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

Chapter 2 Requirements of Unity of Invention

Patent Act Article 37 reads:

Two or more inventions may be the subject of a single patent application in the same application provided that, these inventions are of a group of inventions recognized as fulfilling the requirements of unity of invention based on their technical relationship designated in the Ordinance of the Ministry of Economy, Trade and Industry.

Regulations under the Patent Act Article 25octies reads:

(1) The technical relationship designated in Ordinance of the Ministry of Economy, Trade and Industry under Patent Act Article 37 means a technical relationship in which two or more inventions must be linked so as to form a single general inventive concept by having the same or corresponding special technical features among them.

(2) The special technical feature provided in the former paragraph stands for a technical feature defining a contribution made by an invention over the prior art.

(3) The technical relationship provided in the first paragraph shall be examined, irrespective of whether two or more inventions are described in separate claims or in a single claim written in an alternative form.

1. Requirements of Unity of Invention

1.1 Purport of Patent Act Article 37

If two or more inventions that are technically closely interrelated can be filed for patents in a single application, the application procedures are simplified and rationalized and it becomes easier for third parties to use patent information and transact rights. In addition, it allows the Patent Office to examine such inventions together in an efficient way. In light of these points, Article 37 provides for the scope of cases where two or more inventions that could also be separately filed for patent may be filed in a single application.

1.2 Explanation of Relevant Provisions

(1) Patent Act Article 37

Article 37 provides that two or more inventions complying with the requirement of unity of invention may be filed for a patent in a single patent application. Furthermore, it also states as the requirement that two or more inventions must have a certain technical relationship among them. The requirement in detail for the said “technical relationships” is defined by an Ordinance of the Ministry of Economy, Trade and Industry (see, Regulations under the Patent Act Article 25octies).

(2) Regulations under the Patent Act Article 25octies(1)

The Article 25octies(1) defines the word “technical relationship” as a technical relationship that two or more inventions are “linked so as to form a single general inventive concept.”

Here, the term “a single general inventive concept” corresponds to “a single general inventive concept” originally defined in Rule 13 of the PCT.

Original Japanese text was revised in 7.2013
English translation was updated in 7.2013

Furthermore, the Regulation provides that the technical relationship, which forms a single general inventive concept, is established, when two or more inventions have the same or corresponding special technical features. It indicates that whether or not two or more inventions are linked so as to form a single general inventive concept should be examined by whether those inventions have the same or corresponding special technical features.

(3) Regulations under the Patent Act Article 25octies(2)

Article 25octies(2) provides that the word “special technical feature” stipulated in the Article 25octies(1) means “a technical feature defining a contribution made by an invention over the prior art.” In other words, the “technical feature” must create a “contribution over the prior art” in order to be recognized as a “special one.”

In this regard, the “technical feature” is determined based on the matter technically specifying an invention among all matters in the claim stated by the applicant as necessary matters in order to specify the invention (“matters specifying the invention”).

The term “the contribution made by an invention over the prior art” means technical significance of an invention in comparison to the prior art.

(4) Regulations under the Patent Act Article 25octies(3)

The Article 25octies(3) clarifies that an examination for unity of invention shall be conducted, irrespective of whether the inventions are described in separate claims or in a single claim described in an alternative form.

2. Basic Approach for Examining Unity of Invention

2.1 Subject of the examination for Unity of Invention

The requirement of unity of invention shall be examined among inventions described in claims.

Usually, it is examined based on relationships among claimed inventions, however, if matters specifying the invention in a claim are expressed by pro forma or de facto alternatives (hereinafter referred to as “alternatives”), an examination for unity of invention is also carried out in respect of relationships among the alternatives.

2.2 Basic Approach (Cases1-13)

(1) An examination for unity of invention is carried out by determining whether two or more inventions have the same or corresponding special technical features among them. In other words, it is determined by whether one special technical feature of one invention is the same or corresponding special technical features of all other inventions. If there is no same or corresponding special technical feature, the requirements of unity of invention are not fulfilled.

