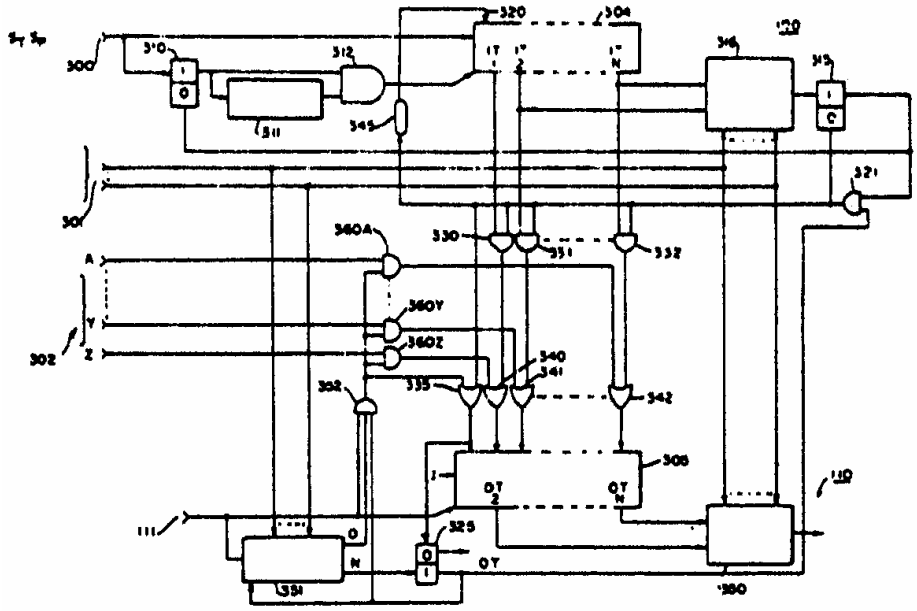


Figure 1　Multiplex transmission circuit

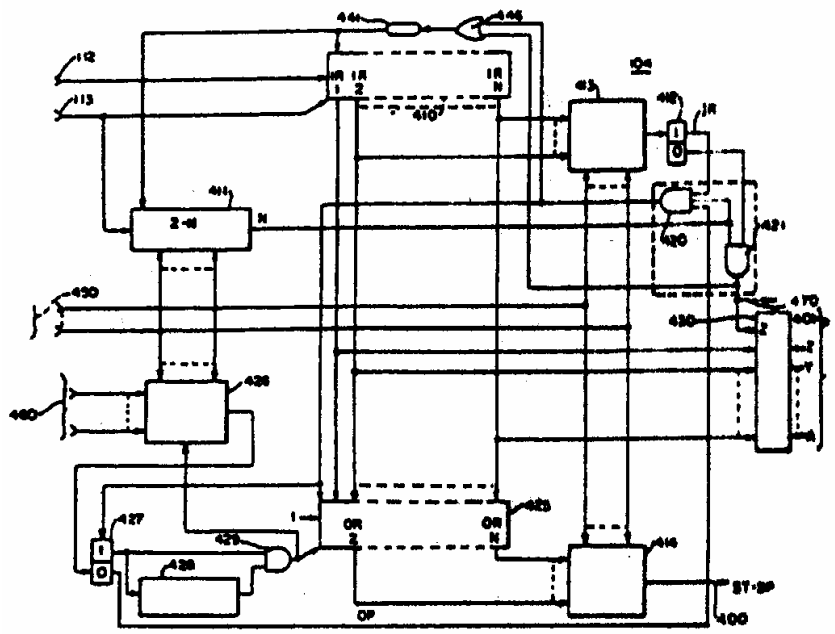


Figure 2　Distributing receiving circuit

[Explanation]

The technical field of the specified invention (claim 1) is the multiplex transmission circuit, and the technical field of related invention (claim 2) is the reception circuit. Since combining the technology of multiplex transmission circuit to the technology of reception circuit is extremely proper, the technical fields of both inventions have direct relationship technically, and the industrial fields of application are the same.

In addition, both inventions are aimed to enable transmission of a secondary data using the open slot when time slot is open for eliminating setting the channel specified to the secondary data. Therefore, the problems to be solved of the both inventions are the same.

[Concerned Section]

Patent Law Section 37(i)

[Example 12]

[Title of the Invention]

Magnetic card for learning and card type recorder

[Claims]

1. A magnetic card for learning having magnetic track (5) which record or is able to record, whose upstream of the running direction of the card is a part for questions and downstream portion is a part for answers for the questions, forming a notch (7), which is formed to stop the card temporarily between parts for the questions and the answers mentioned above. (See Figure 1)
2. A card type recorder with pausing system comprising a detector (45) for the card or a notch formed in the card concerning to the transfer route of the card, and a power switch (44) controlling the operation of the card relating to the action of the detector. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention concerns a card type magnetic recorder for learning, whose recording part is divided into two by means of a notch. It works as follows. The power switch (44) is turned on by the front edge of the card itself by the detector (45) when a card is inserted into the transfer route, and the card is transferred. When the notch (7) of the card comes to the detector (45), the power is turned off. The recorder is at a pause. Moreover, a pause can be released by pressing the back edge of the card.

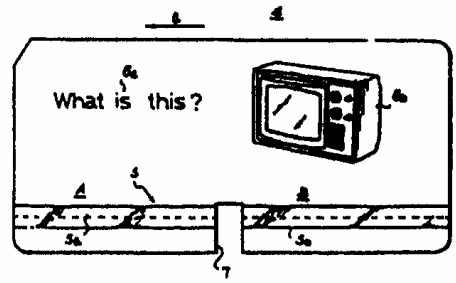


Figure 1

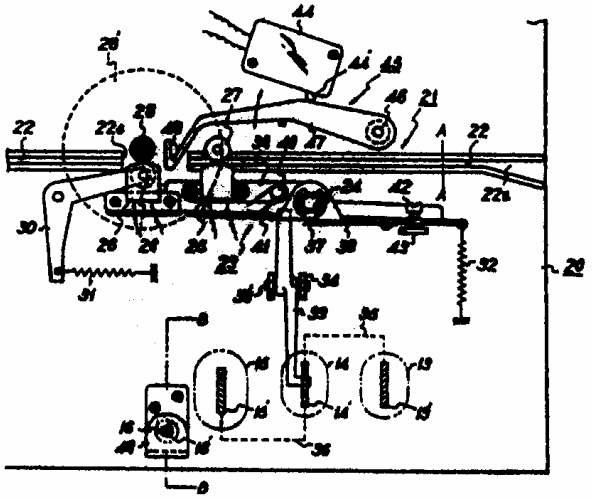


Figure 2

[Explanation]

The technical field of the specified invention (claim1) is a magnetic card for learning, and the technical field of related invention (claim 2) is a card type recorder. Since combining the technology of the technical field of a magnetic card for learning to the technology of the technical field of a card type recorder is extremely proper, the technical fields of both inventions have direct relationship, and the industrial fields of application are the same. In addition, both inventions are dealing with the same problem to be solved: to enable pause while playing back the card.

[Concerned Section]

Patent Law Section 37(i)

[Example 13]

[Title of the Invention]

Female connector and male connector

[Claims]

1. A female connector comprising a socket (6) consisting of an extension spring (6B) with a diameter larger inside than the outside of the pin (17) of a male connector and a compression spring (6A) with a diameter smaller inside than the outside of the pin (17) of a male connector. (See Figure 1)
2. A male connector comprising a pin (17) set in the circumferential direction of the groove (69) engaging with the extension spring of the female connector (6B) described in claim 1. (See Figure 2)

[Excerpt from Detailed Description of the invention and Drawings]

This invention concerns the following. The extension spring (6B) is extended by compressing the compression spring (6A) of the socket (6) of the female connector with the tip of the pin (17) of the male connector into the axial direction. As a result, the pin (17) is held by compression inside of the compression spring (6A). Attrition is reduced when the male connector is connected to the female connector, and the connection is strongly maintained after the connection is made.

In the traditional multi polar connector, a fairly strong force has been needed to connect two parts of the connection.

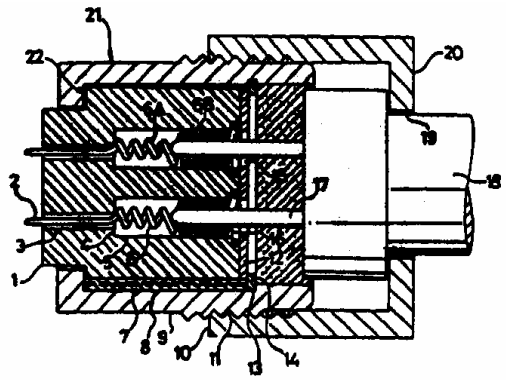


Figure 1

Figure 2

[Explanation]

Both technical fields of the specified invention (claim1) and related invention (claim 2) are female connector and male connector. Since the female connector and the male connector are used in combination, the technical fields of both inventions have a direct relationship technically; therefore, the industrial fields of application are the same.

In addition, they are dealing with the same problem to be solved: to reduce the attrition when a male connector is connected to a female connector, to offer an electrical connection with the function of keeping the connection stable after connected.

[Concerned Section]

Patent Law Section 37(i)

[Example 14]

[Title of the Invention]

Independent side band (IBS) AM sound multiplex transmission device

[Claims]

1. A transmission device of independent side band (IBS) AM sound multiplex system with a transmitter and a receiver comprising:

   Means (10,12, 14, 16) wherein said transmitter responds to a pair of audio frequency signals, L and R signals which express left and right multiplex sound information and generates sum and difference of the L and R signals;

   Means (23) generating carrier signals modulated in phase, for expressing said difference signals modulated inversely by said sum signals according to the modulation function selected first and provided;

   Means (22) for forming ISB AM sound multiplex signals, modulation with amplitude the above carrier signals, modulated with phase, by said sum signals;

   Means (62, 63, 65, 67-70) for responding to the intermediate frequency (IF) ISB AM sound multiplex signals received by the above receiver, modulating inversely the difference signal component of the above mentioned signals by the above sum signal component according to the modulation function selected second, and inducing a pair of audio frequency output signals expressing respectively the original L and R input signals; characterized in that modulation function in said transmitter and receiver is selected appropriately, and linearity and independence of transmitted Land R signals are given, as a result, inter-modulation distortion is reduced.

2. A transmitter for independent side band (IBS) AM sound multiplex system comprising means (10, 12, 14, 16) for responding to a pair of audio frequency signals, L and R, expressing left and right multiplex sound information and sending sum and difference signals including the component of L and R signals, means (23) for sending carrier signals modulated in phase, for expressing the above difference signals, modulated inversely, by said sum signals according to the modulation function, and means (22) for forming ISB AM sound multiplex signals which has less inter-modulation distortion, by modulation with amplitude the above carrier signals, modulated in phase, by the above sum signals. (See Figure 1)

3. A receiver for independent side band (IBS) AM sound multiplex system comprising a means (62, 63, 65, 67-70) for modulating difference signal component inversely by sum signal component in the received intermediate frequency (IF) ISB AM sound multiplex signals according to the modulation function, and inducing a pair of audio frequency output signals expressing the original L and R signals. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention concerns an independent side band AM sound multiplex system, wherein the linearity and independence of stereo signals are improved by giving the second higher harmonics correction to the stereo difference signal component; as a result, inter-modulation distortion is reduced.

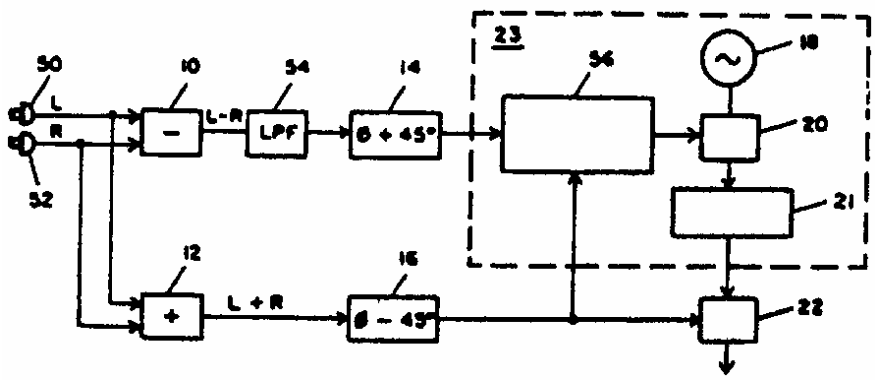


Figure 1

20 phase modulator
21 limiter
22 amplitude modulator
54 low pass filter
56 inverter

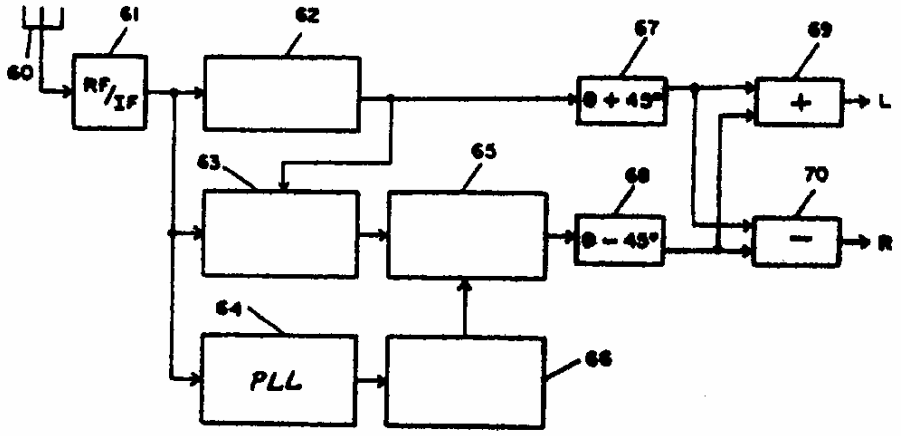


Figure 2

61 high/middle frequency amplifier
62 envelope detector
63 inverter
65 perpendicular synchronous detector
66 carrier 90° phase converter

[Explanation]

The technical field of the specified invention (claim1) is a transmission device in the independent side band (IBS) AM sound multiplex system, and the technical field of the related invention (claim 2, 3) is a transmitter for IBS AM sound multiplex system and a receiver for IBS AM sound multiplex system. Combining the technology of the technical field of the transmitter for IBS AM sound multiplex system to the technology of the technical field of the receiver for IBS AM sound multiplex system or applying it to the technology of the technical field of the transmission device of the independent side band (IBS) AM sound multiplex signals is considered to be extremely proper. Therefore, the technical fields of both inventions have direct relationship technically and the industrial fields of application are the same.

In addition, they are addressing the same problem to be solved; the independence of stereo signals is improved by giving the second higher harmonics correction to the stereo difference signal component; as a result, inter-modulation distortion is reduced.
[Concerned Section]
Patent Law Section 37(i)

[Example 15]

[Title of the Invention]

Picture signals transmission device and receiving device

[Claims]

1. Picture signals transmission device comprising more than one predictive encoder (12-1-12-N) encoding input picture signal with different predictive function, a run-length encoder run-length (17) encoding the most suitable predictive encoded signals of the highest hitting ratio selected from each predictive encoded signals gained, and a sending controlling circuit (19) adding discrimination decision signals expressing predictive function of the above mentioned the most suitable predictive encoded signals, which is output from a discrimination decision circuit (19), to the output signals from the said run-length encoder (17) and sending. (See Figure 1)
2. A picture signals receiving device comprising a receiving circuit (31) receiving predictive encoded and run-length encoded picture signals and discrimination decision signals expressing the predictive function at the above mentioned predictive encoding, a run-length decoder (33) run-length decoding the picture signals output from the circuit (31), encoders (35-1-35-N) for prediction decoding the output of said decoder (33) with different predictive functions, and a selective means (36) selecting and removing only decoding output for the above mentioned discrimination decision signals, out of the decoding output of the above mentioned each predictive decoder (35-1-35-N) (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention concerns a signal transmission system transmitting highly compressed signals. Since a public communication circuit is open, the development of a means sending picture signals highly efficiently such as facsimile in a limited zone is desired. Although a run length encoding system in which continuous length of 1 or 0 is encoded is general at present, high compressibility is not obtainable. In this invention, out of more than one predictive encoder used, the output of the predictive encoder of the highest hitting ratio is run-length encoded and transmitted, so the high compressibility can be obtained.

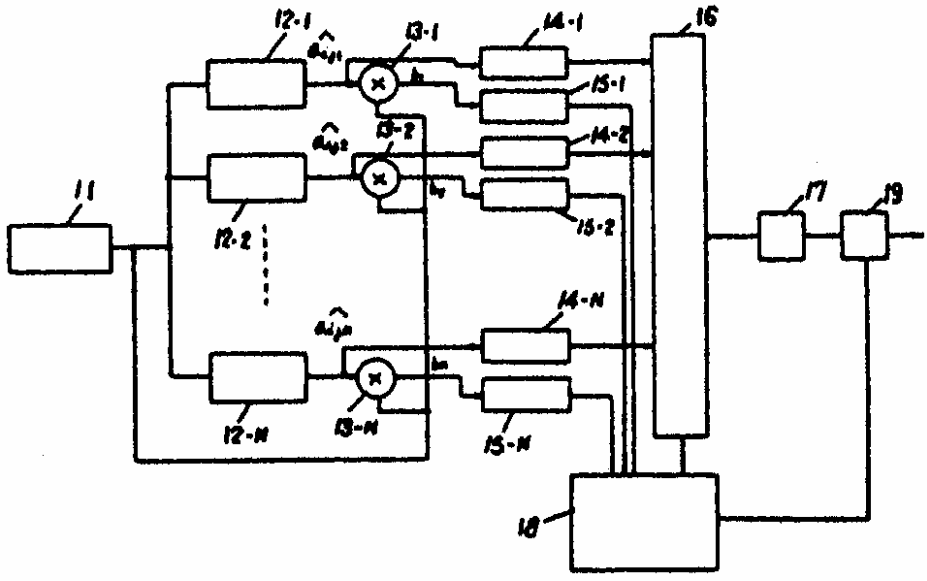


Figure 1

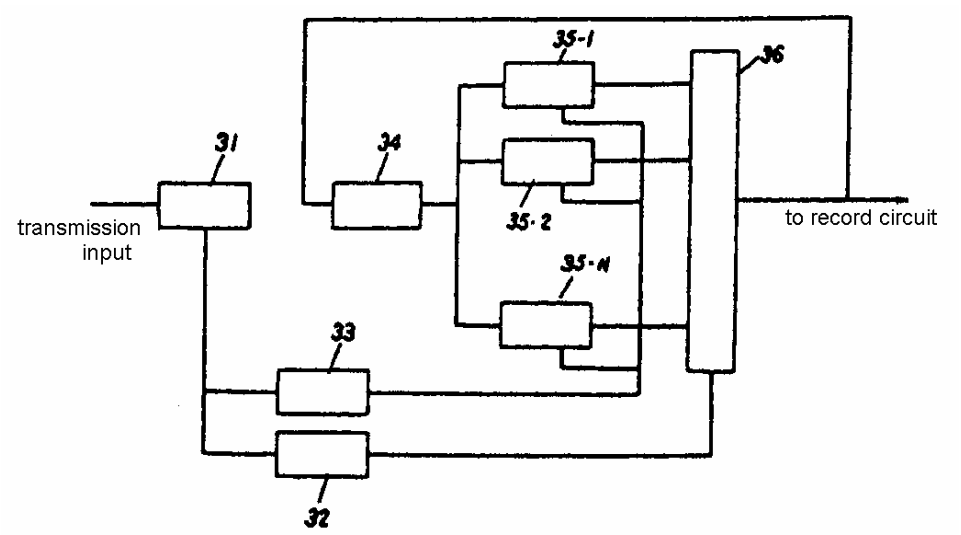


Figure 2

[Explanation]

The technical fields of the specified invention (claim 1) and related invention (claim 2) are a transmission device and a receiver of picture signals respectively, and the technologies of both technical fields are used in combination. As a result, the technical fields of both inventions have direct relationship technically, and the industrial fields of application are the same. In addition, since picture signals can be transmitted with extremely high compressibility in both inventions, they are dealing with the same problems to be solved.

[Concerned Section]

Patent Law Section 37(i)

3.2.2 Relationship under Patent Law Section 37(ii)

It is judged whether the cases satisfy the conditions of Patent Law Section 37(ii) regarding "whether the industrial fields of application are the same" and "whether the substantial parts of matters in the claims are the same".

"The substantial parts of matters in the claim of the invention" refers to the matters concerning a new matter that corresponds to the problem to be solved. Also, the cases where "the substantial parts of matters in the claims are the same" indicate cases where the items concerning a new matter corresponding to the problems to be solved by the specified invention, and the matters concerning a new matter corresponding to the problems to be solved by the related invention, are common matters.

These cases where the substantial parts of matters in the claims are the same include not only the ones where the substantial part of matters in the claim of the related invention is equivalent to that of matters in the claim of the specified invention, but also those where that of the related invention are equivalent to all the matters of the specified invention, or where all the parts of the related invention are equivalent to the substantial parts of matters in the claim of the specified invention.

The following cases corresponding to Patent Law Section 37(ii) include the ones satisfying the conditions of Patent Law Section 37(i). A description will be given with attention to the way in which "the substantial parts of matters in the claims are the same".

[Example 16]

[Title of the Invention]

Reverse osmosis membrane

[Claims]

1. A reverse osmosis membrane (10) including an active layer (20) and physical backing (12) for active layers, wherein an active layer is a continuous non-porous homogeneous film made from an organic membranous polymer; and wherein said film is 50 or 1500 A in thickness and can thereof dissolve water corresponding to at least 2-wt% of weight.
2. A reverse osmosis membrane described in Claim 1, wherein a continuous non-porous layer (16) made from irreversible hydro-gel composites containing hydro-gel polymer and water exists between an active layer (20) and a physical backing (12).

[Excerpt from Detailed Description of the Invention and Drawing]

This invention relates to a reverse osmosis membrane, which is especially useful for the purification of water.

The desirable reverse osmosis membrane offers as weak resistance as possible against water moving or flowing from one side or face to the other of such a membrane, and usually enables a great deal of water to pass through itself. Because of this, it is necessary that the membrane should have an active layer which is from 50 to 1500 A in thickness and able to dissolve water corresponding to at least 2 wt%.

The non-porous layer of the irreversible hydro-gel composites has the capacity to propagate or convey water from the active layers to the porosities of the backing.