Whether “special technical features are same or corresponding” shall be examined substantially irrespective of mere differences in expression. In addition, it is unnecessary to clearly determine whether “the same” or “corresponding” is applicable to the special technical feature and there are cases both are applicable.

(2) “Special technical features” of an invention shall be determined based on a content of the description, claims and drawings (hereinafter referred to as “description, etc.”) and common general knowledge as of filing.

However, in cases where it becomes clear that what was deemed to be a “special technical feature” does not contribute to the prior art of the relevant inventions, it is denied a posteriori that said technical feature is a “special technical feature” (Note 1).

In this context, cases “where it becomes clear … does not contribute to the prior art of the relevant inventions” are the cases that fall under any of the following (i) to (iii):

(i) where what was deemed to be a “special technical feature” is found in the prior art (See Note 2);

(ii) where what was deemed to be a “special technical feature” is an addition, deletion, or replacement of well-known or commonly used art to a prior art, which does not produce any new effects; or

(iii) where what was deemed to be a “special technical feature” is a mere design variation of a prior art.

(Note 1) Even if any technical feature of the relevant inventions is denied to be a “special technical feature,” another technical feature may be a “special technical feature” in some cases.

(Note 2) “Prior art” refers to inventions that fall under each item of Article 29(1), and does not include inventions that had not been published at the time of filing of the application concerned.

(3) Cases where two or more inventions have the same special technical feature shall refer to, for example, the following Example 1 and Example 2.

Example 1:

Claim 1: Polymeric compound A. (transparent substance having improved oxygen barrier characteristics)

Claim 2: A food packaging container composed of polymeric compound A.

(Explanation)

Since polymeric compound A itself has a contribution over the prior art, the inventions of Claims 1, 2 have the same special technical feature.

Example 2:

Claim 1: A method of lighting comprising shielding a part of illumination light from the light source.

Claim 2: A lighting system with a light source and a light shielding part that partially shields against illumination light from the light source.

(Explanation)

Because shielding a part of illumination light brings a contribution over the prior art, the inventions of Claims 1, 2 have the same special technical feature.

(4) Cases where two or more inventions have the corresponding special technical features

shall refer to the cases where they have common or closely related technical significance in comparison with the prior art among them or the cases where special technical features are related complementarily.

In cases where two or more inventions have the same or overlapping problems solved with respect to the prior art (limited to unsolved problems at the time of filing of the application concerned), technical significance of the inventions are considered as common or closely related with respect to the prior art and they have the corresponding special technical features.

Example 1:
Claim 1: Conductive ceramics made by adding titanium carbide in silicon nitride.
Claim 2: Conductive ceramics made by adding titanium nitride in silicon nitride.

(Explanation)
The special technical features of the inventions of Claims 1, 2 are titanium carbide and titanium nitride respectively, and the problems solved by the inventions with respect to the prior art lies in making electric discharge possible by giving conductivity to ceramics composed of silicon nitride. Since both of the inventions have the corresponding or overlapping problems solved with respect to the prior art, they have common technical significance in comparison with the prior art.

In this example, in cases where making electric discharge possible by giving conductivity to ceramics of silicon nitride is not considered as an unsolved problem at the time of filing of the application concerned, technical significance in comparison with the prior art is not considered to be common or closely related, thus, the requirements of unity of invention come to be unsatisfied.

Example 2:
Claim 1: A transmitter with a time axis extender for a video signal.
Claim 2: A receiver with a time axis compressor for a received video signal.

(Explanation)
The special technical features of the inventions of Claims 1, 2 are equipping a time axis extender and a time axis compressor respectively. Both functions lie in extension of the time axis to transmit a video signal and compression of the time axis to receive a video signal respectively. Therefore, they are related complementarily.

3. Procedure of Examination

Failure to meet the requirements of unity of invention (Article 37) constitutes a reason for refusal (Article 49), but does not constitute a reason for invalidation (Article 123). It is because Article 37 is a provision established for the convenience of applicants, third parties and the Patent Office. Lack of unity of invention does not mean a substantial defect in the inventions in comparison with other reasons for refusal but mere a formal defect that the single application should have been made as two or more applications. Therefore, it does not directly inflict serious damages on the interests of third parties, even if they are patented. Considering these circumstances, the requirements of unity of invention and decision of subject of the examination on requirements other than the requirements of unity of invention shall not be applied in an unnecessarily strict manner (hereinafter in this Chapter “subject of the

examination on requirements other than the requirements of unity of invention" is merely referred to as "subject of the examination").

3.1 Decision of Subject of the Examination (Cases 14-28)

3.1.1 Basic Approach

Whether the application meets the requirements of unity of invention shall be determined based on the relationship between the invention first mentioned in the scope of claims (See Note) and other inventions. In cases where the invention first mentioned in the scope of claims have any special technical feature, an invention having the same or corresponding special technical feature to said special technical feature meets the requirements of unity of invention. On the other hand, the invention first mentioned in the scope of claims does not have any special technical feature, all other inventions are considered not to meet the requirements of unity of invention.

However, inventions that meet certain requirements shall be the subject of the examination as well as the invention that meets the requirements of unity of invention, based on the fact that Article 37 is a provision with the purport of promoting the convenience of applicants, etc. The subject of the examination shall be decided in accordance with "3.1.2 Specific Procedures" described later.

(Note) The invention of claim 1. If matters specifying the invention of claim 1 are expressed by alternatives, it is, in principle, the invention understood by choosing the first alternative. However, for an invention relating to a chemical substance that is described by Markush-type, etc., the invention that is understood by choosing an appropriate alternative in consideration of the description of working examples, etc. shall be deemed to be the invention first mentioned.

3.1.2 Specific Procedures

The subject of the examination shall be decided based on "special technical features" and "examination efficiency."

3.1.2.1 Decision of subject of the examination based on special technical features

The subject of the examination based on special technical features is decided according to following procedures (1) to (4).

(1) It is determined whether the invention first mentioned in the scope of claims has any special technical feature.

(2) In cases where the invention first mentioned in the scope of claims does not have any special technical feature, it is determined whether the invention of the claim to which the smallest claim number is attached among inventions of claims in the same category that include all matters specifying the invention (See Note 1) first mentioned in the scope of claims has any special technical feature.

(Note 1) Cases where "including all matters specifying the invention" of an invention shall

include the cases where other matters specifying the invention are attached to said invention, the cases where part or all of matters specifying the invention was subordinate-conceptualized in respect of said invention, the cases where the invention are specified by numerical ranges, those are further limited., etc.

(3) In cases where an claimed invention for which whether there is any special technical feature has already been determined has no special technical feature, whether there is any special technical feature shall be determined with respect to a claimed invention with the smallest claim number among claimed inventions in the same category that include all matter specifying the claimed invention for which whether there is any special technical feature has been determined immediately before (See Note 2). This procedure is repeated until any special technical feature is found or there is no other claimed invention in the same category that includes all matters specifying the claimed invention for which whether there is any special technical feature has been determined immediately before.

(Note 2) It is not required to determine whether there is a special technical feature anymore in cases where the claimed inventions for which whether there is any special technical feature is to be determined is an invention to which a technical feature with low technical relevance is added to claimed invention which whether there is any special technical feature has been determined immediately before, and a specific problem to be solved by the invention understood by said technical feature also has little relevance.

(4) In cases where any special technical feature is found in any of the procedures (1) - (3), the invention for which whether there is any special technical feature has already been determined (a), and the invention having any special technical feature which is the same as or corresponding to the special technical feature found (b), shall be the subject of the examination. In cases where no special technical feature is found in any of the procedures (1) - (3), inventions for which whether there is any special technical feature has already been determined shall be the subject of the examination.

In the above procedure, if a matter specifying an invention of claims is expressed by alternatives in a claim (including multiple dependent claims), such a claim is treated as if each invention understood by choosing each alternative is described as a separate claim in the order of said alternatives. In determining if the claim includes all matters specifying an invention, it doesn't matter whether a claim is formally an independent claim or a dependent claim.