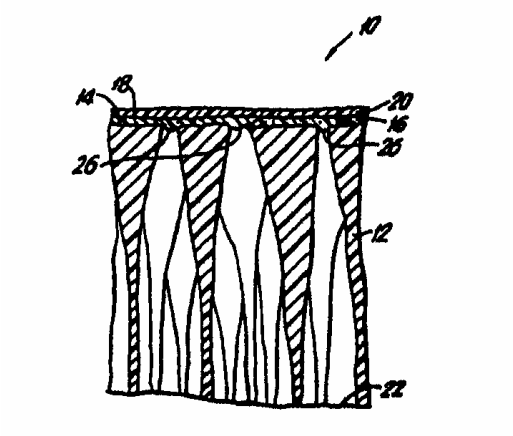


Figure 1

[Explanation]

The technical fields of the specified invention (Claim 1) and the related invention (Claim 2) are related to a reverse osmosis membrane and correspond with each other; therefore the industrial fields of application of the two inventions are the same. The substantial parts of the matters in the claim of the related invention are the entire matters in the claim of the specified invention; therefore the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 17]

[Title of the Invention]

Heat melting covering composite sand pressure-sensitive un-carbonated transfer paper

[Claims]

1. A heat melting covering composite, including microcapsules; inorganic pigment particles of about 0.1-20 wt% of weight of said microcapsules, heat melting suspension media, wherein the inorganic pigment particles are substantially deposited and accreted on the microcapsules.
2. Pressure-sensitive un-carbonated transfer paper, comprising a paper base and a layer of heat melting covering composites laid on said paper base, wherein said heat melting covering composites include microcapsules containing an oily solution of a chromogenic substance, about 0.1-20 wt% of weight of the microcapsules and heat melting suspension media, and characterized in that said inorganic pigment particles substantially deposited and accreted on said microcapsules.

[Excerpt from Detailed Description of the Invention]

This invention relates to a heat melting covering composite that contains inorganic pigment particles and pressure-sensitive un-carbonated transfer paper made from said heat melting covering composite. The article to which the composite is applied to the paper base can form a transparent or semi-transparent capsule, having a glossy surface from the effect of inorganic pigment particles. In addition, it can form pressure-sensitive un-carbonated transfer paper by having the microcapsules contain an oily solution of a chromogenic substance.

[Explanation]

The technical field of the specified invention (Claim 1) is a heat melting covering composite containing Microcapsules, and that of the related invention (Claim 2) is pressure sensitive un-carbonated transfer paper. It proves to be highly appropriate that the technology of a heat melting covering composite should be applied to the technical field of pressure-sensitive un-carbonated transfer paper; therefore the technical fields of both inventions are technically and directly associated with each other, and the respective industrial fields of application are also the same.

In addition, the substantial parts of the matter in the claim of the related invention (Claim 2) are equivalent to the entire elements of the specified invention (Claim 1); therefore the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 18]

[Title of the Invention]

Bond for molding and coated sand for molding

[Claims]

1. A bond for molding, wherein polyacrylamide is dissolved in water or quick-drying solvent.
2. Coated sand for molding, which is covered with the bond for molding whereby polyacrylamide is dissolved in water or quick-dry solvent.

[Excerpt from Detailed Description of the Invention]

This invention mainly relates to a bond for molding used for die-casting, like light alloy castings, where the temperature of the hot water for pouring is relatively low, and coated sand for molding which is covered with said bond.

Though a light alloy casting is generally manufactured by die-casting, the mold used for the core is manufactured by blowing sand usually coated with phenol resin and/or the like in a model die. In the case of the light alloy casting manufactured by using thermo-setting synthetic resin as a bond, due to the low temperature (e.g. about 700℃,) of the hot water for pouring, it is possible that the thermal dematter of the bond made from thermo-setting synthetic resin may be insufficient and that the core may also be hard or unable to be extruded because the polymerization of the bond is conversely accelerated. The advantage of the present invention, wherein poly-acrylamide is dissolved in the solvent, is excellent in a number of respects, including strength, heat resistance, disintegration characteristics and productivity.

[Explanation]

Though the technical fields of the specified invention (Claim 1) and the related invention (Claim 2) are respectively “a bond for molding” and “coated sand for molding”, it is highly appropriate that the art of the former should be applied to the technical field of the latter, because the sand for molding is covered with the bond. Accordingly, the technical fields of both inventions are technically and directly associated with each other, and the industrial fields of application of them are also the same.

In addition, a bond for molding which is a new matter corresponding to the problem to be solved of the specified invention is equivalent to the substantial part of the matter in the claim of the related invention; therefore the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 19]

[Title of the Invention]

Ceramic material and process of dissolving the core made of said material

[Claims]

1. A means of dissolving a ceramic material from an article vulnerable to attack by a caustic alkaline solution, characterized in that a substance containing hydrogen donors in the ceramic material is included, and the ceramic material is immersed in anhydrous caustic alkaline solution.
2. A means of dissolving a core made of a ceramic material of a light metal or a light alloy casting, wherein a light metal or a light alloy casting having a core consisting of a ceramic material including a substance with the hydrogen donors is contacted to anhydrous caustic alkali to be immersed in the anhydrous caustic alkali melted by the heat of a casting before said the casting gets cold.

[Excerpt from Detailed Description of the Invention]

This invention relates to the process of dissolving a ceramic material and the core made of said material of an article that is vulnerable to attack by a caustic alkaline solution.

Although the core made from a ceramic material of the alloy casting is mainly manufactured from nickel, and cobalt is fundamentally dissolved and extruded in a caustic alkaline solution, this process cannot be applied to light metals or light alloy castings because they are impinged on by a caustic alkaline solution. By making a ceramic material containing hydrogen donors, the present invention has made it possible to dissolve just a ceramic material selectively without light metals or light alloy castings being impinged on in the anhydrous alkaline solution. Furthermore, to “bring the casting into contact with an anhydrous alkali before the casting cools down”, as described in Claim 2, aims at dissolving the anhydrous alkali by making use of the heat from a casting.

[Explanation]

The technical field of the specified invention (Claim 1) is “dissolving a ceramic material in an article which is vulnerable to attack by a caustic alkali solution “, whereas that of the related invention (Claim 2) is “dissolving the core made of a ceramics material of a light metal or a light alloy casting”. Light metals or light alloys are vulnerable to attack by a caustic alkali solution, and it is highly appropriate that the technology of the specified invention should be applied to the dissolution of the core, which is made of a ceramic material, of said casting of the materials. Therefore, the technical fields of both inventions are technically and directly associated with each other and the industrial fields of application of the inventions are also the same.

On the other hand, the new matter corresponding to the problems to be solved of the specified invention, i.e. to “make a ceramic material include the substance containing hydrogen donors and make a ceramic material immerse in the anhydrous caustic alkaline solution”, is equivalent to the substantial part of the matters in the claim of the related invention. Therefore, the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 20]

[Title of the Invention]

Magazine of workpieces (contact lens) and feeding device including the magazine

[Claims]

1. A magazine holding many work pieces, comprising of an opening to take out work pieces (37) consecutively at one end; uncoupling-fastening devices (39, 40, 41, 42, 43, 44) set up close to the end, wherein the uncoupling-fastening devices engage with the work pieces at the point nearest to this end; wherein the work pieces consist of a fastening member (43) including a raised portion (39) which permits the work pieces in question to be uncoupled from this point and pass through the opening; wherein the raised portion matches an opening set up on the flank close to the end and can pass through the opening; wherein the free end of the raised portion is brought engages with the work pieces. (See Figure 1.)
2. A feeder(4) to supply work pieces to the collet (3), a machine tool, consisting of a magazine described in Claim 1 and a loader(12) which is … …

(See Figure 1, 2.)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention relates to an apparatus to supply the material for contact lenses to a machine tool, particularly an apparatus to supply work pieces to the collet, a machine tool with their positions set correctly.

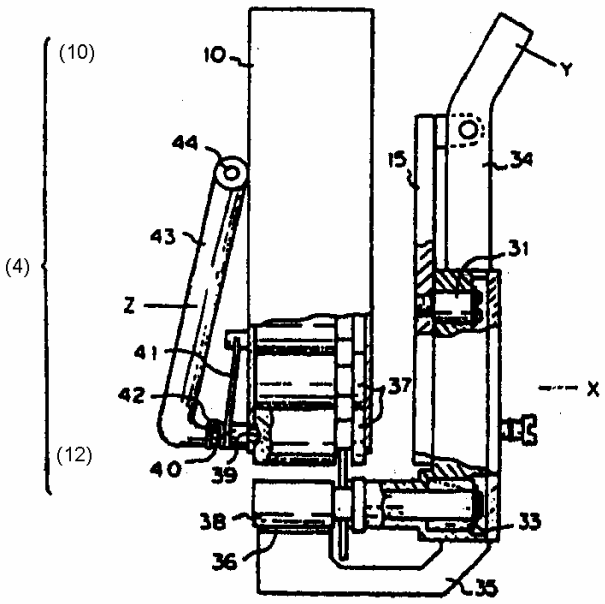


Figure 1

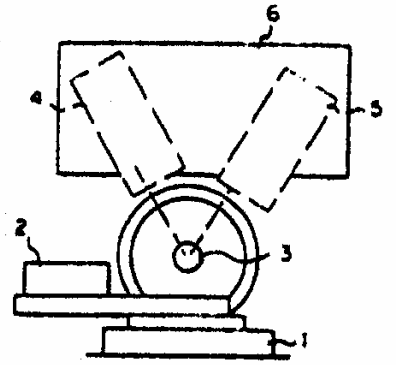


Figure 2

10 magazine
12 loader

1 table
2 machine holder
3 collet
4 feeder
5 ejector
6 back plate

[Explanation]

Though the technical fields of the specified invention and the related invention (Claim 2) are respectively “a magazine” and “a feeding device”, it is highly appropriate that the art of the former should be applied to the technical field of the latter; therefore the technical fields of both inventions are technically and directly associated with each other, and the industrial fields of

application of them are also the same.

In addition, the magazine of the specified invention is equivalent to the substantial part of the related invention. Therefore, the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 21]

[Title of the Invention]

Folding seat for a vehicle and a vehicle for both passengers and goods with the folding seat.

[Claims]

1. A folding seat for a vehicle, wherein a seatback (1) foldable forward is attached to the top face of a seat cushion (2); wherein the first leg (8) supporting a seat cushion (2) which can be turned and moved laterally (21) and can be slid back and forth (11,12) is attached to the side portion of the reverse face of this seat cushion (2); and wherein the second leg (24), which is free in folding and supporting a seat cushion (2) when someone is seated, is attached to the other side portion of the reverse face of the seat cushion (2). (See Figure 1.)
2. A vehicle for both passenger and goods with a folding seat: whereby two rows of seats consisting of the second seat (42) and the third seat (50) in which a seat back (1, 43), which can be folded forward, is fixed on the top face of a seat cushion (2, 44) and is attached to the luggage compartment (40) in the rear of the driver's seat; wherein an entrance for getting in and out (48) is installed in the lateral direction of the second seat (42); wherein a rear wheel house (39) is attached to the rear of the third seat (50); wherein said third seat (50) is separated right and left into two parts (51, 52); wherein the first leg (8) supporting a seat cushion (2), which can be turned and moved in the direction of a car body panel and can be slid (11, 12) in the direction of a rear wheel house (39), is attached to a side portion of the reverse face of a seat cushion (2) of the part (52), on the side of the entrance for getting in and out (48), of the third seat; and wherein the second leg (24) which is free in folding and supporting a seat cushion (2) when someone is seated is attached to the other side portion of the reverse face. (See Figure 2 and 3)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention relates to folding seats and a vehicle, e.g. a station wagon or a van for both passengers and goods, which includes these folding seats.

Though it was publicly known that this type of vehicle has a seat back which can be folded forward on the top face of a seat cushion and which can turn and move the seat back forward, this type of vehicle had some disadvantages: it did not provide much room for luggage in the back and front, it was difficult to get in and out of, etc.

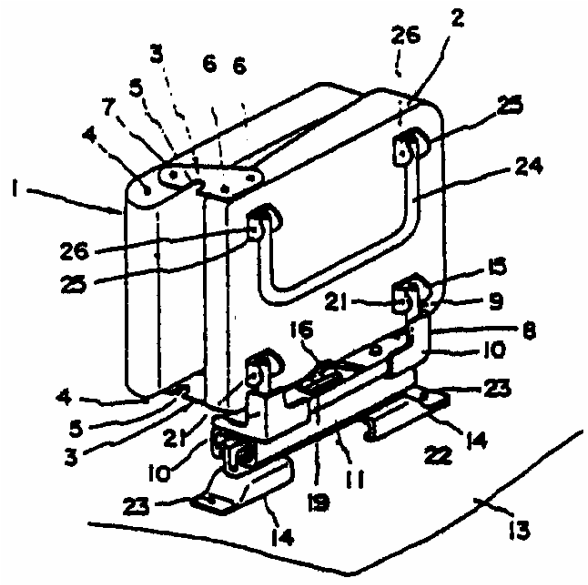


Figure 1

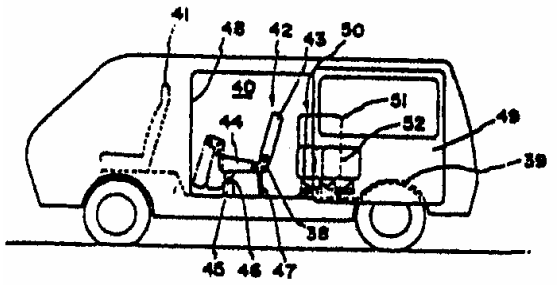


Figure 2

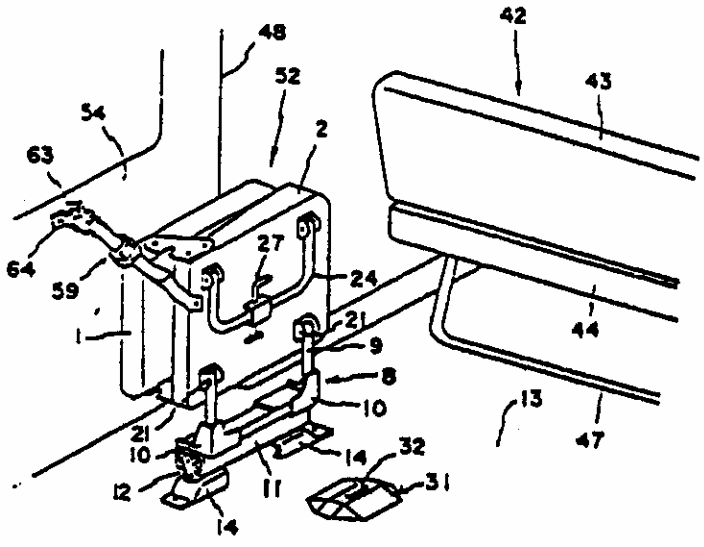


Figure 3

[Explanation]

Respective technical fields of the specified invention (Claim 1) and the related (Claim 2) are “a folding seat “ and “a vehicle”. As described in the Claims that a folding seat is applied to the technical field of a vehicle. Therefore the technical fields of the two inventions are technically and directly associated with each other and their industrial fields of application of them are also the same.

Additionally, a folding seat, a new matter corresponding to the problem to be solved of the specified invention, is equivalent to the substantial part of the matter in the claim of the related invention. Therefore, the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 22]

[Title of the Invention]

Chuck for web-fed apparatus and the web-fed apparatus

[Claims]

1. A chuck for a web-fed apparatus, comprising a housing (31) which is attached on a mandrel (33) so as to be rotated and where at least one circumferential groove is set up in its external surface; a spring (39) with multiple cantilever fingers (42) which is placed in said circumferential groove and is so formed that they are integrated with the bottom contacting the floor of the groove. (See Figure 3.)
2. A web-fed apparatus, comprising a chuck (19) as described in Claim 1 fixed at one end of an arm (18); a base (20) supporting the arm so it can oscillate it midway between a socket (22) fixed at the other end of said arm and said arm; a fluid cylinder (23) consisting of a piston rod (24) attached to said base so it can oscillate and a cylinder casing (25) brought into contact with the piston rod; a ball (26) supported on said casing and engaged with the socket, which freely connects the fluid cylinder to the arm. (See Figure 1, 2 and 3)

[Excerpt from Detailed Description of the Invention and Drawings]

This invention relates to a high-speed web-fed apparatus that works with fixed winding tension.

The conventional web-fed apparatus had several drawbacks, especially if it was applied at a high winding speed: it was apt to induce vibrations or chamfers and hard to apply at a fixed intension on account of combinations of its parts that were too loose or too tight; wound roll jounced or jumped on a winding drum, as a result causing flat spots and uneven hem.

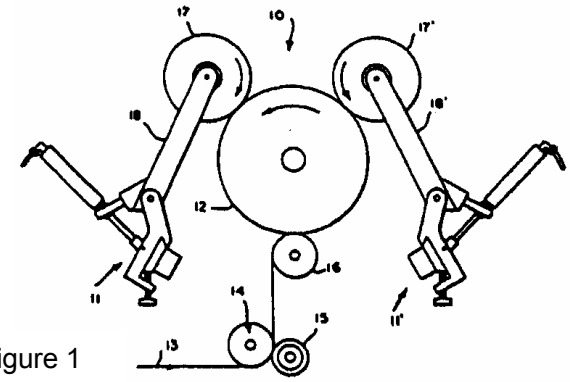


Figure 1

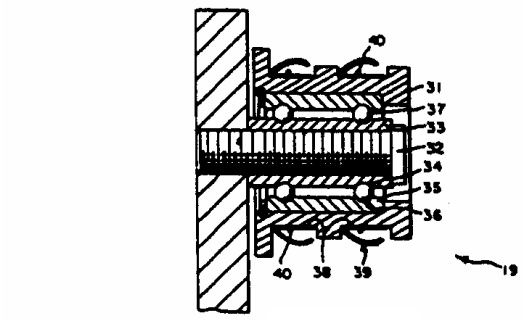


Figure 3

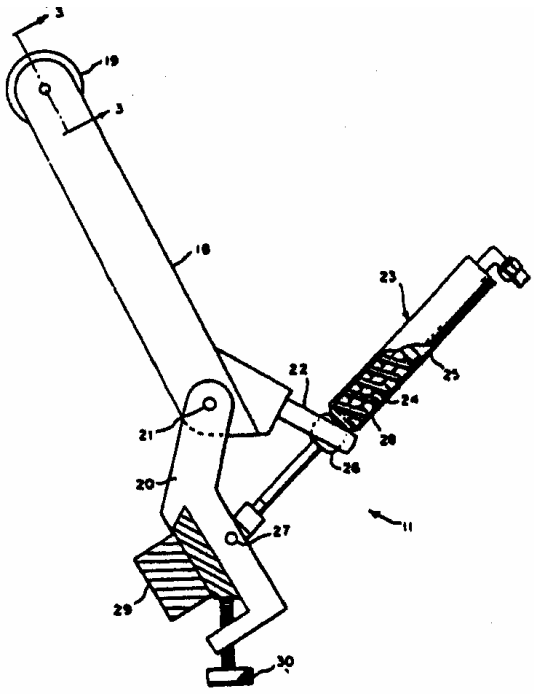


Figure 2

[Explanation]

Though the respective technical fields of the specified invention (Claim 1) and the related invention (Claim 2) are “a chuck” and “a web-fed apparatus”, it is mentioned in the Claims that a chuck is applied to the technical field of a web-fed apparatus. Therefore, technical fields of both

inventions are technically and directly associated with each other and the industrial fields of application are the same.

Also, a chuck that is a new matter corresponding to the problem to be solved of the specified invention is equivalent to the substantial part of the related invention, and so the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 23]

[Title of the Invention]

Manufacturing processes of silicon carbide powder for sintering silicon carbide sintered compact

[Claims]

1. A process for manufacturing a silicon carbide powder for sintering, comprising the steps of decomposing an organ silicon high molecular compound, whose main key components are silicon and carbon, at a temperature between 1600℃ and 2200℃ in the inert gas atmosphere and obtaining a powder whose main component is β-SiC ; obtaining a power made from high-purity β-SiC treated with acids including a hydrofluoric acid after heating this powder to temperatures between 500℃ and 800℃ in the oxidative atmosphere.
2. A process for manufacturing silicon carbide sintered compact whose density is 2.60g/mg^3 or above wherein a powder is manufactured from high-purity β-Sic by the process for manufacturing as described in Claim 1; wherein the powder is sintered in the inert gas atmosphere after the powder is in the prescribed shape.

[Excerpt of Detailed Description of the Invention]

This invention is a process for obtaining silicon carbide powder made from fine high-purity sintering β-SiC and a process for manufacturing high-density silicon carbide sintered compact, which is made from the powder, with high mechanical strength.

[Explanation]

Though the technical fields of the specified invention (Claim 1) and the related invention (Claim 2) are respectively “manufacturing silicon carbide powder” and “manufacturing silicon carbide sintered compact”, as described in the Claims, that silicon carbide is applied to sintering. Therefore, the technical fields are technically and directly associated with each other and their industrial fields of application are the same.

Furthermore, a process for manufacturing high-purity β-SiC powder, a new matter corresponding to the problem to be solved of the specified invention, is equivalent to the substantial part of the matter in the claim of the related invention, so the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 24]

[Title of the Invention]

Zeolite

[Claims]

1. A zeolite comprising X-ray pattern of xxxx, whose formula is $[M_2O]_{0\text{-}9}[Al_2O_3]_{0.1\text{-}3}[SiO_2]_{100}[H_2O]_{0\text{-}35}$ wherein M in the formula is an alkali metal.
2. A zeolite, including the X-ray pattern of xxxx, whose formula is $[M_2O]_{0\text{-}9}[Q^+]_{1\text{-}50}[Al_2O_3]_1[SiO_2]_{30\text{-}1000}[H_2O]_{0\text{-}2000}$, wherein M in the formula is an alkali metal and Q is tetraalkylethylenediamine.

[Excerpt of Detailed Description of the Invention]

This invention introduces a new kind of zeolite, which is used as a catalyst for such reactions as catalytic cracking or hydrodesulfurization..... … A zeolite in this invention is synthesized by the hydrothermal crystallization process described later. Although the crystallized product synthesized by the hydrothermal crystallization process contains Q (tetraalkylethylenediamine), Q disappears if it is dehydrated and burned.

[Explanation]

It is recognized that a zeolite of the related invention (Claim 2) is mainly used as a raw material for a zeolite (a final substance) of the specified invention (Claim 1). Therefore the technical fields of both inventions are technically and directly associated with each other and their industrial fields of application are the same. In addition, because the X-ray patterns of both zeolite are the same, it is recognized that their structures of zeolite crystals composed of Si, Al and O are the same. Accordingly, the new fundamental structures of both substances are similar, and therefore the substantial parts of matters in the claims of both inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

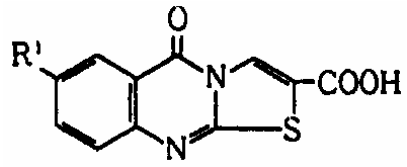
[Example 25]

[Title of the Invention]

Thiazolo[2, 3-b]quinazoline derivative and intermediate for manufacturing the derivative

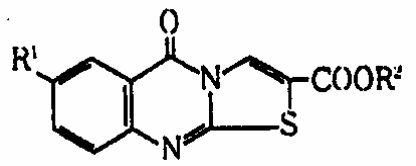
[Claims]

1. A compound indicated by general formula [I]



(In this formula, R^1means a methylthio group or a methylsulfinyl group.)

2. A compound indicated by general formula [II]



(In this formula, R^1 means a methylthio or methylsulfinyl group, whereas R^2 means a lower alkyl group).

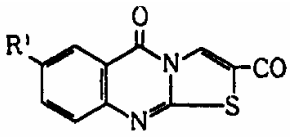
[Excerpt of Detailed Description of the Invention]

This invention relates to a Thiazolo[2, 3-b]quinazoline derivative indicated by general formula[I], which has anti-allergic activity, and Thiazolo[2, 3-b]quinazoline derivative indicated by general formula[II], which is a useful intermediate for manufacturing the derivative indicated by general formula[I]. The compound indicated by general formula[I]is easily manufactured by hydrolyzing the compound indicated by general formula [II].

[Explanation]

It is recognized that the main use of a compound in the related invention (Claim 2) is a raw material (an intermediate) of a compound (a final compound) of the specified invention (Claim 1). Accordingly, it is highly appropriate that the art of the technical field of a compound of the related invention is applied to the technical field of a compound of the specified invention. The technical fields of both inventions are technically and directly associated with each other, and their industrial fields of application are also the same.

Additionally, such new fundamental structures



are common between both compounds, and so the substantial parts of matters in the claims of both inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

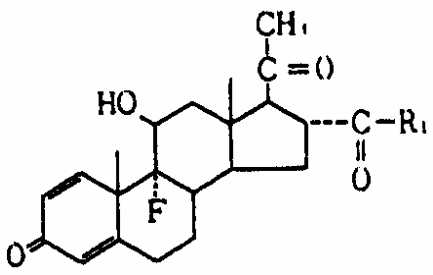
[Example 26]

[Title of the Invention]

16 α -substitution pregnen group, and an intermediate for manufacturing the 16 α -substitution pregnen group

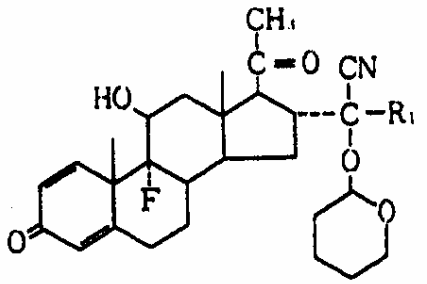
[Claims]

1. A steroid compound indicated by Formula [I]



[In this formula, R_1 means phenyl or naphthyl.]

2. A steroid compound indicated by Formula [II]



[In this formula, R_1 means a phenyl or naphthyl.]

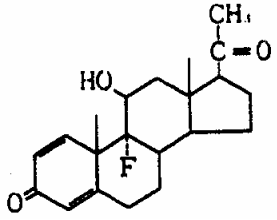
[Excerpt of Detailed Description of the Invention]

This invention relates to a 16 α -substitution pregnen group useful as an anti-inflammatory drug and an intermediate useful for manufacturing this 16 α -substitution pregnen group. The steroid compound indicated by Formula [I], which has anti-inflammatory properties, is easily manufactured by treating the steroid intermediate indicated by Formula [II].

[Explanation]

It is recognized that the main use of a compound of the related invention (Claim 2) is a raw material (an intermediate) of a compound (a final compound) of the specified invention (Claim 1). Therefore it is highly appropriate that the art of the technical field of a compound of the related invention is applied to the technical field of a compound of the specified invention. The technical fields of both inventions are technically and directly associated with each other and their industrial fields of application of them are the same.

In addition, both compounds have common fundamental structures



and the final compound indicated by Formula [I] is directly manufactured from an intermediate indicated by Formula [II]. Therefore, it is recognized that both compounds are closely and technically associated with each other, and the substantial parts of matters in the claims of both

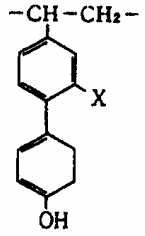
inventions are the same.
[Concerned Section]
Patent Law Section 37(ii)

[Example 27]

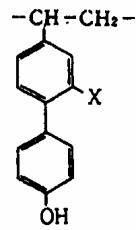
[Title of the Invention]

Polymer of 4-hydroxy-4'-vinyl biphenyl derivative and composite

[Claims]

1.General formula  (in this formula, X means….)

A polymer composed of a 4-hydroxy-4'-vinyl biphenyl derivative that has an Mn of 5,600 to 0,000 and is made according to the general formula indicating a repeated unit.

2.General formula  (in this formula, X means….)

A polymer composite, comprising; a 100-weight part of a polymer composed of a 4-hydroxy-4'-vinyl biphenyl derivative that has an Mn of 5,600 to 60,000 and is made according to a general formula indicating a repeated unit; a 0.1-5-weight part of silica.

[Excerpt of Detailed Description of the Invention]

This invention relates to a new polymer, which is highly resistant to heat and useful for manufacturing various molded goods, and a composite thereof. Although …… or the like are publicly known types of this polymer, a polymer with enough heat-resistance could not be obtained. Additionally, a heat stable polymer composite with great mechanical strength is obtainable if a 0.1-5-weight part of silica is added to a 100-weight part of a polymer of a 4-hydroxy-4'-vinyl biphenyl derivative.

[Explanation]

The technical field of the specified invention (Claim 1) is that of formability polymer which has great heat-resistance, and the technical field of the related invention (Claim 2) is that of a formability polymer composite with great heat-resistance, whose principal component is this polymer, whereby mechanical properties are improved. Therefore, the technical fields of both inventions are technically and directly associated with each other and their industrial fields of application are the same. Furthermore, the polymer of a 4-hydroxy-4'-vinyl phenyl derivative of the specified invention is equivalent to the substantial part of the matter in the claim of the related invention, and therefore the substantial parts of matters in the claims of both inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

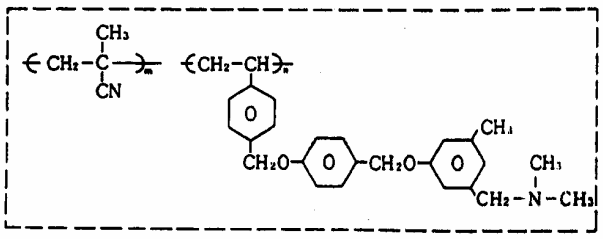
[Example 28]

[Title of the Invention]

New polymer and its derivative

[Claims]

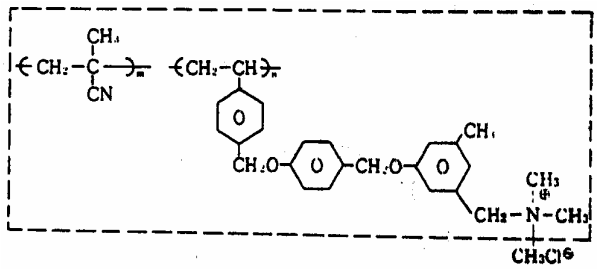
1. A random copolymer represented by formula (I).



.....Fundamental Structure(X)

(m: 10 to 50, n: 10 to 50)

2. A random copolymer represented by formula (II).



.....Fundamental Structure(X)

(M: 10 to 50, n: 10 to 50)

[Excerpt of Detailed Description of the Invention]

The copolymer represented by formula (I) is needed to make a side chain quaternary. The copolymer represented by formula (II), which is made quaternary by methylchloride, is also useful as a photographic material.

[Explanation]

It is recognized that the main use of a copolymer represented by formula (I) of the specified invention (Claim 1) is a raw material of a copolymer as represented by formula (II) of the related invention (Claim 2). Therefore, it is highly appropriate that the art of the technical field of a copolymer represented by Formula (I) is applied to a copolymer represented by formula (II). The technical fields of both inventions are technically and directly associated with each other, and their industrial fields of application are also the same.

Furthermore, because a new fundamental structure (X) is common to both copolymers, the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 29]

[Title of the Invention]

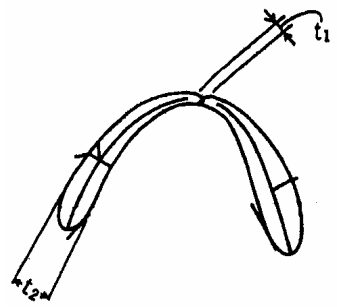
Modified cross-section shape filament, filament thread and silk fabrics

[Claims]

1. A modified cross-section filament, wherein the cross section has a V-shape or C-shape; wherein the approximate central part of the periphery of the convex side of the cross section has a notch-type construction; wherein t_1 (thickness of the construction) and t_1 (maximum of a thickness of the filament) satisfy the equation $0.40t_2 \leqq t_1 \leqq 0.95t_2$. [$a \leqq t_2 \leqq b$ a, b: positive fixed numbers].
2. A potentially bulky multifilament gained by submitting a modified cross-section filament as described in Claim 1 the fluid turbulent treatment, and then applying the heat intensity treatment afterwards.
3. A silk fabric composed of modified cross-section filaments as described in Claim 1.

[Excerpt of Detailed Description of the Invention and Drawing]

This invention provides a modified cross-section filament, which has a glossy, silky fiber, sheerness and a dry feel. This makes it possible to manufacture a knitted fabric with a texture very similar to a silk fiber with respect to bulk and flexibility, and provides a thread and a silky fabric made from the filament.



[Explanation]

Although the technical field of the specified invention (Claim 1) is “a filament” and the respective technical fields of the two related inventions (Claim 2 and 3) are “a thread” and “a knitted fabric,” it is deemed highly appropriate that the technology of the technical field of a filament is applied to the technical field of a thread and a knitted fabric. Therefore, the technical fields of all these inventions are technically and directly associated with one another, and their industrial fields of application are also the same.

Additionally, the modified cross-section filament of the specified invention is equivalent to the substantial part of the matter in the claim of each related invention, and so therefore the substantial parts of matters in the claims of all these inventions are also the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 30]

[Title of the Invention]

Super-absorbent rayon Non-woven fabric and material for a blanket bath

[Claims]

1. A non-woven fabric, wherein one of its fiber matters is a super-absorbent viscose rayon fiber created by adding sodium carbonate to viscose and spinning thread.
2. A material for a blanket bath, which is manufactured by soaking the non-woven fabric described in Claim (1) in a clean liquid.

[Excerpt of Detailed Description of the Invention]

This invention relates to a high liquid-retention, non-woven fabric, manufactured by using the super-absorbent viscose rayon fiber and adding sodium carbonate to viscose, with a towel manufactured from the non-woven fabric, and a material for a blanket bath (e.g. a wet napkin) which is soaked in a clean liquid. Although the non-woven fabric made from a regular viscose rayon fiber has been manufactured for a long time and has been used for making towels, etc., it had the disadvantage of not showing the effect of cleaning sufficiently. This is because water and a depurant, which are soaked into the non-woven fabric, are apt to vaporize.

[Explanation]

Though the technical field of the specified invention (Claim 1) is “a super-absorbent viscose rayon non-woven fabric” and that of the related invention (Claim 2) is “a material for a blanket bath”, it is highly appropriate that the technology of manufacturing a super-absorbent rayon non-woven fabric is applied to the technical field of a material for a blanket bath. Therefore the technical fields of both inventions are technically and directly associated with each other and their industrial fields of application are the same.

On the other hand, the super-absorbent rayon non-woven fabric, which is a new matter corresponding to the problem to be solved of the specified invention, is equivalent to the substantial part of the matter in the claim of the related invention, and therefore the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 31]

[Title of the Invention]

Filter cylinder of a concentration machine, and the concentration machine

[Claims]

1. A filter cylinder (20) for a wood pulp slurry concentration machine, comprising a cylindrical porous shell (42); a screening member covering the external surface of the cylindrical porous shell (42); a reinforced ring (48); end members with two separate rotating shafts (52, 53) attached to both lengthwise ends of the shell (42), wherein one end member has multiple apertures and the other end member is closed. (See Figure 1)
2. A concentration machine for concentrating a wood pulp slurry, comprising: a bat for concentration (30) with a slurry inlet (22); a filter cylinder (20) as described in Claim 1, which is retained so it can rotate freely in the bat (30); an exhaust of white water (32) which connects with the apertures of one end member so as to release white water within the filter cylinder (20); a couch roll (34) for releasing concentration pulp slurry formed on the surface of a filter cylinder (20), etc. (See Figure 2)

[Excerpt from Detailed Description of the Invention and Drawings]

In this invention relating to a concentration machine suitable for a paper manufacturing machine and a filter cylinder for the concentration machine, the weight of a filter cylinder is saved and the conventional shaft-less filter cylinder is improved by attaching a reinforced ring (48) to prevent the porous shell from deformation.

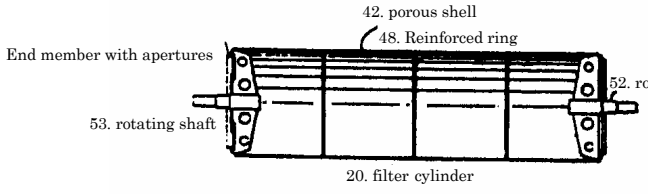


Figure 1

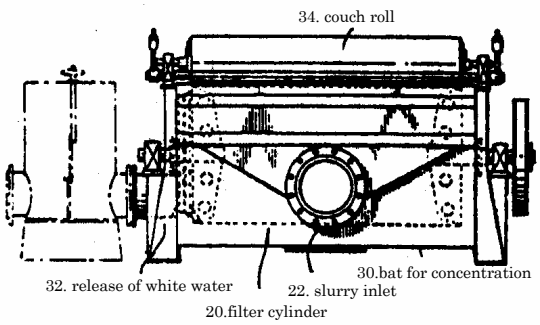


Figure 2

[Explanation]

Although the technical field of the specified invention (Claim 1) is “a filter cylinder” and that of the related invention (Claim 2) is “a concentration machine”, it is described in Claim 1 that a filter cylinder of the specified invention is used in the technical field of a concentration machine. Therefore, the technical fields of both inventions are technically and directly associated with each other and their industrial fields of application are also the same.

Additionally, a filter cylinder of the specified invention is equivalent to the substantial part of the matter in the claim of the related invention, and therefore the substantial parts of matters in the claims of the two inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 32]

[Title of the Invention]

Blade for disintegration and screening of materials for manufacturing paper, and apparatus for disintegration and screening

[Claims]

1. A blade for the disintegration and screening of materials for manufacturing paper, comprising a blade part for disintegration and screening (19) and a blade part (20) at the tip of an arm member (22) that radiates in all directions from a boss part (21). (See Figure 2)
2. An apparatus for the disintegration and screening of materials for manufacturing paper, wherein a cylindrical screen (15) is set up in the 3rd room … … of a steel case (1); wherein a conical fixed blade (16) is set up at the base of the cylindrical screen (15) and on the inner face of the steel case (1); wherein a blade for disintegration and screening as described in Claim 1 is set up along the inner face of the cylindrical screen (15). (See Figure 1)

[Excerpt of Detailed Description of the Invention and Drawings]

This invention relates to a blade for disintegration and screening, and an apparatus for disintegration and screening particularly an apparatus for handling the processes of disintegrating and screening materials for manufacturing paper at the same time, especially in the process before the paper is made. Up until now, the materials fed to a paper machine in the paper manufacturing process have been the materials for manufacturing paper that has undergone the processes from disintegration to screening.

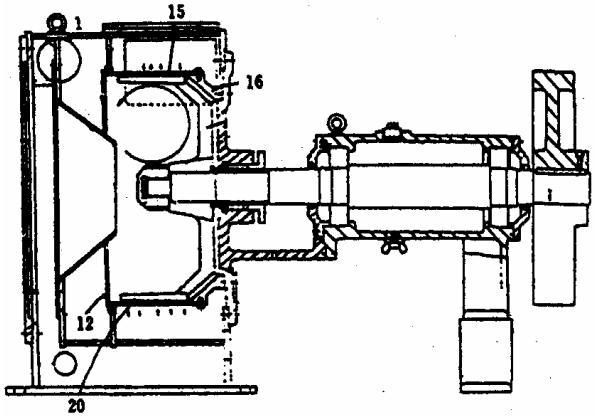


Figure 1

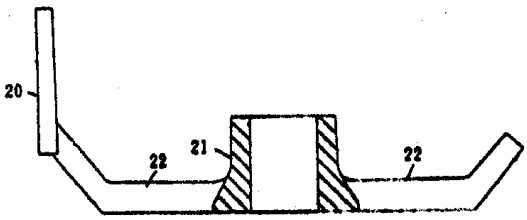


Figure 2

[Explanation]

The technical field of the specified invention (Claim 1) is a blade for the disintegration and screening of materials for manufacturing paper, and that of the related invention (Claim 2) is an apparatus for disintegration and screening. It is recognized it is highly appropriate that the technology of the technical field of a blade for disintegration and screening is applied to the technical field of an apparatus for disintegration and screening. Therefore, the technical fields of both inventions are technically and directly associated with each other, and their industrial fields of application are also the same. On the other hand, a blade for the disintegration and screening for materials for manufacturing paper, which is a new matter corresponding to the problem to be solved of the specified invention, is equivalent to the substantial part of the matter in the claim of the related invention, and so therefore the substantial parts of matters in the claims of the two inventions are also the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 33]

[Title of the Invention]

Twisted yarn applied to the surface of fiber bearing, and the bearing made by using this twisted yarn

[Claims]

1. A twisted yarn used on the surface of a low-friction fiber bearing including a TFE fine yarn (10) used at the volume rate of up to 50%; a multiple wound yarn (11) made from high-temperature nylon, wherein the TFE fine yarn is loosely wound around a nylon multiple-wound yarn used as a core; and wherein synthetic resin can feed into the entire multiple loosely twisted yarn. (See Figure. 1.)
2. A bearing, wherein a twisted yarn including a TFE fine yarn (10), (13 “) used at the volume rate of up to50% and a multiple wound yarn made from high-temperature nylon (11), (13”) is exposed on the surface of a bearing (15); wherein said TFE fine fiber is loosely wound around a nylon multiple-wound yarn used as a core, whose glide plain is equipped with hardened synthetic resin (14) with an affinity for said twisted yarn and forming a continuous solid object with no space. (See Figure 1, 2 and 3)

[Excerpt of Detailed Description of the Invention and Drawings]

This invention relates to a twisted yarn making up a low-friction fiber bearing and a fiber. The object of this invention is to hold a TFE fine yarn more securely against the rotation (at the portion where breakage occurs easily) by being equipped with a reinforcing material for a low-friction fiber on the surface of a bearing.

The bearings made by using a conventional tetra-fluoroethylene (TFE) fine yarn in order to gain low friction causes extreme abrasion and rapid fracture under a maximum load or more. Additionally, the maximum working temperature must be carefully controlled because a mechanical function decreases under a load or at the time of a rise in temperature.

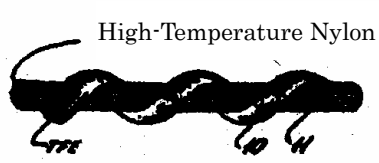


Figure 1

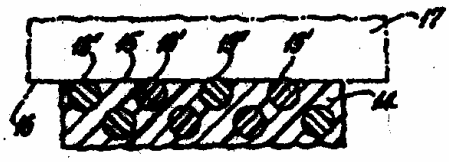


Figure 2

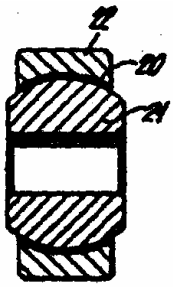


Figure 3

[Explanation]

Though the technical field of the specified invention (Claim 1) is a twisted yarn and that of the related invention (Claim 2) is a fiber bearing, it is described in the Claims that a twisted yarn is applied to a fiber bearing, and so therefore the technical fields of both inventions are technically and directly associated with each other and their industrial fields of application are the same. In addition, a twisted yarn that is a new matter corresponding to the problem to be solved of the specified invention is equivalent to the substantial part of matter in the claim of the related invention; and so therefore the substantial parts of matters in the claims of both inventions are also the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 34]

[Title of the Invention]

Anchor for liquid gas underground tank and tank for storage of liquid gas

[Claims]

1. Anchor in underground storage tank for liquid gas comprising the principal member of an anchor member (10), and metal fixture (11) having cylindrical sealing parts (12) including the mid section of the anchor (10) and flexible support plates (16), wherein the metal fixture (11) holds the anchor (11) through the holding plate (14) bound to the end of the metal fixture. (See Figure 1).
2. Underground tank and the anchors for storage of liquefied gas, wherein the bottom plate (5) is attached to the side walls (3) of the tank; its edges has a vertical end face (5b), which makes contact with horizontal end face (5a) and lower inside surface (3b) of the side walls (3); and the unity of this underground storage tank for liquid gas is to have the anchors mounted with appropriate space on the inside of the lower part of the side walls (3) and the inside of the rim of the bottom plate (5). (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention pertains to the anchors used in underground storage tank for liquid gas and the underground storage tank for liquid gas that utilizes said anchors.

As the anchors used in this manner, publicly known type made of steel and extends between the sidewalls to the tank to the bottom plate. The problem to be solved with this process of attaching the bottom plate to the side walls was that, when a force is applied in the direction that would separate the bottom plate and the side walls, the bottom plate moved far enough away from the side walls, separating the sealing plate, allowing the ground water to penetrate the tank and freezing inside of it.

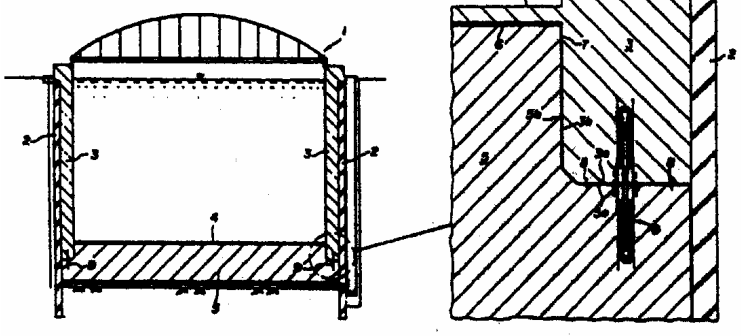


Figure 2

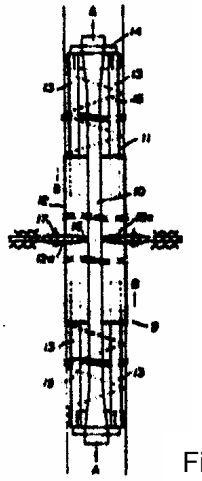


Figure 1

[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are an “anchor” and an “underground tank” respectively. Because an “anchor” is used in the technical field of an “underground tanks” in the claims, both inventions are technically and directly related, and the industrial fields of application of both inventions are the same.

The anchor that is a new matter corresponding to the problem to be solved of the specified invention is equivalent to the substantial part of matters in the claim of the related invention. Therefore the substantial parts of matters in the claims of both inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 35]

[Title of the Invention]

Spinning body detector of spin and detector of vibrations caused by the spin

[Claims]

1. A spin measurement device designed to obtain specific spin rate pulse of the spinning body (2), comprising means to detect the spin pulse (2b, 6, 7, 15) of the spinning body (2), means to detect the pulse signal equivalent to timing and to store the information (17, 18, 21, 25, 26, 27) and oscillator (21, 22, 23, 24) to emit regular pulses based on said stored information and further divisive calculations. (See Figure 1)
2. A device to detect the spin rate of the spinning body described in Claim 1 comprising means to divide or multiply the detected spin rate by a specified factor (13, 14, 16, 19, 20), by attaching a device to calculate the phases (3a, 5a, 10, 11) of said spinning body and another one (3, 5), enabling to emit pulses that reflect the two spinning bodies (3, 5). (See Figure 2)
3. Spin detector of spinning bodies and vibration detection device described in Claim 1 and 2, comprising said pulse of the spin detector device and phases detector used as a means to detect vibrations caused by the spin. (See Figure 3)

[Excerpt from Detail Description of the Invention and Drawings]

This invention pertains to improvement of spin detector of a spinning body by further processing the detected spin. It further detects the spin rate of a separate spinning body spinning at a rate proportional to the first spinning body as well as vibration caused by them and by comparing to the detected spin to perform as a vibration detector.

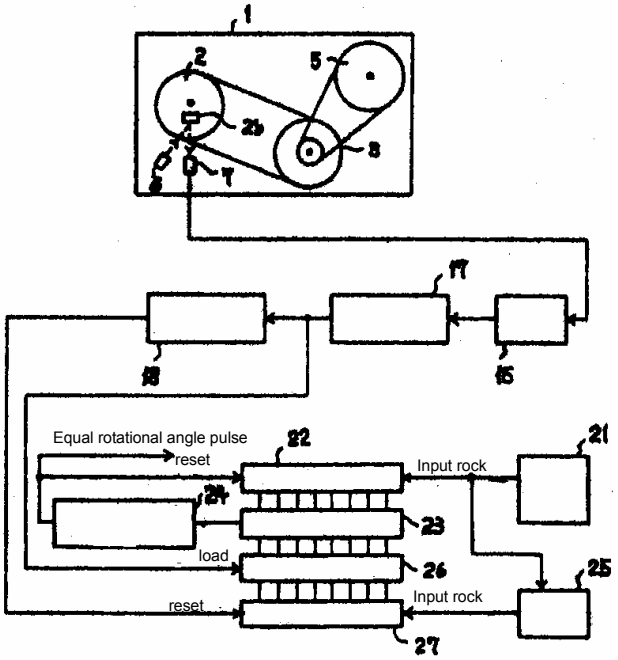


Figure 1

15. wave form shaping circuit
17. manostable multi-vibrator
18. manostable multi-vibrator
21. clock pulse emitter
22. 256-ary counter
23. 8 bit comparator
24. manostable multi-vibrator
25. N-array counter
26. 8 bit latch
27. 256-array counter

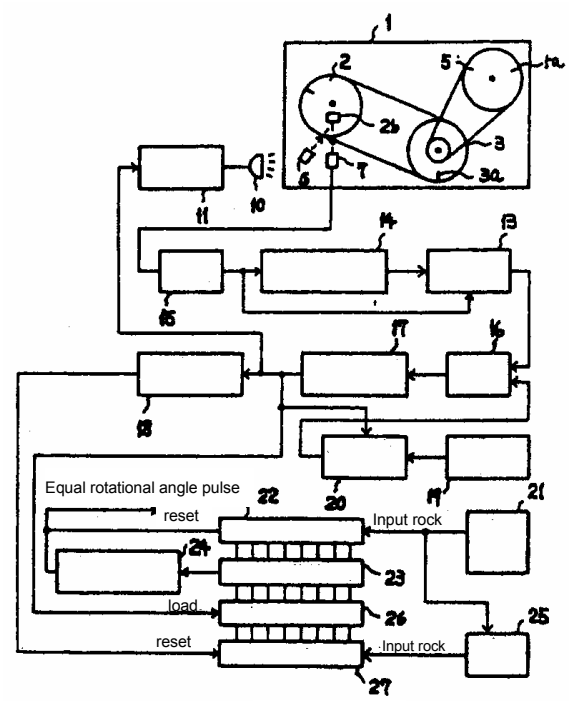


Figure 2

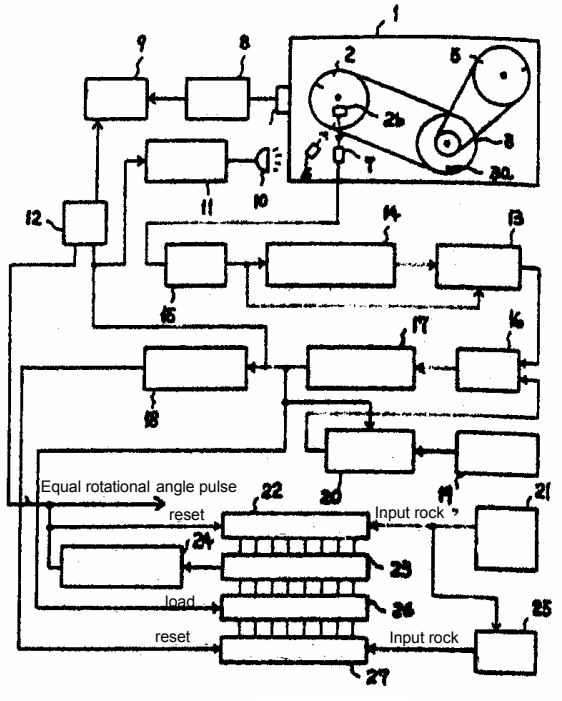


Figure 3

8. detection amplifier
9. Oscilloscope
11. strobo-activator circuit
12. Sweep circuit
13. voltage memory
14. pulse phase voltage regulator
15. wave form shaping circuit
16. comparator
17. manostable multi-vibrator
18. manostable multi-vibrator
19. phase setting dial
20. Timing-voltage transducer
21. clock pulse emitter
22. 256-array counter
23. 8 bit comparator
24. Manostable multi-vibrator
25. n-array counter
26. 8 bit latch
27. 256-array counter

[Explanation]

(1) The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are both in the area of angle of rotation detection device. Since they are the same, the industrial fields of application of both inventions are the same.

The related invention consists of all of new matters corresponding to the problem to be solved of the specified invention. Therefore the substantial parts of matters in the claims of both inventions are the same.

(2) The technical field of the specified invention is in high-performance detection of the angle of rotation of spinning body. The technical field of the related invention (Claim 3) is in a means to detect vibrations caused by the spin. Applying technology of rotation angle detection device having high-performance detection ability to the technical field of a means to detect vibrations caused by the spin is technically quite appropriate. The two inventions are technically and directly related, and the industrial fields of application of the inventions are the same.

The substantial part of matters in the claim of the related invention is the new matter corresponding to the problem to be solved of the specified invention. Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 36]

[Title of the Invention]

Standards for light intensity measurement device and reference unit

[Claims]

1. Standards for light intensity measurement device (17) comprising a solid medium in which a large number of light scattering particles (36) are evenly imbedded, and …said solid medium incorporates a light guide (12) at its edge (21) and flexible surface in order to establish complete optical contact. (See Figure 1)
2. Standards for light intensity measurement device, comprising a light guide (12) to be used in the measuring light input/output part of light detection equipment (35) in order to standardize such equipment, the edge (21) of said light guide (12) and the flexible surface (14) of the material composing the reference unit described in Claim 1 for establishing a complete optical contact, and having a means to maintain this condition. (19, 25, 31) (See Figure 1)

[Excerpt from Detail Description of the Invention and Drawings]

In standardizing a light intensity measurement equipment having a light guide (12) in measuring light input part using a light intensity standard, this standardization units allows the light to penetrate from the edge of the light guide to the standardization materials, while preventing the light leakage by complete contact between the two.

The existing light standards used hard materials. Standards produced of such a material has a weakness in that not all light transmitted by the light guide reached the standard, and often failed to standardize the light intensity measuring equipment.

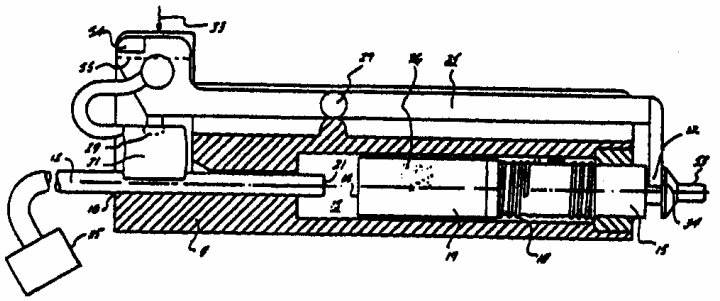


Figure 1

[Explanation]

The technical field of the specified invention (Claim 1) is in the reference material for light intensity measuring equipment. The technical field of the related invention (Claim 2) is the standardization unit to prove measurement standard for light intensity measuring equipment. These two inventions have direct relationship since the combination of standard material and standard-measuring units is generally used, and their industrial fields of application of both inventions are the same.

The reference material that is the new matter corresponding to the problem to be solved of the specified invention (Claim 1) is substantial part of matters in the claim of the related invention (Claim 2). Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 37]

[Title of the Invention]

Process for determination of the running speed of thread and estimating the number of false-twists in false-twisting machine

[Claims]

1. Means for measuring the running speed of the tread (Y) by running said thread (Y) through two capacitance type detector heads (1a, 1b) spaced at specified distance L, through L/T operations of the time for the twist to pass through one head and arrive at the second. (See Figure 1)
2. Means of obtaining the running speed of the thread Y, and based on the this information, to estimate the false-twisting number of the thread Y, as the thread runs through the two capacitance type detector heads (1a, 1b) spaced at a specific distance L, while being twined, and the time T required for the twist of thread Y detected at one head and until it reaches the second is processed through L/T operation.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the detection of the funning speed of the thread without physical contact with the thread itself. Applying the specified process on false-twisting machine and measuring the running speed of the thread in false-twisting stage, enables estimation of the number of false-twists in the running thread Y. The usual process of measuring the running speed of the thread is by contact with a roller and obtaining the number of its spin, but this processesometime affected the running of the thread or caused the thread to break.

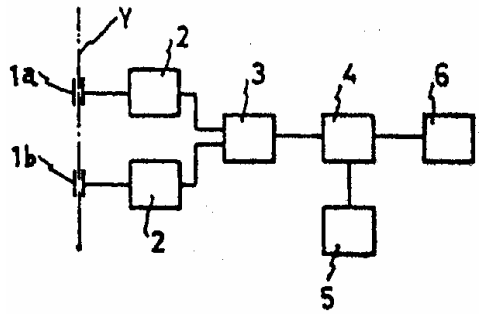


Figure 1

[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are in “the measurement of the running speed of the thread” and “estimation of false-twists in the thread", respectively. The measured running speed of the thread, however, is used to estimate the number of false-twists in a thread, the two inventions are technically and directly related, and the industrial fields of application of both inventions are the same.

The substantial part of the measurement of the running speed of the thread that is the new matter corresponding to the problem to be solved of the specified invention (Claim 1) is substantial part of matters in the claim of the related invention (Claim 2). Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 38]

[Title of the Invention]

Electromagnetic slewing mechanism and world-time display wristwatch incorporating the electromagnetic slewing mechanism

[Claims]

1. An electromagnetic slewing mechanism comprising a cylinder (89) having a zigzag (z form) annular groove (94), a pair of electromagnets (96) placed with a given distance, a permanent magnet (97) placed between the pair of electromagnets (96) that travels between the latter depending on selective activation, and a pin to propel an endless belt that extends into said cylinder from the permanent magnet (97). (See Figure 1)
2. …A world-time display wristwatch incorporating the electromagnetic slewing mechanism with a cylinder (89) having a zigzag (z form) annular groove (94), a pair of electromagnets (96) placed with a given distance, a permanent magnet (97) placed between the pair of electromagnets (96) that travels between the latter depending on selective activation and a pin to propel an endless belt that extends into the said cylinder from the permanent magnet (97). The pin that penetrates to the electromagnetic slewing mechanism drives the endless belt on which the time of each world city (25) is displayed on a horizontal direction and, on the vertical direction, time at a given local time of various world cities (24) are displayed. …The movement of the endless belt reveals a large number of world times. (See Figures 1, 2 and 3)

[Excerpt from Detail Description of the Invention and Drawings]

In this invention, the back-and-forth movement of the electromagnetic slewing device is converted to the spin of endless belt, which enables a display of time at a large number of world cities in a wristwatch.

As the slewing mechanism for endless belt for displaying a large number of world times, electric motor is conventionally used. Inclusion of a motor may be appropriate for large display panels for air terminals or a telegraph office; however, such a device is inappropriate for use in a wristwatch. By developing the electromagnetic slewing mechanism of this invention, it became possible to include a slewing device into a wristwatch.

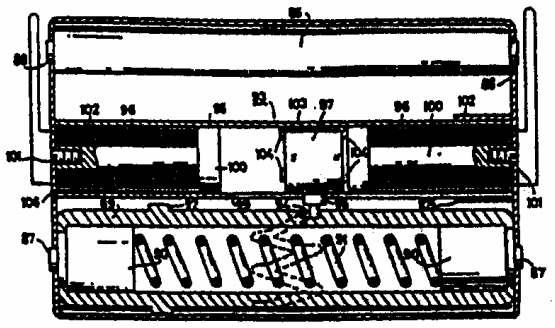


Figure 1

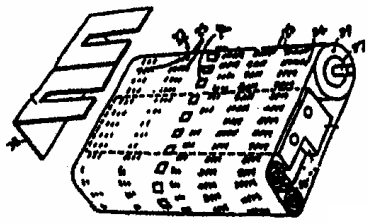


Figure 2

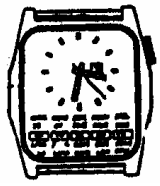


Figure 3

[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are “electromagnetic slewing mechanism” and “display of world time,” respectively. Since the electromagnetic slewing mechanism is miniaturizable process for turning endless belt, and application of this turning mechanism to world-time display wristwatch is also appropriate, the technical fields of the specified and related inventions are technically and directly related and their industrial fields of application of both inventions are the same.

The electromagnetic slewing mechanism that is the new matter corresponding to the problem to be solved of the specified invention (Claim 1) is substantial part of matters in the claim of the related invention (Claim 2). Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 39]

[Title of the Invention]

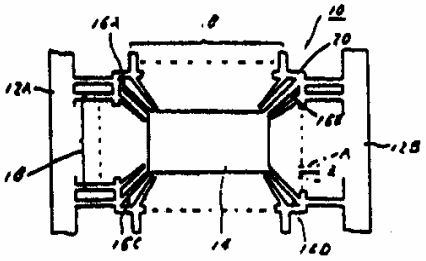
The lead frame for semiconductor integrated circuit and semiconductor integrated circuit

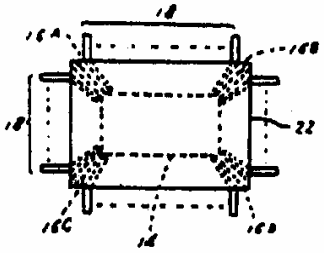
[Claims]

1. Lead frame for semiconductor integrated circuit comprising, 4-cornered tab (14) for supporting semiconductor chip; multiple number of leads (18) for bonding wires at one end of the tab, a frame (12A, 12B) at the opposite end of the tab, and the tab support leads (16A – 16D) extending from the 4 corners of said 4-cornered tab (14), characterized in that the tab support leads extend at an obtuse angle from the two sides of said 4-cornered tab (14). (See Figure 1)
2. Semiconductor integrated circuit, comprising 4-cornered tab (14), multiple leads (18) of which the semiconductor chip is affixed to this tab and which extends from the said semiconductor chip to which bonding wires are connected, tab leads (16A – 16D) by which the said lead frame (14) holds 2 sides at an obtuse angle, and the resin sealer that covers the whole of said semiconductor chip, tabs (14, bonding wire, tab-holding leads 16A – 16D), and part of said lead (18). (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention pertains to the lead frame for semiconductor integrated circuit and the semiconductor integrated circuit. The conventional lead frame has the shortcoming of its tabs miss-shaping while applying the resin sealer so that connecting wire breaks due to unstable leads attaching the tab to the lead frame.





[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are “lead frame” and “semiconductor integrated circuit,” respectively. Application of the art of the lead frame to that of semiconductor integrated circuit is quite appropriate. The two fields of the inventions are technically and directly related and the industrial fields of application are the same.

The lead frame that is the new matter corresponding to the problem to be solved of the specified invention is substantial part of matters in the claim of the related invention. Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

[Example 40]

[Title of the Invention]

MIS type semiconductor device and the semiconductor random access memory device application

[Claims]

1. MIS type semiconductor device, comprising first MIS element (Q_{W11}) formed on the semiconductor substrate, utilizing either the drain (3) or the source (4) of the first MIS element (Q_{W11}) and the second MIS element (Q_{R11}) formed above the first MIS element (Q_{W11}). (See Figure 1)
2. A semiconductor random access memory device with the characteristics of having the matrix of memory cells (C11) that includes the first MIS element (Q_{W11}), the drain (3) or the source (4) of the first MIS element (Q_{W11}) and the second MIS element (Q_{R11}) formed above the first MIS element (Q_{W11}), gate input capacity information storage capacitor (C_{S11}) for the second MIS element (Q_{W11}). In the matrix of the memory array, the drain of the said first MIS element (Q_{W11}) electrically connected to the drain of the second MIS element (Q_{W11}), … connecting so that the data line (D_1) orthogonally to sense (S_1) and word (W_1) lines of the each memory cell of the array. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the MIS semiconductor device and a high-integrated random access memory semiconductor device. This memory cell is composed of two MIS elements forming specific circuit in the memory cell circuit and a capacitor in which the first MIS element (Q_{W11}) and the second MIS element (Q_{R11}) formed above the former, further the either the source or drain of the first MIS element (Q_{W11}) is made function as the gate to the second MIS element (Q_{R11}) carrying a capacitor (C_{S11}) thereby achieving a semiconductor random access memory device which is simplified.

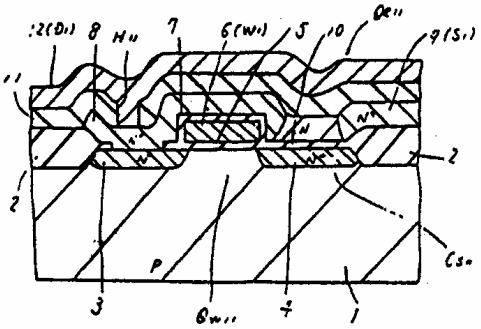


Figure 1

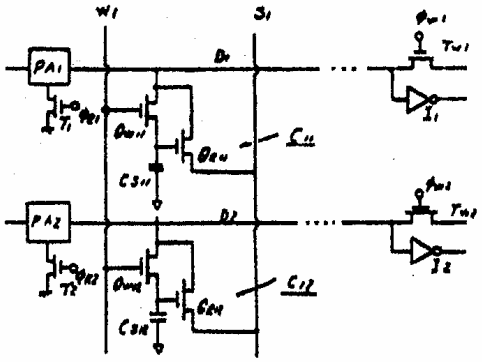


Figure 2

[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are "MIS type semiconductor device" and "semiconductor random access memory device application". Application of the art of the technical field of MIS type semiconductor device to the technical field of semiconductor random access memory consisting of many circuit elements is extremely appropriate. The technical fields of both inventions are related directly and technically, therefore their industrial fields of application of both inventions are the same.

The semiconductor device that is the new matter corresponding to the problem to be solved of the specified invention is substantial part of matters in the claim of the related invention. Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]
Patent Law Section 37(ii)

[Example 41]

[Title of the Invention]

Piezoelectric monocrystal and the surface acoustic wave element utilizing the piezoelectric monocrystal

[Claims]

1. A Piezoelectric monocrystal comprising the structure expressible by the general formula $(Ba_{2-x}Sr_x)\ TiSi_2O_8$, where the value of X is $0.25 \leqq X \leqq 1.2$.
2. Surface acoustic wave element, characterized by using the surface waves that propagates parallel to the vertical surface of the Z-axis of piezoelectric monocrystal, that propagates in parallel to the X-axis surface of piezoelectric monocrystal or that propagates the surface that includes X-axis and also forms the angle μ where $|\mu| < 30^o$ in which the surface is parallel to the X-axis of piezoelectric monocrystal of the piezoelectric monocrystal having the structure expressible by the general formula $(Ba_{2-x}Sr_x)\ TiSi_2O_8$, where the value of X is $0.25 \leqq X \leqq 1.2$.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the piezoelectric monocrystal and the surface acoustic wave element used in ultrasound oscillator element.

The piezoelectric monocrystal in this invention has a large coefficient of coupling and the coefficient of temperature in delay time is very low so that it is particularly suitable for use as the material in surface acoustic wave device.

This surface acoustic wave element using piezoelectric monocrystal in this invention is (1) that propagates on the vertical surface that is vertical to the Z-axis of the piezoelectric monocrystal (Figure 2 $\overset{\nu}{k}$ is the propagating direction of the acoustic wave, μ is the Eulerian angle of the angle vertical to the cut surface and the Z-axis, θ is the Eulerain angle of the propagation of the surface waves and the X-axis), (ii) the direction of the surface wave propagation in parallel to the surface that includes the X-axis (Figure 3), (3) the surface wave propagating in the vertical direction of the cut surface that includes the X-axis and the cut surface that is in the vertical direction, and the Z-axis of the monocrystal together comprises the angle μ where $|\mu| < 30^o$.

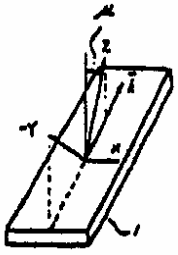


Figure 1

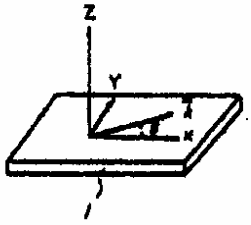


Figure 2

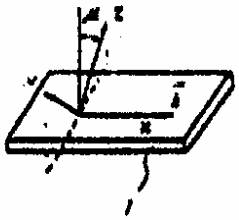


Figure 3

[Explanation]

The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are in “piezoelectric monocrystal” and “surface acoustic wave element,” respectively. It is quite appropriate to include piezoelectric monocrystal in the surface wave acoustic element. The technical fields of both are directly and technically related and the industrial fields of application of both inventions are the same.

The piezoelectric monocrystal that is the new matter corresponding to the problem to be solved of the specified invention (Claim 1) is substantial part of matters in the claim of the related invention (Claim 2). Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]
Patent Law Section 37(ii)

[Example 42]

[Title of the Invention]

Connector and circuit board that includes the connector

[Claims]

1. Cartridge type circuit board connector characterized by a flexible flanges (23), which protrude from the conductive part (12) of the connector, which in turn is made of conductive rubber. (See Figure 1)
2. Cartridge type circuit board characterized by one end of flange part (12) indicated in Claim 1 in contact with the shoulder of the insulating casing (25), the other end of the end of the flange (23) pressed against the circuit board (22) which deploys MOS type IC (21). (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the connector, which is used in coupling the IC circuit board (22). When inserted as an expansion cartridge, the connector (24) and said circuit board (22) make an electric connection.

The existing system of cartridge type circuit board, internal circuit board (22) and connector (22) are already connected so that if static electricity laden human body part and other objects makes a contact with the connector part protruding from the insulated casing, the MOS type IC could have been damaged.

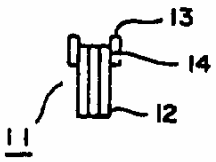


Figure 1

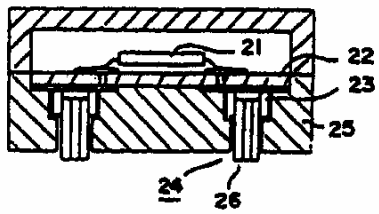


Figure 2

[Explanation]

The specified invention (Claim 1) and related invention (Claim 2) were in technical fields of “connector” and “cartridge type circuit board,” respectively. Because the connector is to be used in the technical area of cartridge type circuit board in the claim, the two invention fields have technically direct relationship, and their industrial fields of application of both inventions are the same.

The connector that is the new matter corresponding to the problem to be solved of the specified invention is substantial part of matters in the claim of the related invention. Therefore the substantial parts of matters in the claims of the inventions are the same.

[Concerned Section]

Patent Law Section 37(ii)

3.3 Relationship under Patent Law Section 37(iii)

The relationship under Patent Law Section 37(iii) is that the relationship between the specified invention of a “product” and the related inventions falls under the relationship between the product and “processes for manufacturing said product, processes for using said product, processes for handling said product, machines, instruments, equipment or other means for producing said product, products solely utilizing specific properties of said product, or products for handling said product.”

3.3.1 Process of Manufacturing the Product, and Machines, Instruments, Equipment or Other Things for Manufacturing the Product

The process or the product of the related invention is what is used to change the raw material or semi-finished material etc. into the product of the specified invention.

“Other things,” includes ,except the “equipment,” catalyst or microbes etc. that is used on another raw material or semi-finished material etc. to use its function to change them to obtain the product.

When the “the process of manufacturing” or “machines, instrument, equipment and others” are appropriate for manufacturing of the specified invention, the unity requirement is satisfied even if they can be used to manufacture products other than the product indicated as the specified invention.

[Example 43]

[Title of the Invention]

Rotary solvent extirpation equipment, and the process of the field assembly of the cell assembly of rotor of the rotary solvent extirpation equipment

[Claims]

1. Rotary solvent extirpation equipment (16) having upper support beams (12) and lower support beams (14) which extend in the direction of diameter parallel to the rotor shaft, and the cells of the rotor are held by 4 upper and lower beams, wherein
   (a) Upper and lower positioning elements (40), inside and outside positioning elements (42, 44) affixed in the side-walls (20) held by the upper and lower support beams.
   (b) The inside wall material (18) affixed in between the said sidewalls.
   (c) The outside wall material (22) affixed in between the said sidewalls.
   (d) Gable structures (60) placed on the sidewalls of opposing cell. (See Figures 2, 3, and 4)
2. In the process of field assembly of the cell of the rotor for the rotary solvent extirpation equipment having upper support beams (12) and lower support beams (14) parallel to the rotor shaft, which are held by 4 upper and lower beams, comprising in combination;
   (a) First placing the part with the side walls (20) with inside and outside positioning elements (42, 44) on the upper and lower support beams by means of the upper and lower positioning elements (40).
   (b) Next, by using the positioning elements on the said sidewalls, place the inside wall parts.
   (c) Further, place the out side part (22), by using the outside positioning elements as a guide, on said sidewalls.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the rotary solvent extirpation equipment and the process of the field assembly of the cell assembly of its rotor. More specifically, the equipment is stored in a configuration that is ready to be shipped to the field and consists of inside walls, outside walls and sidewalls. The invention allows an easy field assembly of the rotor that consists of the cell assembly in rotary solvent extirpation equipment.

The gable structure prevents solvents from dripping in between cells and to facilitate it to flow into the neighboring cell, and the process of field assembly of this invention is applicable to rotary solvent extirpation equipment of the type other than that having the gable structure.

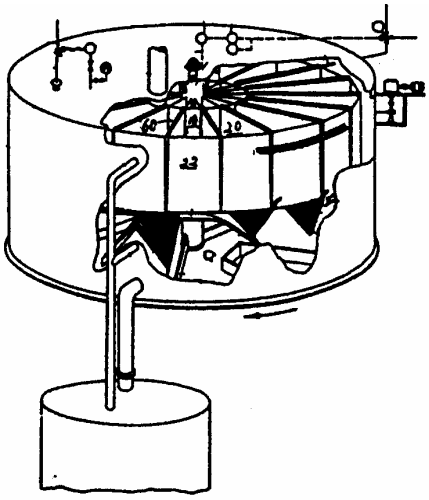


Figure 1 Oblique view of the rotary solvent Extirpation equipment

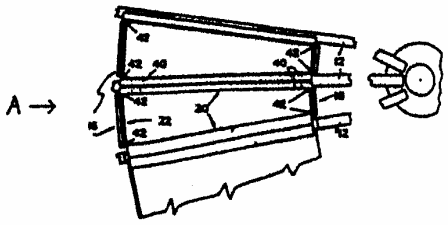


Figure 2 Top view of the assembled cell assembly

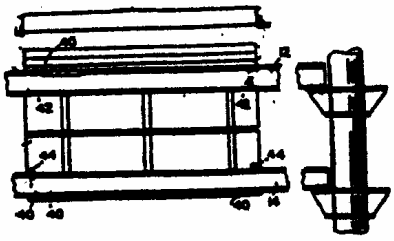


Figure 3　Detailed side view of the assembled cell assembly

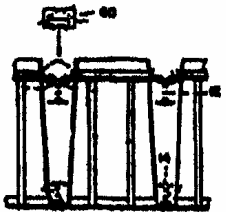


Figure 4　Side view of Figure 2 seen from direction A

[Explanation]

The specified invention (Claim 1) is the invention of the rotary solvent extirpation equipment and the related invention (Claim 2) is the process of field assembly of the cell assembly of the rotary solvent extirpation equipment.

The related invention of the process of field assembly is appropriate for the matter of the specified invention of the rotary solvent extirpation equipment.

The related invention of the process of field assembly pertains to the process of manufacturing the equipment, the specified invention.

[Concerned Section]

Patent Law Section 37(iii)

[Example 44]

[Title of the Invention]

Antibiotic A/16686 and microbes to produce the antibiotic

[Claims]

1. Antibiotic A/16686, a sodium salt of white crystal substance, comprising A) having the melting point of 224-226^{o}C, …C) consisting of 51.73% carbon, 6.34% hydrogen, 9.96% nitrogen, 5.84% sodium (total contents), 4.74% ionized sodium and 1% of the remaining constituents of like elements, …F) specific optical rotation, $[\alpha]_D^{24}$=+49.7^{o}, …J), amino acid analysis showing ornithine, aspargine… …after hydrolyzing in 6 N nitric acid at 110^{o}C for 6 hours.
2. A microbe belonging to *Actinoplanes philippinensis* that is capable of producing in glucose-asparagine agar the antibiotic A/16686 without producing sporangia.

[Excerpt from Detail Description of the Invention]

This invention concerns a new antibiotic substance A/16686, which has an antibacterial activity, and a microbe, *Actinoplanes philippinensis,* which is capable of producing the antibiotic substance A/16686.

Antibacterial substance A/16686 is a new glycopeptide antibiotic. This antibiotic is produced by culturing the microbe strain (NRRL5462) of *Actinoplanes philippinensis.*

[Explanation]

The microbe of related invention (Claim 2) does not fall in the category of equipment to produce the antibiotic, but it falls in the category of “other things.”

[Concerned Section]

Patent Law Section 37(iii)

[Example 45]

[Title of the Invention]

Structure of anti-slipping device of blind nut

[Claims]

1. Anti-slipping device of blind consisting of a hollow cylinder (36) fabricated of a material capable of plastic deformation, having the female thread (12) on its inside front end and a flange (14) on its back end;

   Wherein a groove (24) cut in the direction of the outside of the radius in the surface of the mounting hole (22) of the part to be fastened (16); and the mid-section of the blind nut (34) expanding in the outside direction of the radius including the said groove (22), thus preventing the slippage of the blind nut. (See Figures 1 and 2)
2. The tool for forming the anti-slippage groove (22) comprising a guide portion (26) of the blind nut, which is inserted into the pre-drilled mounting hole of the piece to be fastened, a flange (30) able to be inserted in said mounting hole (22) provided at the rear side of said guide, and an edge (32) affixed at an angle of 15-40^{o} and protruding in the outside direction of the radius of the edge of the flange. (See Figures 3 and 4)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the structure of anti-slippage device of blind nuts when a large torque is applied to the piece being held by the blind nut.

The conventional blind nut was tightened by means of an impact wrench and a like so that a large torque is applied to the blind nut and crimping becomes loose, the blind nut turned.

This invention combines the grooves in the mounting hole and the anti-slippage structure of the blind nut in order to prevent slippage, and the tool in Figures 3 and 4 is appropriate for forming the grooves in the mounting hole (22).

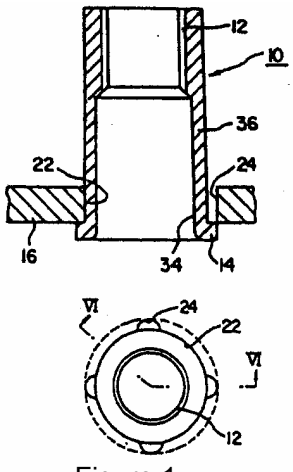


Figure 1

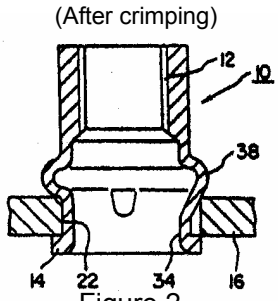


Figure 2

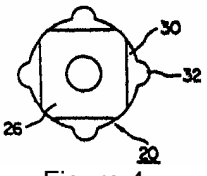


Figure 4

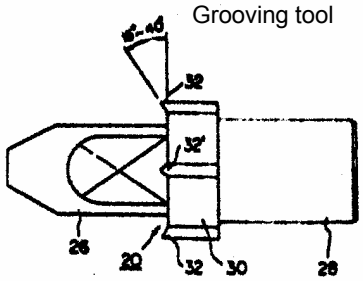


Figure 3

[Explanation]

The related invention (Claim 2), the tool does not manufacture the specified invention (Claim 1), the anti-slippage structure of the blind nut, but it is appropriate for cutting the grooves in the mounting hole to accept the structure of the specified invention blind nut. Both inventions have the relationship between the product and machines, instruments, equipment or other things for manufacturing the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 46]

[Title of the Invention]

Optical fiber cable and process of manufacturing

[Claims]

1. Optical fiber cable comprising optical fiber core 3 on a protective tube 4' and at least one layer of a tension material 7 on the outside, …contacting on the outside of the tension material 7 a co-axially extruded metal pipe 8. (See Figure 1)
2. Production process of a cable having envelope layer arranged on the twisted cable materials comprising the steps of: forming metal pipe 8 which is larger than the cable part 7 on the outside of twisted cable part 7, by continuous extrusion, deforming the extruded pipe until it contacts the cable part 7, …thereby affixing the envelope layer 8' arranged on the twisted cable materials. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the optical cable that is combustible and able to withstand the high pressure and corrosiveness of the seawater, and it can be used in a long length, and the process of the production of this optical cable. This production process can be applied in manufacturing of items other than optical fiber such as combustible cables and ropes.

In the prior art of production where the pipe 8 is fabricated by welding a copper tape, the disadvantage is that parts contained in the pipe 8 is subjected to am adversary effect from the heat of welding.

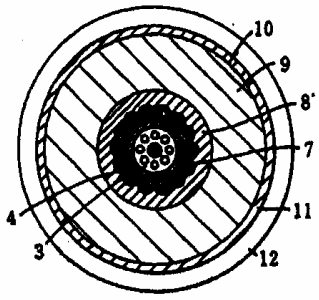


Figure 1

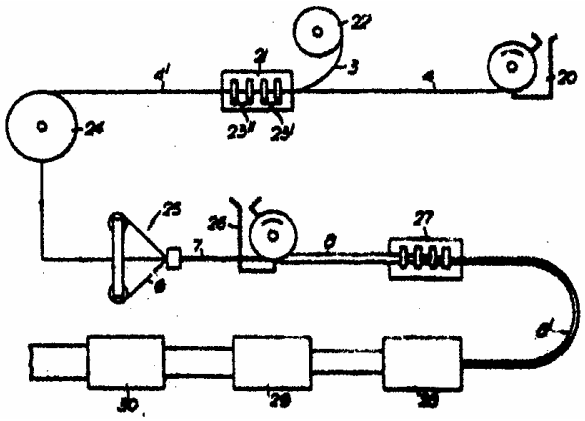


Figure 2

[Explanation]

By means of related invention (Claim 2), the "process of cable production," the specified invention (Claim 1), the "optical fiber cable" as well as "combustible cable or rope" is manufactured, and the related invention, the "process of cable production" is appropriate for the production of the specified invention, the "optical fiber cable." Therefore, both inventions have the relationship between the product and process of manufacturing the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 47]

[Title of the Invention]

Ignition trigger pulse generator and magnetizer

[Claims]

1. Ignition trigger pulse generator to be deployed on the drive shaft of an internal combustion engine comprising a pick-up coil device (13) and a permanent magnet (18), wherein the permanent magnet (18) consists of two magnetized components placed on the drive shaft separated and forms an area of reversed flux of magnetic induction (24, 25) across the magnetized radius and further these components are magnetized in the opposite directions. (See Figure 1)
2. A magnetizer (31, 32) for ring-shaped permanent magnet (18) for an ignition trigger pulse generator for internal combustion engine comprising: a pole part (33) with U-shaped section having first and second poles which contacts half of the periphery of circular magnet, thereof lines up in the direction of a shaft, magnetizing coil (37) deployed on the surface of said pole part, and, a power source to provide the polarity and a given level of electric current selected by said coil (37). (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the drive-shaft mounted and electric generator equipped trigger pulse generator to provide 2- cylinder engine ignition condenser for outboard motor boats and others. In a ring-type permanent magnet, where two parts are separated in parallel to the shaft and opposite in the diameter, are set so that the polarity of the two parts are opposite, thereby setting up an area of reversed flux of magnetic induction (24, 25), causing the pickup-coil to release a sharp trigger pulse. The magnetic material for this device is magnetized as stated earlier and deployed on the drive shaft.

In the prior art, the pulse generator assembly is mounted under the electric generator, which required a longer drive shaft, resulting in a larger overall size and the device could not provide a sharp trigger pulse. When being assembled, the parts were likely to be pulled onto the magnets, reducing the work efficiency

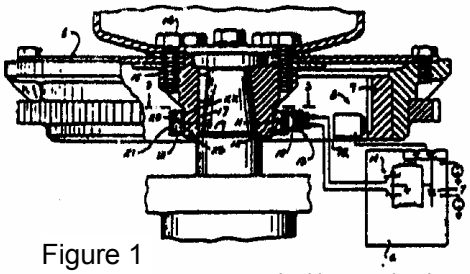


Figure 1

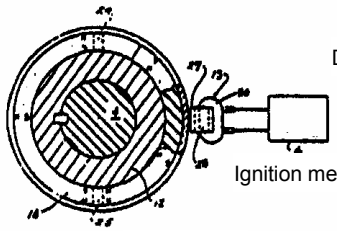


Figure 2

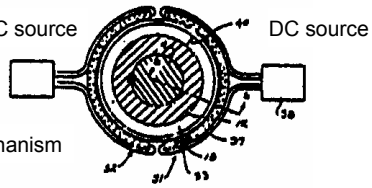


Figure 3

[Explanation]

The related invention (Claim 2), the magnetizer, is magnetized after the specified invention (Claim 1), pulse generator, has been assembled. Therefore, both inventions have the relationship between the product and equipment for manufacturing the product.

[Concerned Section]

Patent Law Section 37(iii)

3.3.2 Process of Using the Product and Product Exclusively Using the Specific Characteristic of the Product

"A process of using the product" is meant an invention of a process to use the property or function of a product. "An invention of a product exclusively using the specific characteristic of the product" is an invention of a "product" to exclusively using the attribute of the product.

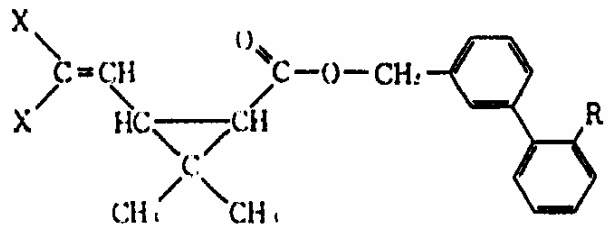
[Example 48]

[Title of the Invention]

A derivative of cyclopropane carbonic acid ester, an insecticide that contains the derivative, and the process of its use (C07C69/747, A01N53/00(102))

[Claims]

1. General formula (1)



The derivative of cyclopropane carbonic acid ester expressible (in the formula, X is sodium or bromine, R is halogen, low-grade alkyl, trifluoromethyl or low-grade alkoxide) in the general formula.

2. An insecticide having as active ingredient at least one of the compounds listed in Claim 1.
3. A process of insect control applying at least one of the compounds listed in Claim 1 in a desired location.

[Excerpt from Detail Description of the Invention]

This invention concerns a substance that shows an insecticidal activity, and the duration of its activity having a substituent on biphenyl unit benzene ring, [1,1'-biphenyl]-3-yl-methyl-3-(2,2-Dihaloethenyl)-2,2-dimethyl cyclopropanecarboxylates, and an insecticide that contain this compound and the process of its application.

[Explanation]

The related invention (Claim 2), an insecticide, falls under the product that exclusively uses the insecticidal activity of the derivative of cyclopropanecarbonic acid ester of the specified invention (Claim 1).

A process of the related invention (Claim 3), falls under the "process" to use the derivative of cyclopropanecarbonic acid ester of the specified invention.

[Concerned Section]

Patent Law Section 37(iii)

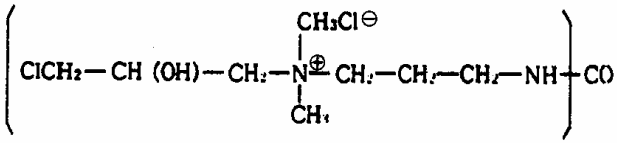
[Example 49]

[Title of the Invention]

The fourth class ammonium compounds and their usage

[Claims]

1. The fourth class ammonium compounds expressible by the formula below.



2. A process to prevent growth and propagation by means of applying the fourth class ammonium compounds in effective dosages indicated in Claim 1 on the microbes selected from bacteria and fungi.
3. Process for reducing the bond between web fibers by applying in the slurry of cellulose pulp fibers…the fourth class ammonium compounds described in Claim 1.

[Excerpt from Detail Description of the Invention]

This invention concerns the newly developed fourth-class ammonium compounds and their application as microbial control and desegregation agent.

[Explanation]

Processes indicated as the related inventions (Claim 2 and 3) are to apply the specified invention (Claim 1), fourth class ammonium compounds, as microbial control and desegregation agents, respectively. The relationship between the specified invention and related inventions fall under the product and the process of using the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 50]

[Title of the Invention]

Trifluoroethylene chloride/ethylene copolymer as filming component of a paint and the process of electrostatic coating

[Claims]

1. A paint having as its filming component Trifluoroethylene chloride/ethylene copolymer the mole fraction content of which is 40/60 - 70/30.
2. Process of electrostatic coating using the paint described in Claim 1.

[Excerpt from Detail Description of the Invention]

The filming component, Trifluoroethylene chloride/ethylene copolymer, is superior in its heat- and weather-resistibility and is therefor very suitable for metal roofing materials susceptible to heating by the heat of the sun and others.

The copolymer in question is polar and can be easily electrified, and as a consequence, adheres to a surface as an even coat. Since it absorb little water from humid air, it seldom discharges electricity, and is therefore its in electrostatic coating process adherence to the surface is strong.

[Explanation]

The process described in related invention (Claim 2) pertains to the electrostatic application of the specified invention, the paint. Both of the inventions, therefore, fall in the category of the product and the process of using the product.

[Concerned Section]

Patent Law Section 37(iii)

3.3.3 Handling Process for the Product and Product for Handling the Product

"Handling a product" refers to the maintenance and/or extraction of the function of the product, by externally acting on the product, in principle without causing change to the essence of the product. Transportation and storage of the product, for example, fall under this category.

Unity of application shall be recognized if the "handling process for the product" or "product for handling the product" of the related invention is suited to handling the product of the specified invention, even if the same process or product could also be applied to handling products other than the product of specified invention.

[Example 51]

[Title of the Invention]

Magnet-clad seeds and seeding machine

[Claims]

1. Magnetic seed covering for a given number of seeds (1) by means of water-soluble covering material (4) that includes magnetic particles (4), and form the grain size and their shape. (See figure 1)
2. A seeding machine wherein one side of a turning disc, with magnets (8) imbedded on its periphery, is suspended in the seed bin (6), and affixing the seed-scraper (10) on the opposite side of the disc and having a seeding tube (11) on its lower side. (See figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention enables a specified number of seeds by means of the magnet to be sowed accurately. The seeds are first coated by means of water-soluble coating agent (4) that includes powerful magnetic material such as iron particles. The specified number of coated seeds (7) are transported out of the seed bin (6) by magnets (8) imbedded on the periphery of turning disc (7), and dropped into the seeding tube (11) by the seed-scraper (11).

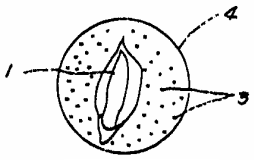


Figure 1

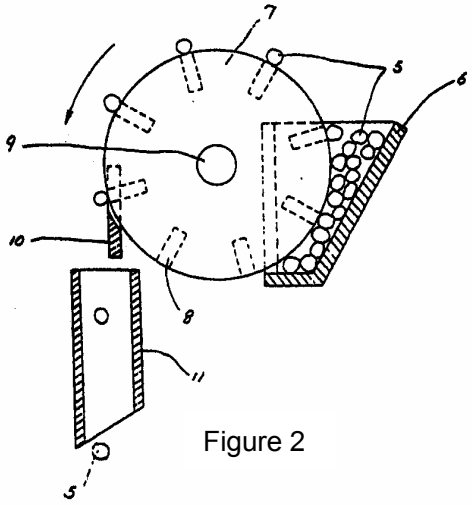


Figure 2

[Explanation]

The seeding machine of the related invention (Claim 2) extracts the function of the coated seeds of the specified invention (Claim 1), thereby, the two inventions constitute the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 52]

[Title of the Invention]

Hydrophilic agent for potted plants and retaining tool

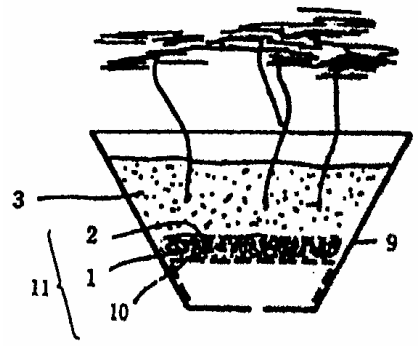
[Claims]

1. Water retention agent of high-molecular weight for potted plants.
2. A retainer device composed of bag to hold the water-retention agent, which permits water and plant root penetration, with pores small enough to prevent water to runoff that, in turn fits onto the aeration plate fitted into the bottom of the planter pot.

[Excerpt from Detail Description of the Invention and Drawing]

This invention involves mixing polyacrylamide and other high-molecular hydrophilic materials into the potted soil, thereby encouraging root growth while reducing the frequency of watering.

The retaining tool consisting of the bag (1) and the aeration plate (10), by soaking them with the hydrophilic agent so that they have completely absorbed the hydrophilic agent before placing in the planter pot prior to placing the soil, it can be kept free of the agent, the process can be very simple, clean and quick. The root can penetrate the bag, but it must prevent the water from passing through it. The grain size of the high-molecular weight hydrophilic agent must be 1.5 to 3mm.



[Explanation]

The fixture for the hydrophilic agent for potted plant of the related invention (Claim 2), that is to put the hydrophilic agent for potted plant in the bottom in the potted soil, invented to maintain and extract the function of the hydrophilic agent for potted plant of the specified invention (Claim 1). They, therefore, constitute the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 53]

[Title of the Invention]

Collapsible transporter and the main-pipe elevating tool

[Claims]

1. Collapsible heavy-duty transporter, comprising 4 extendable main-pipes (1, 2, 3 and 4), 2 suspension-pipes (5 and 6), 2 side-pipes (7 and 8), 4 fittings (9) that maintain said main-pipes in a vertical position, suspension- and said side-pipes at a right angle within a horizontal space and rollers and bearings that can be affixed selectively on the lower part of the main-pipes. (See Figure 1)
2. Main-pipe elevating tool for the heavy-duty transporter main-pipes described in Claim 1, comprising distance block (12) installable on the floor, a pair of base-support plates (15) equipped with shaft holders (14) connected to both ends of said block (12) detachably, a pair of couplers (1a, 2a) one end of which is affixed to the base-support by means of a hinge and the receptacle for the main-pipes at the top of the other end and a fastening tool each end of which can be attached to a pair of reclining main-pipes. The fastening tool is used to pull the reclining pipes so that they are upright. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the transporter that is disassembled into several units to facilitate its transportation and the main-pipe elevating tool. Conventional device of this type has casters and bearings at the lower part of the four legs, but because the heavy load is suspended within the structure, it tends to become large and is generally cumbersome to transport and could not be pushed through smaller entrances.

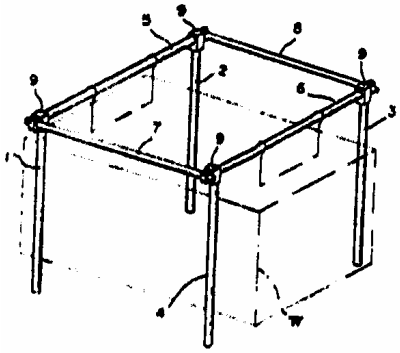


Figure 1

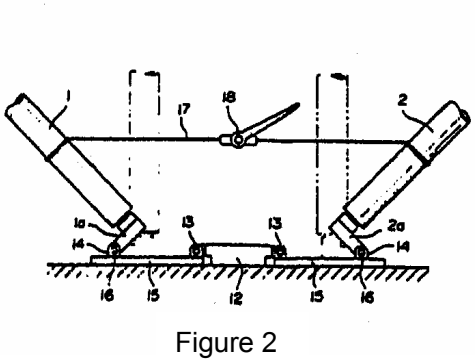


Figure 2

[Explanation]

The tool of the related invention (Claim 2) is used for assembling the transpoter by raising the main-pipes of the collapsible transporter of the specified invention (Claim 1), and the function of the transporter is maintained and extracted by externally acting on the collapsible transporter. Thus, the two inventions constitute the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 54]

[Title of the Invention]

Anti-surface erosion block mats, the mat-laying process and the mat-laying equipment

[Claims]

1. Anti-erosion block mat, comprising multiple blocks (1) with their reverse side covered with flexible sheet (2) that is strong enough to hold up against the weight of the said mats when lifted by it, and with enough excess on at least 2 sides to hold the blocks down when laid on the ground with the edges buried. (See Figure 1)
2. Construction plan based on the process of filling a section designed to accept a multiple number of independent blocks (1) with concrete or mortar while before the latter hardens, lift the blocks by means of the extra portion at one or both ends of the flexible sheet (2), and anchor the blocks by means of the flexible sheet (2) ends while leaving a small gap between the sectioning and the blocks.
3. Anti-erosion block mat laying equipment having a long beam (3) on which a movable block (4) travels along the long axis and a pinch-pickup (5) attached to the movable block. The pinch-pickup (5) in turn consists of the structural support (6), which is hinged to the beam (3), the link lever (7) attached to the upper frame (6a) of the structural support (6) and the lower frame (6b) attached to the upper portion of the said lever (7) working in consort with one another and a push-pressure device (8) to pinch-lift the extended portions of the flexible sheet (2) to lift the block mat. When the push-pressure device (8) exerts the pressure on the said lower frame (6b), the hinge (9) of the said link lever (7) and the push-pressure device (8) passes the line drawn vertically from the hinge of the link lever and the upper frame (6b), the said link lever is locked.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the mechanically laid anti-erosion block mats used on surface of banks, on levies, railroad and road elevations, the easy process of laying the mats and the block mat laying equipment. More specifically, the anti-erosion block mats of this invention include strengthening the adhesion of the block mats to the flexible backup sheet, and enabled the mechanical laying by means of extensions left to the sides of the block mats. The block-laying equipment of this invention, furthermore, has built into it a pinch-pickup device designed for the flexible backup sheet.

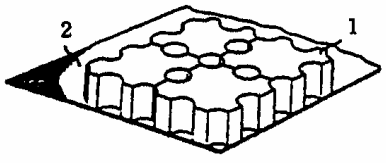


Figure 1

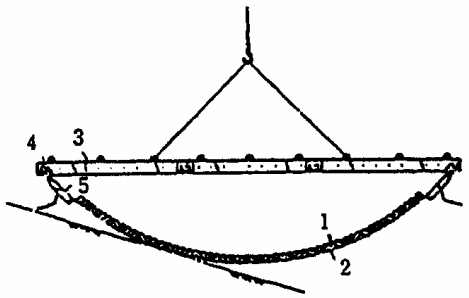


Figure 2

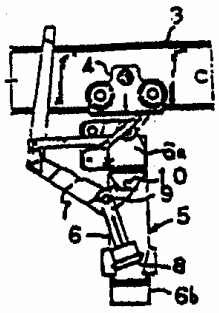


Figure 3

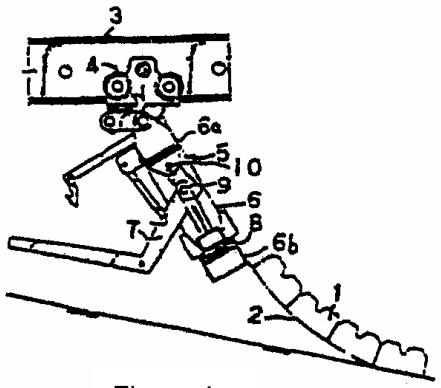


Figure 4

[Explanation]

The related invention (Claim 2) is the process of manufacturing the anti-erosion block mats of the specified invention (Claim 1), and they correspond to the product and the process of manufacturing the product.

The related invention (Claim 3), furthermore, is an invention of the mat-laying equipment that facilitates the function of the anti-erosion block mats of the specified invention (Claim 1), and they are related as the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 55]

[Title of the Invention]

Collapsible housing and the process of packing for shipment

[Claims]

1. Collapsible housing unit comprising a frame (6a, 6b, 6c) to which floors (7a, 7b, 7c) are built in, base units (1A, 1B, 1C)…assembled in such a way to be disassembled as a floor base (1), L-shaped corner panels (2A) assembled in such a way to be disassembled on four corners of the floor base (1) and side walls (2) constructed of side panels (2B, 2C, 2D) which is built in such a way as to be disassembled and assembled in such a way to be later disassembles by means of the fixtures (3A, 3B, 3C), and a roof fixture (3) placed at the upper inside of the side walls (2), also to be disassembled later and consisting of the roof paneling. (See Figure 1)
2. Packaging process of collapsible housing described in Claim 1, wherein temporary packaging frame (60) is formed by connecting the base units (1A, 1B, 1C) of the floor base in a U-shape in a disassemblable manner through multiple fixtures (58), corner panels (2A), side panels (2B, 2C, 2D) and roof panels (4A, 4B) are piled in the temporary packaging frame (60), and attachment units (3A, 3B, 3C) of the roof fixture (3) are piled on the temporary packaging frame (60) in such a manner as to be disassembled later. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the collapsible housing unit and its packaging to be used as an office space or sleeping quarters at a construction site.

The conventional units of this type have not been easy to assemble and disassemble and were not efficient in its transportability and storability.

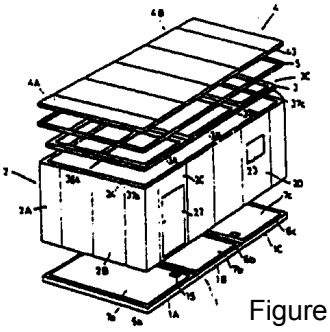


Figure 1

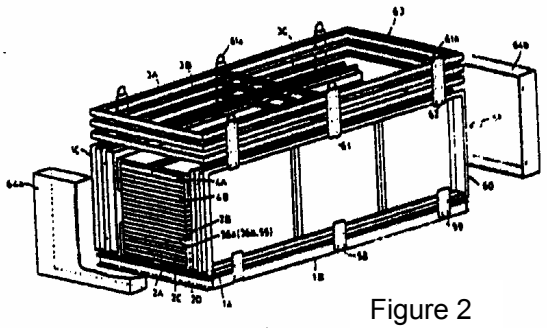


Figure 2

[Explanation]

The process of packaging this collapsible housing of the related invention (Claim 2) can facilitate the functions (easy assembly, storability, transportability) of the collapsible housing of the specified invention (Claim 1). They therefore, have the relationship of the product and handling process of the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 56]

[Title of the Invention]

Ready-mixed concrete transfer hose and the process of cleaning

[Claims]

1. A ready-mixed concrete transfer hose including a pumping tube (8) attached directly to the concrete hopper (2) and pressure-transfer hose (17) to be connected to the pumping tube,wherein the connecting pipe (10) is used to make the connection of the above hoses (8 and 17), and the connecting pipe having cock (11). (See Figures 1, 2 and 3)
2. The process of cleaning ready-mixed concrete residue by shutting by means of placing a hydrophobic resilient material (18, 18a) at the end of the pressure-hose, severing the connection between the pumping tube (18) and pressure-transfer tube (17) and at the same time opening the cock (11) of the connection pipe (10). Following this processesimilar hydrophobic resilient material is sent out of the hopper by water-pressure, cleaning the inside of the pumping hose and the connection pipe. In the next step, shut off the cock of the connecting tube, send the hydrophobic resilient material placed at the end of the pressure-hose down the inside by means of the water pressure.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the ready-mixed concrete transfer hoses and their cleaning process. The pumping tube and pressure-transfer hose are connected by means of connecting pipe having a cock, which can be opened or closed, thereby enabling the cleaning of the pumping tube alone or by sending hydrophobic resilient material down the pumping tube, connecting pipe and pressure-transfer hose to remove residues of ready-mixed concrete completely from all of the parts. Conventional transfer hoses lacked the capability to be completely cleaned because the pumping tube and pressure-transfer hose were directly connected. It was particularly difficult to clean the inside of the pumping tube.

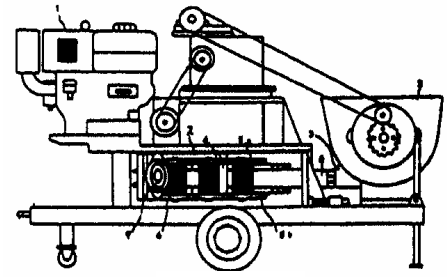


Figure 1

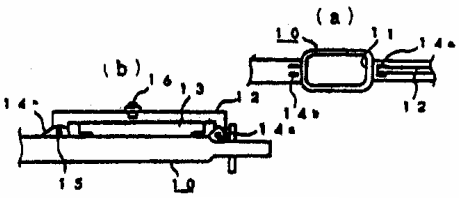


Figure 2

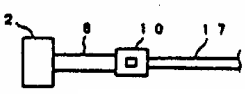


Figure 3

Figure 4

[Explanation]

The related invention (Claim 2), the cleaning process is to be effected on the ready-mixed concrete transfer hoses and is to maintain the function to transfer the ready-mixed concrete transfer. Therefore, the two inventions have the relationship of the product and the process of handling this product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 57]

[Title of the Invention]

Internal combustion engine equipped with exhaust gas filter and the process of its operation

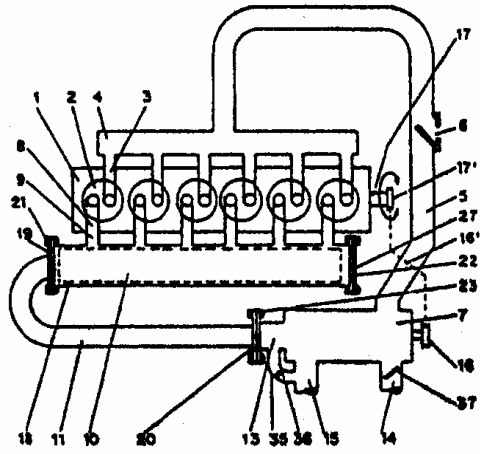
[Claims]

1. Internal combustion engine equipped with supercharger flap (6) and …pressure wave supercharger (7), wherein an exhaust gas filter (18) is placed in the exhaust pipe up-stream (11) of the pressure wave supercharger (7).
2. Process of operating the internal combustion engine equipped with supercharger flap (6) and…pressure wave supercharger (7) and placing a exhaust gas filter (18) in the exhaust pipe up-stream (11) of the pressure wave supercharger (7), characterized by an increase in the fuel supply to the internal combustion engine when the exhaust filter is clogged.

[Excerpt from Detail Description of the Invention and Drawings]

The primary invention concerns the internal combustion engine equipped with exhaust gas filter. If the exhaust filter is placed down-stream from the pressure wave supercharger, the engine could stall when the filter is clogged. The filter, thus, was placed on the up-stream side.

The second invention concerns the operation of the internal combustion engine equipped with the exhaust filter. When the exhaust gas filter is clogged, it is necessary to burn off the trapping form the filter. In order to raise the exhaust gas above the combustion temperature, an over supply of the fuel is required while the engine is running.



[Explanation]

In the exhaust filter for the internal combustion engine of the specified invention (Claim 1), its function cannot be effected or maintained. The related invention (Claim 2) is directed to operate the internal combustion engine so that the temperature of the exhaust gas is raised in order to remove the clogging. Affecting an external force to the filter allows it to maintain or activate its function. The two inventions, therefore, are the product and the process of handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 58]

[Title of the Invention]

Assembled multiple step barrel-type centrifugal pump unit and detachable transporter

[Claims]

1. Pre-assembled multiple step barrel-type centrifugal pump to be installed inside an outside housing where the compression unit (56) is installed inside pump casing, multiple pump phases including impellers, …inlet aperture casing (41), …side cover (57) and …end cover of the last phase. The device which places compressive force (53, 54, 55) is directly connected to said compression unit, and a device to input compression to the input axis (75, 76) is installed in the pump unit. (See Figure 1)
2. In the device to install pre-assembled pump unit and to uninstall the same consisted of …support part (101), …side parts (103, 104), …rollers (105a, 105b, 106a, 106b), a pair of rails (110, 111) installed on the upper surface of said supports (101) and wheels to travel on the set of rails. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

The two inventions concerns installation and un-installation of multi-phased barrel-type pump.

Conventional multi-phased pumps required disassembling of inner parts in a given order and in re-assembly effect the same process in the reverse direction, a process that required precise adjustments and consequently required a long time of skilled labor. The first invention is related to assemblage of parts placed on an axis in a precise manner by using a compressor device, thereby achieving an easy assembly and disassembly. The second invention concerns transport kit to enhances handling of the unit.

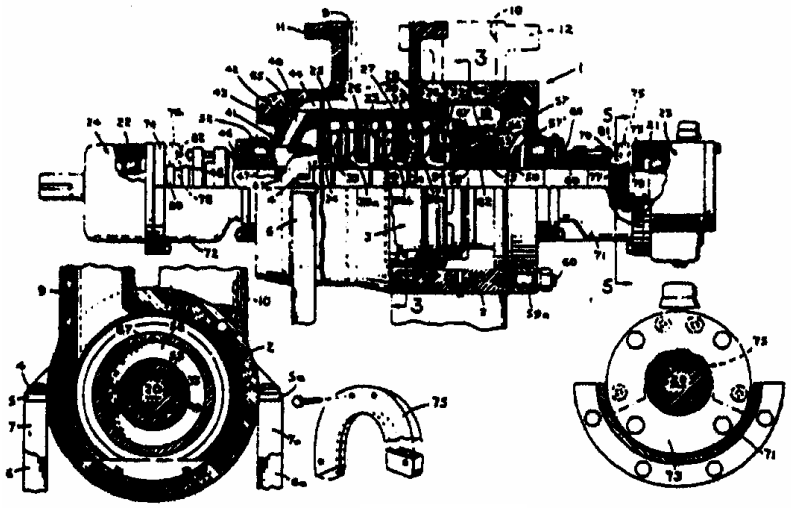


Figure 1

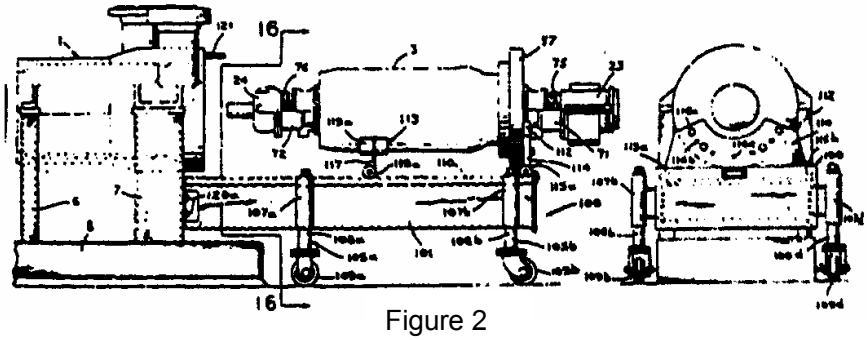


Figure 2

[Explanation]

The related invention (Claim 2), the transport kit, is appropriate for transport and assembly of the specified invention (Claim 1), the pump unit. The product of related invention activates the function the product of the specified invention by affecting an external force on the product of the specified invention; therefore, the two inventions have the relationship of the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 59]

[Title of the Invention]

High torque screw and its driver

[Claims]

1. High-torque screw, comprising a drive-groove (16) on the head (22)) of a screw (10), said drive-groove (16) formed of an arching bottom (26) and walls (24) which is slightly under-cut, and further comprising a conical indentation (18) on said drive-groove (16), characterized in that the base (28) of said conical indentation (18) is larger than that of the central portion of the drive-groove (16) in diameter, and an apex of the cone (30) is about twice that of the central portion of said drive-groove (16). (See Figures 1, 2, 3)
2. The screwdriver, comprising a driver blade (12) which is located at one end of the tool (32), consists of a pair of almost parallel side walls and an arching bottom edge (36), having a conical protrusion (38) formed in the central portion of said drive blade (12), the conical protrusion (38) of said blade having larger diameter than the width of the central portion of said drive blade, and having a pointed apex (41) protruding out of the curved blade under said arching bottom edge (36). (See Figure 1)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the high-torque screw and its driver that does not require visual confirmation of the tool mounting on the screw head and completes the work quickly and easily.

Conventional tool of this type has regular or Phillips type screw drivers. They had the weakness of easily stripping or damaging the head.

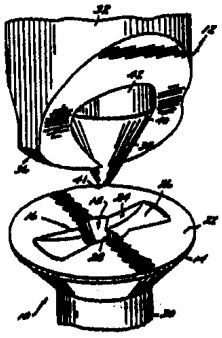


Figure 1

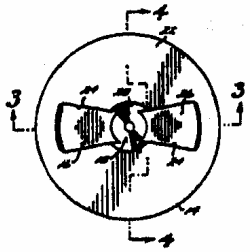


Figure 2

Figure 3

[Explanation]

The related invention (Claim 2), the screw driver is designed specifically to effect external force on the specified invention, the high-torque screw, in order to allow it to effect its function. Therefore, the two inventions have the relationship, the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 60]

[Title of the Invention]

Fluorescent lamp fixture having a release mechanism and the lamp releasing tool

[Claims]

1. The fluorescent lamp fixture with its long body (1) attached to the ceiling (13), a reflector plate (5) on which fluorescent lamp (4) is affixed, which is hinged at a long end of the said body (1) and having a hole (2), at the opposite end of the hole (2) an engagement unit (8) which engages the body (1) and the reflector plate (5), the extension of this engagement unit (8) a plate that go over the upper portion of the hole (2). By pushing against a push-plate (9) with the lamp releasing tool (10), it will disengage the engagement unit (8). (See Figure 1 and 2)
2. The lamp changing tool, which comprises a long pole (20) with an opening on the upper end and a C-shaped opening (21) near it, a sliding inner pipe (22) at the upper end of the pole (20), a flat stopper plate (23) placed near the opening at the end of the pole (20), a handle (24) through the C-shaped opening (21), which in turn is attached to the sliding inner tube (22) and a coiled spring (25) placed inside the pole (20) which buts against the sliding inner tube (22).

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns a lamp fixture placed on relatively high ceiling particularly for ease of changing lamps. It has the reflective plate, which can be released from the lamp housing and a tool to facilitate this process.

Changing lamps generally require a step stool or a ladder, but such a procedure is time-consuming and dangerous.

In this system, the reflective plate which is hinged on the lamp housing, enabling a man standing on the floor to change lamps.

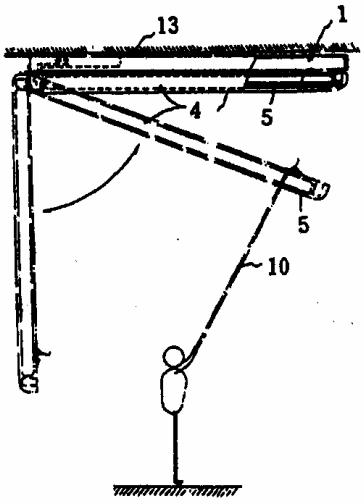


Figure 1

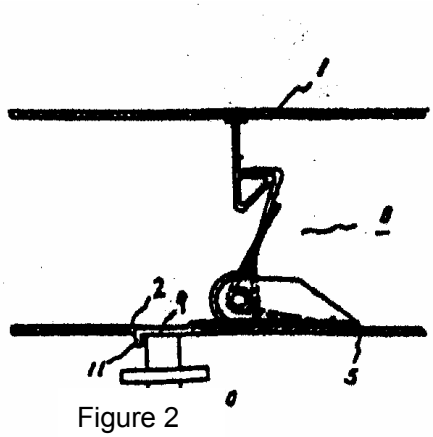
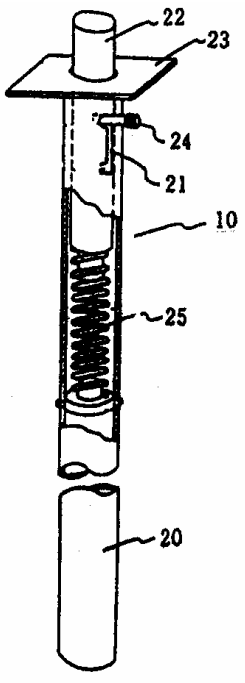


Figure 2



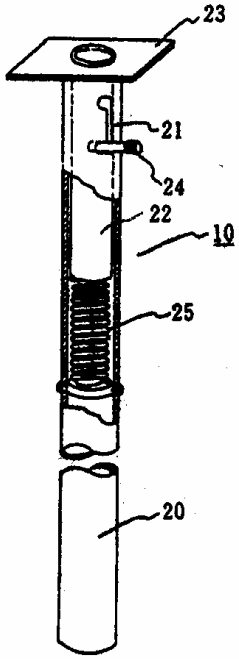


Figure 3 Figure 4

[Explanation]

The specified invention (Claim 1) concerns the hinged lamp removing mechanism equipped lamp fixture and the related invention (Claim 2) concerns the tool used to enable removal of the lamp remotely by a man standing on the floor; it affects the specified invention externally in order to facilitate its use. The two inventions, therefore, have a relationship of the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii).

[Example 61]

[Title of the Invention]

Cassette and a mechanism to insert and retrieve the cassette

[Claims]

1. A cassette, comprising a removable cover (16, 18) protection a projection mask (14), one of which (16) is equipped with a gas passage way (68) in and out of the cassette, and a normal closed valve in said gas passage way. (See Figure 1)
2. Cassette insertion/retrieval mechanism for projection equipment designed to place protective covers (16, 18) over the mask (14) of the cassette, protect the mask (14) from the atmosphere by evacuation of the cassette, place the cassette in the receptacle of the projector, releasing the vacuum upon reaching the receptacle, remove the covers (16, 18), advancing the cassette to the projection position. Upon completion of projection, the mechanism returns the cassette to the receptacle, replaces the covers (16, 18) and re-evacuates the cassette before ejecting it out of the projection equipment. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns handles the projection mask and masking image of the semiconductor projected on the silicone wafers. The projection mask of this process requires protection covers to keep out the particles, necessitating the opening of the covers inside the projection equipment.

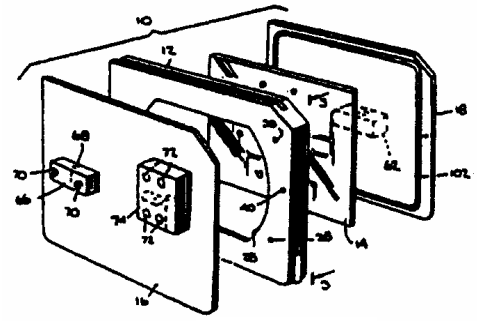


Figure 1

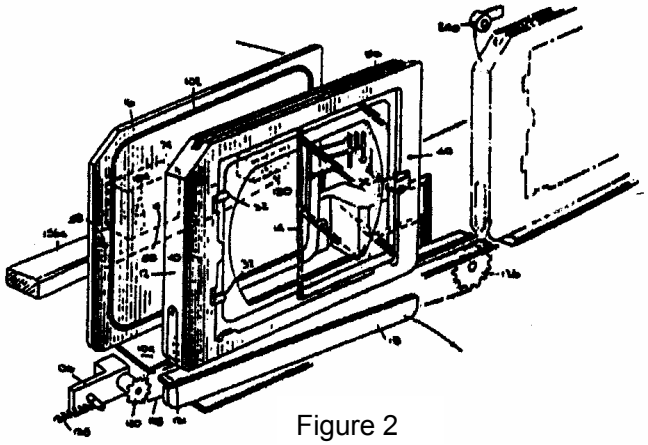


Figure 2

[Explanation]

The process of the related invention (Claim 2) enables placement and retrieval of the cassette in and out of the projection equipment as well as removal and replacement of the cassette covers in order to enable the function of the cassette of the specified invention (Claim 1).

Therefore, the two inventions have a relationship of the product and a process for handling the product.

[Concerned Section]

Patent Law Section 37(iii).

[Example 62]

[Title of the Invention]

Sealer device for the screw-holes in the flange of the nuclear reactor and the process of its application and removal

[Claims]

1. The sealer device (6) for the screw-holes (5) in the flange (4) of the nuclear reactor (1), comprising a lower cover (13) on which bolts (16) are born, an upper cover (12) bearing the bolt holes (17) through which said bolts (16), the nuts (20) screwed onto the said bolts (16), a circular U-grooves (14) placed on the circumferences of said covers (12, 13) and the seal-ring (15) to be placed in the said grooves (14), in which the placement of said covers (12, 13) are adjusted by means of said nuts (20) to deform the configuration of the seal ring (15) in order to seal the vessel. (See Figure 1 and 3)
2. The tool designed to place and remove the sealer device (6) for the screw-holes in the flange of the nuclear reactor described in Claim 1 comprising an outside piping part (28); a relatively ratable inside piping part (27) installed inside of and on the same axis as the said outside piping part (28), multidimensional contours (36, 50) offset placed within, a handle (32) affixed at the opposite end of the inside piping part (27), a stopper (53) to restrict relatively rotating two piping parts (27, 28) affixed at the opposite end of the outside piping part (28). The nut is turned by the relative rotation of said inside piping part (2') to the outside piping part (28), and the lining up, offset or the spin of the said multidimensional contour. (See Figures 2, 3)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the placement and removal of the sealing device for screw-holes of the nuclear reactor vessel while inspecting the reactor in order to reduce the exposure to radiation. The water is introduced into the reactor for the purpose, but because the presence of water in the screw-holes is undesirable, they must be sealed off. The invention concerns the sealing device and a tool to apply it prior to inspection or after the inspection is completed.

The existing device of which screw holes in the flange of a sealer is sealed is publicly know, but because its structure is complex and some doubts as to its efficacy existed.

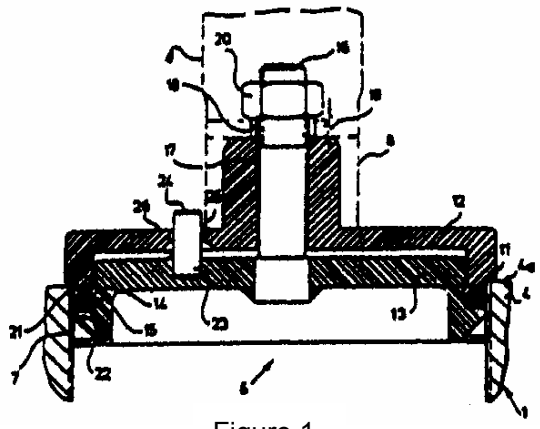


Figure 1

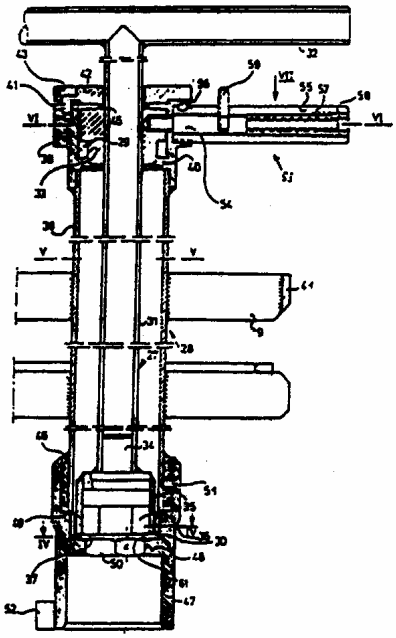


Figure 2

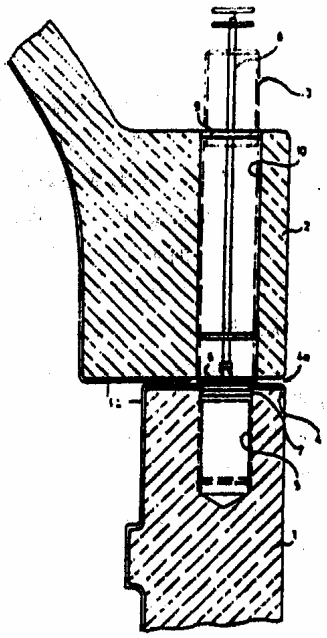


Figure 3

[Explanation]

The related invention (Claim 2) is a tool for placement and removal of sealing device on the specified positions on the nuclear reaction vessel and therefore is a device to facilitate the function of the specified invention. They, therefore, constitute the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

[Example 63]

[Title of the Invention]

Flexible tubular waveguide and its reinforcement

[Claims]

1. Flexible tubular waveguide, comprising metal transmission tube (1) with plastic covering (2), with ring-like indentations (5) placed in a cyclic manner, thus obtaining flexibility in the tubing. (See Figure 3 (1) and (2))
2. Heat-shrink piping part for the flexible tubular waveguide reinforcement described in Claim 1 to be deployed on the inside wall of the metal transmission tube (1) described in Claim 1, and further having the indentations that fit into indentations (5) of said metal transmission tube (1) in a cyclic manner on its outside. (See Figures 1 (3) and 3 (3))
3. Heat-shrink piping part for the flexible tubular waveguide reinforcement which fits into heat-shrink piping part described in Claim 1for the flexible tubular waveguide reinforcement to be fitted into the bore of the metal transmission tube (1), described in Claim 1, and further has the indentations that fit into indentations (5) of the said metal transmission tube (1) in a cyclic manner on its outside. (See Figure 2 (4))

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns the tubular waveguide and its reinforcement material.

The conventional tubular waveguide was highly rigid piping connected by connective flanges, but this invention, which is tubular waveguide is flexible and can be coiled on the drums and also can be continuously manufactured. It also transmits electromagnetism more efficiently as compared with rigid waveguide.

The reinforcement of this invention maintains the shape of the waveguide when coiled on a drum.

After installation, hot air is blown into the waveguide to heat shrink the reinforcement and pulled out.

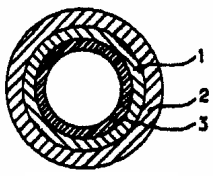


Figure 1

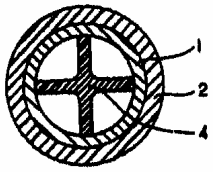


Figure 2

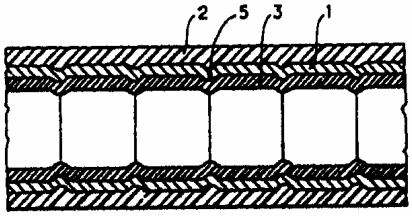


Figure 3

[Explanation]

The related invention (Claims 2, 3), the reinforcement equipment, effects the function of the flexible tubular waveguide without changing the tubular waveguide. The specified and related inventions, therefore, are the product and a product for handling the product.

[Concerned Section]

Patent Law Section 37(iii)

3.4 Relationship under Patent Law Section 37(iv)

Patent Law section 37(iv) provides for unity of application between a specified invention pertaining to a “process” and related inventions pertaining to “machines, instruments, equipment or other things” directly used in working of the invention of the process.”

3.4.1 Machines, Instruments, Equipment or Other Things Directly Used in the Working of Invention of Process

It is sufficient for the means of related inventions to be used directly in carrying out the process of the specified invention. In addition to machines, instruments and equipment, other things including catalysts and microorganisms etc. are allowed to become related inventions.

Unity of application shall be recognized even if the product of the related inventions could also be applied to carrying out processes other than the process of the specified invention, if they are suited to carrying out the process of the specified invention.

[Example 64]

[Title of the Invention]

A process of electroslag welding and the flux to be used

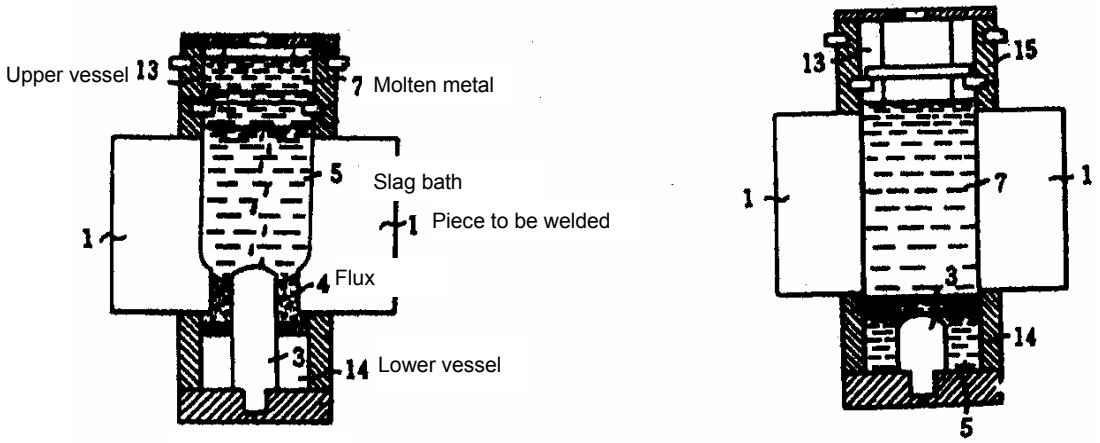
[Claims]

1. Light metal electroslag welding process, wherein after arranging the parts (1) to be welded together with specified gaps, inserting an electrode (3) from below the pieces into a gap together with flux fill (4) the makeup of which is 65-75% barium fluoride, 15-25% cryolite and 5-10% (by weight) sodium bromide and placing the vessels (13, 14) above and below the pieces, applying current to melt the electrode and the flux for floating up the molten metal from a slag bath (5), forming the molten metal bath in the upper vessel (7), and opening the lower vessel by the melted electrode, and allowing the slag (5) into the said vessel, which introduces molten metal into the gap between the pieces to be welded.
2. Flux for the electroslag welding comprising the following matter (weight %):
   65-75% barium fluoride, 15-25% cryolite and 5-10% sodium bromide

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns a process of electroslag welding for aluminum and other light metals using consumable electrodes and flux used in welding by this process.

In welding aluminum and other light metals, the mechanical strength of the welded portion could be weakened by oxidation or penetration of gases. In this invention, by using the slag bath (5) which is heavier than the metals being welded (1), using a new flux (4) having a higher melting point and inserting the electrode (3) from below, as well as placing the molten metal bath (7) above the slag bath (5) prevents oxidation of the welding part by the slag bath (5) and maintains the molten state of the metal by the heat of the slag bath and degas the metal.



During welding　　Completion stage

[Explanation]

The related invention (Claim 2), the flux does not correspond to “equipment” directly used in working the invented process, but it falls under the category of “other things.”

[Concerned Section]

Patent Law Section 37(iv)

[Example 65]

[Title of the Invention]

A process of transcribing decorative patterns on textiles and transcription material

[Claims]

1. A process of transcribing decorative patterns on textile by applying transcription material layered on a flexible base sheet, consisting of dyes, pigments, film-forming polymers, …a catalyst activated by the heat emitted from cross bonding reactions in which the catalyst comprises:
   (a) a base of a mono-basic organic compound having pKa of less than 3.50 in water at 20^{o}C and
   (b) A base of a monobasic organic compound having pKa of over 3.75 in water at 20^{o}C.

   Characterized in that layered transcription material is pressed against the textile while being heated, flexible base sheet except the layer attached to the textile is removed, and the textile is heated at higher temperature to fix the transcribed pattern.
2. A transcription material consisting of dyes, pigments, film-forming polymers, …a catalyst activated by the heat emitted from cross bonding reactions where in the catalyst consists of:
   (a) a base of a mono-basic organic compound having pKa of less than 3.50 in water at 20^{o}C and
   (b) A base of a monobasic organic compound having pKa of over 3.75 in water at 20^{o}C.

[Excerpt from Detail Description of the Invention]

This invention concerns the transcription material, which is layered on a flexible sheet material and a means of transcribing decorative patterns on textiles.

The shelf life of conventional transcription material was unsatisfactory and after it had been fixed, it often washed off in water.

This invention utilizes a catalyst, which is activated by the heat introduced to accelerate the cross bonding and has a long, stable shelf life. The resulting product, furthermore, shows durability against washing.

[Explanation]

The related invention (Claim 2), the transmission material, corresponds to “equipment” directly used in the working of the specified invention (Claim 1), the process of transcribing decorative patterns on textile.

[Concerned Section]

Patent Law Section 37(iv)

[Example 66]

[Title of the Invention]

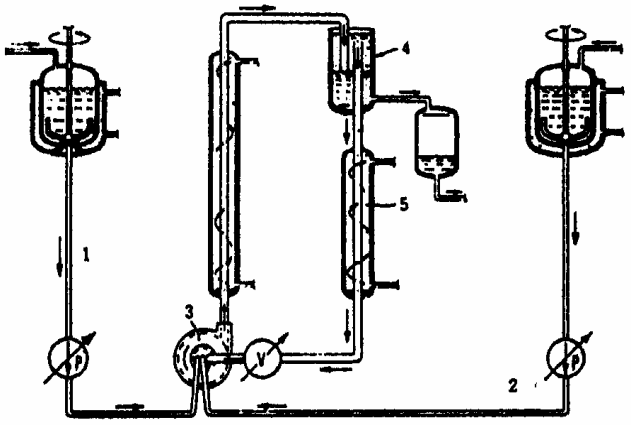
A process of removal of the heat of exothermal reaction

[Claims]

1. A process of removal of reaction heat from the liquid phase of nitration reaction of aromatic compound, which comprises:
   (a) placing the raw material mixture consisting of an aromatic compound, nitration reagent and a solvent as well as the starting mixture and immiscible, inactivated fluid into the reaction vessel and mix until homogeneous,
   (b) separating the emulsion from into the phase that contains the reaction product and the heated immiscible, inactivated phase,
   (c) cooling the said immiscible, inactivated liquid phase, and
   (d) Reintroducing the immiscible inactivated liquid phase into the reaction vessel.
2. Equipment for removal of exothermal reaction which comprises:
   (a) A reaction vessel (3) having a supply channel (1, 2) for starting material and solvent to mix raw material mixture and immiscible, inactivated liquid phase until homogeneous.
   (b) a separator vessel (4) to separate the reaction product and immiscible, inactive phase, which is connected to the reaction vessel (3), and
   (c) Heat exchange vessel (5) that removes heat and re-cycles the immiscible, inactive phase that is connected to the separator (4) and reaction (3) vessels.

[Excerpt from Detail Description of the Invention and Drawing]

This invention concerns the process of removal of reaction heat from the liquid phase of nitration reaction of aromatic compound and equipment which continuously removes the reaction heat of exothermal reaction.



[Explanation]

Though the equipment of the related invention (Claim 2) could be applied to processes other than the process of the specified invention (Claim 1), the equipment is suited to carrying out the process of the specified invention.

The equipment in the related invention falls under the category of equipment directly used in working the specified invention.

[Concerned Section]

Patent Law Section 37(iv)

[Example 67]

[Title of the Invention]

A process of producing low-grade olefin and zeolite catalyst used

[Claims]

1. A process of production of low-grade olefin, comprising methanol in gaseous phase and the constituents expressible as $aM_2O \cdot bM'O \cdot Al_2O_3 \cdot cSiO_2 \cdot nH_2O$ (where M = alkali metal and/or hydrogen atom, M' = alkali earth metal, a = 0-1.5, b = 0.2-40, except a+b >1, c = 12-3,000 and n = 0-40) heated to 500-600^oC in contact with alkali earth metal including crystal alminocilicate zeolite catalyst having X-ray defecation pattern indicated as xxx.
2. A catalyst comprising $aM_2O \cdot bM'O \cdot Al_2O_3 \cdot cSiO_2 \cdot nH_2O$ (where M = alkali metal and/or hydrogen atom, M' = alkali earth metal, a = 0-1.5, b = 0.2-40, except a+b >1, c = 12-3,000 and n = 0-40) as its constituent, and alkali earth metal including crystal alminocilicate zeolite catalyst having X-ray defecation pattern indicated as xxx for production of low-grade olefin from methanol

[Excerpt from Detail Description of the Invention]

The inventors of this process of selectively producing low-grade olefin from methanol as its starting material by means of using a zeolite catalyst represented as $aM_2O \cdot bM'O \cdot Al_2O_3 \cdot cSiO_2 \cdot nH_2O$… and X-ray defecation pattern represented as xxx. This catalyst manufactures low-grade olefin at a temperature above 300^oC, but selectively manufactures propylene at 500-600^oC.

[Explanation]

The catalyst of the related invention (Claim 2) is directly used in the process of producing low-grade olefin of the specified invention (Claim 1), and therefore falls in the category of "other products."

[Concerned Section]

Patent Law Section 37(iv).

[Example 68]

[Title of the Invention]

A process of formation of heat insulator and the mixing gun

[Claims]

1. A process to form flame resistant insulation into a space between two surfaces by injection of a compound composed of synthetic high molecular weight foaming particles, synthetic high molecular weight latex binding agent and organic bromine-containing compound to give flame resistibility to the bound synthetic high molecular weight foaming particles.
2. A mixing gun with an aspirating chamber (4) with a high-pressure gas nozzle (3) connected an injection pipe (1) at its front-end, an aspirating pipe (6) to aspirate the foaming agent attached to branch out near the a high-pressure gas nozzle (3) of the injection chamber (4) and the injection chamber (5) to contain the latex binder and the flame retardant.

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns insulation where heat resistively is desired in the spaces between two surfaces such as those in a building.

Foaming polystyrene beads are appropriate for building space insulation because they form a foam structure. Because they have very low volume density and free liquidity, however, they are difficult to confine within the space and prevent it from running out of gaps and damaged area. The solution to this problem to be solved effected by the inventor is to cover the foaming polystyrene beads with synthetic high molecular weight latex binder. By this process, the said latex binder prevents movement of foaming polystyrene beads, and leakage of foaming polystyrene beads through openings is prevented.

Further uniqueness of this invention is that the proportion of synthetic high molecular weight foaming particles to latex binder and flame retardant can be controlled and the mixture is sent into the desired space by a nozzle (2) of the mixing gun.

In the mixing gun, the high molecular weight foaming particles are mixed with the mixture of the latex binder and the flame retardant near the nozzle (2) of the injection chamber (1) and is immediately injected out into the space through the nozzle (2). Thus, even if a long tubing is used to place the mixture into the space, the mixture will not build up on the inside of the tubing enabling continuous even placement in the space.

Furthermore, the said gun can be used to apply other mixtures such as noise dampening or water proofing material into the inter-wall spaces of a building by applying first an adhesive.

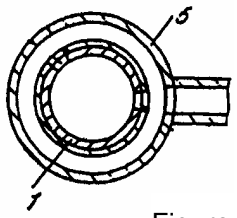


Figure 2

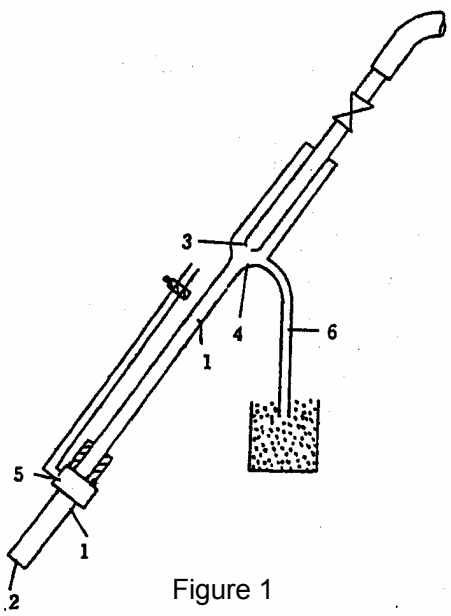


Figure 1

[Explanation]

The related invention (Claim 2), the mixing gun, can be used for processes other than the process of the specified invention (Claim 1), but is appropriate for that of the specified invention.

The mixing gun of the related invention is directly used equipment for working the process of the specified invention.

[Concerned Section]

Patent Law Section 37(iv)

[Example 69]

[Title of the Invention]

Hot metal desulfurization process and hot metal desulfurization agent

[Claims]

1. A process of hot metal desulfurization comprising calcium carbide powder in xx weight % of oil mixed in proportion of …kg/m^3 with a carrier gas and blown into the under side of the bath.
2. A hot metal desulfurization agent comprising mixing of xx weight % of oil in calcium carbide powder.

[Excerpt from Detail Description of the Invention]

This invention concerns, in injection process desulfurization of hot metal, calcium carbide powder mixed with oil is used as desulfurization agent, thereby achieving efficiency in hot metal desulfurization process and desulfurization agent.

Said oil can be gasoline, kerosene, vegetable oil, animal oil or waxes, and desulfurization agent, which includes one of the oils is blown into the forge, the latter immediately turns into gas and destroys the particles of calcium carbide and disperses it, enlarging the area of contact with sulfur. Quick gassification, furthermore, improves the agitation in the bath, further improves desulfurization process. The oil also provides a better reducing environment in the bath, further improves efficiency of desulfurization.

The proportion of calcium carbide powder to the oil is xx weight % for the reason of…

In the said mixture, the calcium carbide powder digests the oil and manufactures calcium hydroxide on its surface, enhancing the motility of the powder, enabling a high proportion of calcium carbide to the carrier gas of …kg/m^3 to be carried by it, thereby reducing the amount of the carrier gas required in the process as well as a reduction in the amount of calcium carbide powder, which also permits reduction in the temperature of the forge.

[Explanation]

The related invention (Claim 2), hot metal desulfurization agent, is appropriate for the desulfurization. Even though it does not fall under the category of “equipment” being directly used in working the process of the specified invention (Claim 1), hot metal desulfurization process, it falls in the category of “other products” being directly used in working the process of the specified invention.

[Concerned Section]

Patent Law Section 37(iv)

[Example 70]

[Title of the Invention]

Heat absorbing substrate fabrication process and etching medium

[Claims]

1. A process of manufacturing heat absorbing substrate wherein a large number of holes can be produced employing gas phase etching medium in equal proportion of O_2, Ar and CCl_2F_2, and exposing the medium to the substrate, the substrate is placed near the sputterable component, and …effect sputtering, …and complete etching are conducted. (See Figure 1)
2. A gas phase etching medium comprising equal proportion of O_2, Ar and CCl_2F_2.

[Excerpt from Detail Description of the Invention and Drawing]

This invention concerns a highly efficient feat absorbing substrate, and includes formation of extrusions and indentations on the surface of the heat absorbing substrate and the etching medium used in this process. A specified matter of the gas phase etching medium is used.

In the prior art, the formation of extrusions and indentations were produced chemically. As such the process required post-process treatments and required multiple additional steps. In this process of fabrication, no post-processing is required and the use of specific gas phase etching medium produces better results.

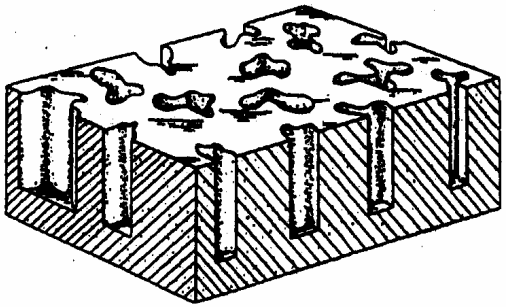


Figure 1

[Explanation]

The related invention (Claim 2) is the gas phase etching medium by sputtering. It does not correspond to the “equipment,” but it falls under “other products” directly used in working the process for fabrication of the specified invention (Claim 1).

[Concerned Section]

Patent Law Section 37(iv)

[Example 71]

[Title of the Invention]

A process of electrochemical analysis and reagent composition

[Claims]

1. A process of electrochemical analysis of serum iron comprising releasing iron from the serum sample by adding it to iron-free mixture of low-grade fatty alcohol and about 5.5-about 8.5 N HCl, introducing the specified amount of this solution into the electroanalytic vessel, applying the first electrode for second ionized iron and copper ion level detector of potential E_{T2}, and in the electroanalytic vessel first ionized iron and copper ion level detector of potential E_{T1}, obtaining the current signal at each electrode, and comparing them in order to obtain iron level. (See Figure 1)
2. Iron-free reagent to free iron from serum for electrochemical analysis of serum iron level comprising low-grade fatty alcohol and about 5.5-about 8.5 N HCl.

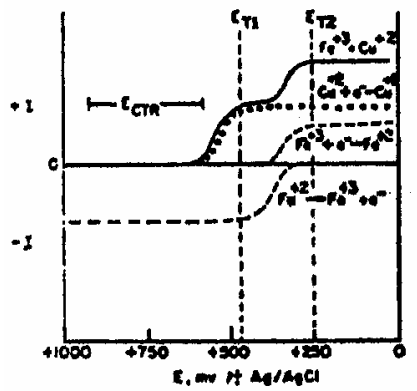
[Excerpt from Detail Description of the Invention and Drawing]

This invention concerns the process of electrochemical analysis of iron in blood serum samples and composition of reagent used in this analysis.

In electrochemical analysis of serum iron, it is necessary to free iron from serum composition, and the copper ions present in the solution interferes with iron measurement.

However, when the invention described in Claim 2, the reagent for the analysis not only releases the iron from the serum, enhances the current-voltage curves of $Fe^{+2} \rightarrow Fe^{+3}+e$, $Fe^{+3}+e \rightarrow Fe^{+2}$, and shifts the current-voltage curves of $Cu^{+2}+e \rightarrow Cu^{+1}$ and separates it from that of $Fe^{+2} \rightarrow Fe^{+3}+e$, eliminating the confounding effect of the copper ions in the solution and allows an accurate estimate of the iron.

Figure 1



[Explanation]

The composition of the related invention (Claim 2) does not correspond to “equipment” but corresponds to “other things” directly used in working the process of the electrochemical analysis of the specified invention (Claim 1).

[Concerned Section]

Patent Law Section 37(iv)

[Example 72]

[Title of the Invention]

A process of transmission of television image signals and transmitter-receiver

[Claims]

1. A process of television image signal transmission wherein the image signals for the center of the image area are expanded along the time base, those in the peripheral area reduced along the time base, and furthermore the central signals are transmitted on advantageous, narrow occupied band area, and the signals are restored to their original form upon reception.
2. A transmitter of television image signals comprising linearly correcting the deflections of the imaging device, expanding the image center on the time base, and compressing the peripheral image on the time base before transmission.
3. A receiver of television image signals which comprises having a time base control circuit to reduce the central image signals and expanding the peripheral image signals upon reception of signals.

[Excerpt from Detail Description of the Invention]

In the prior art, the scanning of television image, both in television camera as well as in the image receiving devices, has been effected linearly in both horizontal and vertical directions, providing a given resolution regardless of the position of the image within the display. As a consequence, equipment with increased number of scan lines such as enhanced image television will require up to ten times the frequency band width in order to transmit the signals, making the transmission of the image difficult.

In the invention, taking advantage of visual property of central and peripheral image detection, stable transmission of enhanced image television signals in a narrow bandwidth is enabled.

[Explanation]

The transmission and receiving equipment of the related inventions (Claim 2 and 3) is directly used equipment in order to implement expanding on the time base of the signals for the central portion of the image and reducing on the time base of the signals for the peripheral portion of the image and their restoration which are the new matters of the transmission process of the specified invention (Claim 1).

[Concerned Section]

Patent Law Section 37(iv).

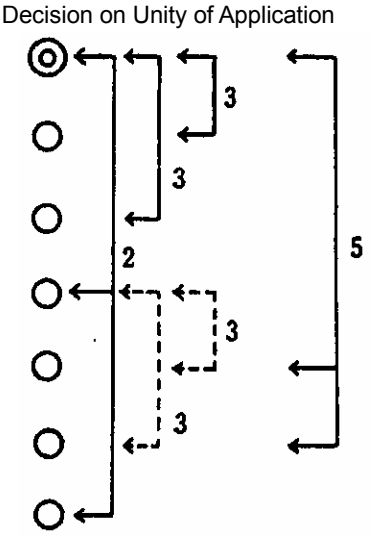
3.5 Relationship under Patent law Section 37(v)

Section 37(v) of Patent Law is a provision left to Cabinet Order. Specifically, it recognizes unity of application for related inventions satisfying the provisions of Patent Law section 37(iii) or (iv) in relation to other related inventions, claimed in the Scope of Claims, which in turn satisfy the provisions of Patent Law section 37(i) or (ii) in relation to a specified invention. (Section 2 of Enforcement Orders for Patent Law)

A hypothetical example is used below to describe the relationships prescribed under Patent Law Section 37(v):

[Claims]

1. Substance A (The specified invention)
2. Process B to produce substance A
3. Ultraviolet absorbing substance C comprising substance A
4. Substance A'
5. Process B' to produce substance A'
6. Ultraviolet absorbing substance C' comprising substance A'
7. Substance A



With regard to the specified invention, the related invention (Claim 4), corresponds to the relationship in Patent Law Section 37(ii), the related invention (Claims 5 and 6) corresponds to the relationship prescribed under Paten Law Section 37(iii). Consequently, the related inventions of (Claim 5) and (Claim 6) satisfy the relationship prescribed under Patent Law Section 37(v).

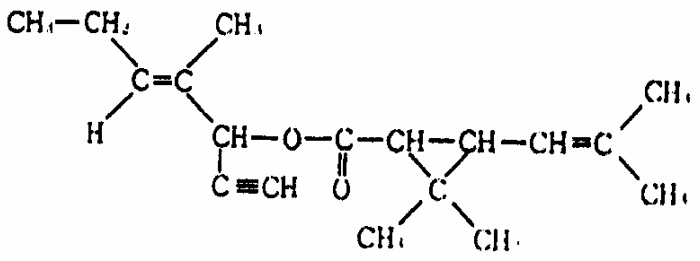
[Example 73]

[Title of the Invention]

2, 2-dimethylpropane carboxylic acid ester and intermediary alcohol compounds

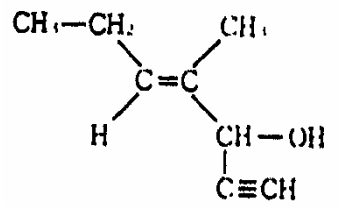
[Claims]

1. Formula: a carboxylic acid ester represented as:



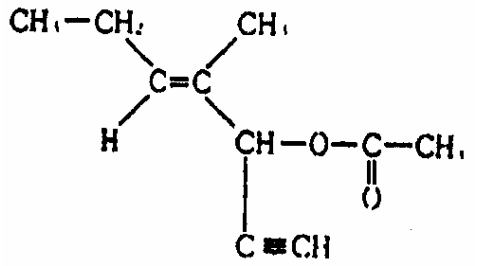
(I)

2. Formula: an alcoholic compound represented as:



(II)

3. A process for the preparation of alcoholic compound (Claim 2) using an acetate compound represented as:



(III)

in which solvolysis in the presence of a catalytic amount of base in methyl or ethyl alcohol is undergone.

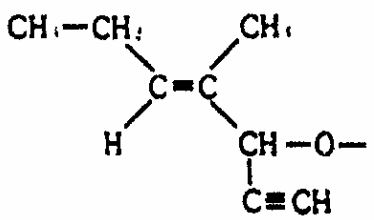
[Excerpt from Detail Description of the Invention]

This invention concerns a process of production of intermediary products necessary for synthesis of a compound with effective insecticide activity of formula (I), 2,2-dimethylcyclopropane carboxylic acid ester. The compound of formula (I) is easily prepared by reaction with the alcoholic compound in formula (II) and the publicly known 2,2-dimethylcyclopropane carboxylic acid ester or its derivative.

[Explanation]

(1) Because the principal use of the compound in the related invention (Claim 2) can be accepted as a starting material (intermediary product) of the specified invention (Claim 1), applying the technical field of the compound of the related invention to that of the specified invention is quite appropriate. The two technical fields, therefore, have technically direct relationship and the industrial fields of application of the two inventions are the same.

Furthermore, both compounds have a common, new skeletal structure, and the final product of formula (I) is direct derivative of the intermediary of formula (II). Therefore, the two compounds have a technically close relationship each other and the substantial parts of matters in the claim of the two inventions are the same.



Thus, the related invention (Claim 2) has the relationship specified in Patent Law Section 37 (ii) to the specified invention.

(2) Since, the related invention (Claim 3) is for a process for producing the compound (intermediary), which has the relationship specified in Patent Law Section 37(ii) with respect to the specified invention, the related invention (Claim 3) has a relationship specified in the Patent Law Section 37(iii) with the related invention (Claim 2). Therefore, the related invention (Claim 3) is related to the specified invention in the manner indicated in Patent Law Section 37(v).

[Concerned Section]

Patent Law Section 37(ii),(v)

[Example 74]

[Title of the Invention]

A process of enlargement excavation of tunnel and enlargement shield machine

[Claims]

1. In a process of tunnel enlargement excavation for an existing tunnel (3) originally excavated by means of shield process in an area specified to be enlarged, a portion is excavated (6), and the enlargement shield machine (18) is assembled in order to excavate the portion around the tunnel area, while removing the tunnel lining, advance the enlargement shield machine along the existing tunnel (3), thereby enlarging the tunnel. (See Figure 1)
2. A process of tunnel enlargement, wherein a powered excavator (22a) installed on the shield machine is utilized on the cutting face in the direction of the advance. (See Figure 2)
3. An enlargement shield machine in its inside circumference equipped with a guide plate (12) to guide the enlargement shield machine (18) along the primary shield segment (2) and equipped with a jack (15) that braces against the secondary segment (19) placed on the inside surface of the enlarged tunnel, thereby advancing the enlargement shield machine (18). (See Figure 2)
4. An enlargement shield machine on whose forward end (22) is equipped with a rotary cutter (22a), which in turn moves in and out of the circumference (22) of the shield on the enlargement shield machine. (See Figure 2)

[Excerpt from Detail Description of the Invention and Drawings]

This invention concerns a process for enlarging a tunnel by providing enlargement excavation portion at a fixed interval halfway a tunnel, and a shield machine to enlarge the tunnel by.

A conventional process of enlarging the existing tunnel is to excavate a shaft from the surface after excavating the ordinary diameter of the tunnel for enlargement construction by using the shaft in the portion to be enlarged.

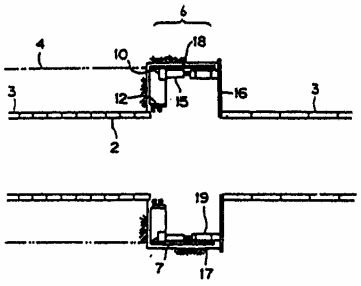


Figure 1

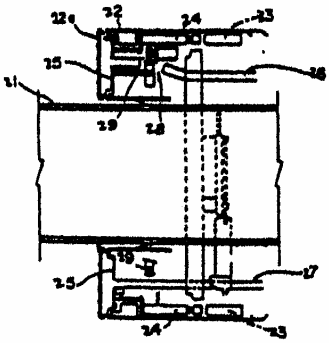


Figure 2

[Explanation]

(1) The technical fields of the specified invention (Claim 1) and the related invention (Claim 2) are both in “tunnel enlargement excavation process” and are therefore the same, and industrial fields of application of the two inventions are the same.

Furthermore, the problems to be solved of both inventions are to enlarge the tunnel without resorting to excavating a shaft and are therefore the same. Consequently, the relationship of the related invention (Claim 2) to the specified invention is the relationship prescribed under Patent Law Section 37(i).

(2) The related invention (Claim 3) concerns an invention of a machine directly used in working of the process of the specified invention (Claim 1). Therefore, the related invention (Claim 3) has the relationship with the specified invention prescribed under

Patent Law Section 37(iv).

(3) Since, the related invention (Claim 4) is an invention of a machine directly used in working of the related invention (Claim 2), which holds the relationship with the specified invention prescribed under Patent Law Section 37(i), the related invention (Claim 4) holds with respect to the related invention (Claim 2) a relationship prescribed under Patent Law Section 37(iv). Consequently, the related invention (Claim 4) has the relationship in Patent Law Section 37(v) with the specified invention.

[Concerned Section]

Patent Law Section 37(i),(iv),(v)

[Example 75]

[Title of the Invention]

Keyboard switch and the process of manufacturing the switch

[Claims]

1. A keyboard switches comprising a metal sheet (1), from the surface of which an insulated part (2) made of elastomer protrudes, and the rest of which forms a flat electrode (4) serving as electrical contact member (3) and a substrate (5) carrying membrane electrodes (6) at opposite ends of each contact member (3) facing one another laminated into a single unit. (See Figure 1)
2. A keyboard switches with a metal sheet (11), in the indentations placed in specified locations of which is filled with elastomer resin, forming insulated parts (12) forming projections, the rest of the metal sheet (11) forming a flat electrode (14) serving as electrical contact member (13) and a substrate (15) carrying membrane electrodes (16) at opposite ends of each contact member (13) facing one another laminated into a single unit. (See Figure 3)
3. A process of fabrication of keyboard switches wherein a masking layer (8), composed of material without affinity toward elastomer resin, is placed on a metal plate (11), coating the exposed metal surface (1) with elastomer, followed by removal of the masking layer and forming the projections (2) composed of elastomer resin and flat electrode portion with electrical contact members (3), and laminate the flat electrode (4) with the substrate (5) carrying membrane electrodes (6), while ascertaining that the electrical contact members and membrane electrode form oppose one another. (See Figure 1 and 2)
4. A process of fabrication of keyboard switches wherein a masking layer (8), composed of material without affinity toward elastomer resin, is placed on a metal plate (11), after etching the indentations on the metal plate (11) surface, filling the indentations up to the level of the surface of the masking (18), followed by removal of the masking layer and forming the elastomer projections (12) and the flat electrode (14) with electrical contact members (13), and laminate the said flat electrode (14) and membrane electrodes (16) ascertaining that the electrical contact members (13) and the membrane electrodes (16) oppose one another. (See Figure 3 and 4)

[Excerpt from Detail Description of the Invention and Figures]

This invention concerns keyboard switch and a process of its fabrication.

The conventional keyboards with push buttons required a good deal of labor because of complexity of their structure, and it was large especially its thickness. Such keyboards, therefore, were inappropriate especially as the keyboard for light items such as hand calculators.

There have been some simply structured, thin keyboard switches made on high-molecular weight polymer films or those with electrodes printed on films with conductive ink, but because the resistance of high-molecular weight polymer and conductive ink is large and raised the contact resistance of the switches and made them inappropriate for use with high current.

The switch in this invention works by a light touch of a finger above the electrode as the elastomer below the pressure point is pressed, allowing the contact between the electrical contact member (3) and the membrane electrode (6) and effect the current to flow.

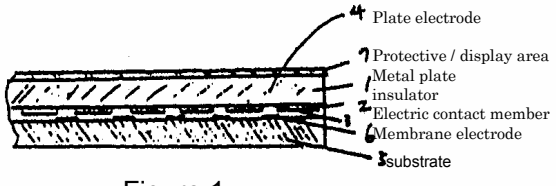


Figure 1

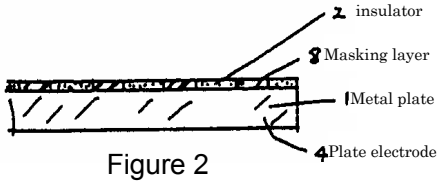


Figure 2

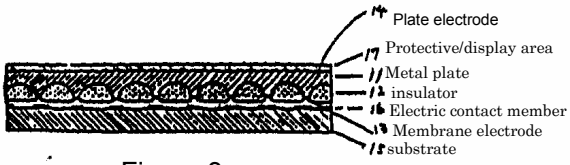


Figure 3

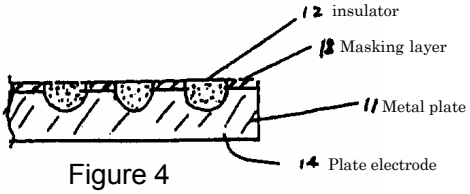


Figure 4

[Explanation]

(1) The technical fields of the specified invention (Claim 1) and related invention (Claim 2) are both “keyboard switch” and the industrial fields of application of both inventions are the same. The problem to be solved of the two inventions, furthermore, is the same as they both are an effort to reduce the size of the keyboard by laminating and increase the current carrying capacity. Therefore, the related invention (Claim 2) has the relationship prescribed in Patent Law Section 37(i) with respect to the specified invention.

(2) The related invention (Claim 3) corresponds to the process of manufacturing the keyboard switch of the specified invention. Consequently, the related invention (Claim 3) has the relationship prescribed in Patent Law Section 37(iii) with respect to the specified invention.

(3) The related invention (Claim 4) is a process of manufacturing the keyboard switch of the relate invention (Claim 2), which holds the relationship prescribed in Patent Law Section 37(i) with the specified invention (Claim 1). Therefore, it has the relationship prescribed in Patent Law Section 37(iii) with the related invention (Claim 2). Consequently, related invention (Claim 4) has the relationship prescribed in Patent Law Section 37(v) with the specified invention.

[Concerned Section]

Patent Law Section 37(i),(iii),(v)