In addition, in cases where an invention for which any special technical feature has been found has several different special technical features in any of the said procedures, the examiner shall choose one of those special technical features and an invention having a special technical feature same as or corresponding to said special technical feature shall be the subject of the examination (See Case 15).

3.1.2.2 Decision of subject of the examination based on examination efficiency

If it is efficient to examine an invention together with those that became the subject of the examination in line with "3.1.2.1 Decision of Subject of the Examination based on Special

Technical Features" (hereinafter referred to as "inventions that became the subject of the examination based on special technical features"), it shall be added to the subject of the examination. Whether it is efficient to examine an invention collectively shall be determined by comprehensively taking into consideration matters described in the description, etc., common general knowledge as of filing, and perspectives of prior art searches.

For example, inventions that fall under (1) or (2) below shall be added to the subject of the examination, as it is efficient to examine it together with inventions that became the subject of the examination based on special technical feature.

(1)Inventions in the same category that include all matters specifying the invention of the invention first mentioned in the scope of claims

However, inventions shall be excluded if (i) the problem to be solved by the invention first mentioned in the scope of claims (Note 1) and a specific problem to be solved understood by technical features added to said invention have little relevance, or (ii) technical features of the invention first mentioned in the scope of claims (Note 2) and technical features added to said invention have low technical relevance. The relevance in (i) and the technical relevance in (ii) shall be determined by taking into consideration matters described in the description, etc., common general knowledge (Note 3) as of filing and perspectives of prior art searches.

(Note 1) The problem to be solved by the invention first mentioned in the scope of claim shall be identified by taking into consideration matters described in the description, etc. and common general knowledge (Note 3) as of filing. In cases where several problems are identified, one problem shall be identified by giving consideration to the problem to be solved by the other inventions that became the subject of the examination in line with "3.1.2.1 Decision of Subject of the Examination based on Special Technical Features" In case where identified problems are now-resolved and well-known, the problems shall be identified in the same way (See Case 26).

(Note 2) In cases where the invention first mentioned in the scope of claim belongs to the common general knowledge (Note 3), technical features of the invention first mentioned in the scope of claims shall be determined by taking into consideration technical features of other inventions that became the subject of the examination in line with "3.1.2.1 Decision of Subject of the Examination based on Special Technical Features" (See Case 27, 28).

(Note 3) The common general knowledge refers to technologies generally known to a persons skilled in the art (including well-known or commonly used art) or matters clear from empirical rules (See "Part I Chapter 1 Description Requirements of Description and Claims" and "2.2.1.2 Basic Rules for Examination of the Requirement of Article 36(6)(i)").

(Explanation)

Inventions in the same category that include matters specifying the invention of the invention first mentioned in the scope of claims generally belong to a technical field same as or associated with the invention first mentioned the scope of claims and a prior art search can be conducted from a similar perspective in many cases. Therefore, those inventions shall be, in principle, added to the subject of the examination as inventions on which it is efficient to

make an examination together with the invention first mentioned in the scope of claims.

However, an invention that falls under (i) or (ii) above may be excluded from the subject of the examination, since it requires a prior art search from different perspectives and it is not efficient to make an examination collectively.

(2) An invention for which an examination may be made without substantially conducting additional prior art searches and making a determination as a result of examining inventions that became the subject of the examination based on special technical features.

For example, an invention that falls under any of (i) –(v) below is usually deemed as an invention for which an examination may be made without substantially conducting additional prior art searches and making a determination.

(i) Other inventions that differ only in terms of expression from inventions that became the subject of the examination based on special technical features.

(ii) Other inventions which added, deleted or replaced well-known or commonly used art with respect to inventions that became the subject of the examination based on special technical features, which does not produce any new effects.

(iii) In cases where it has been found that an invention has no novelty or inventive step as a result of examining inventions that became the subject of the examination based on special technical features, other inventions which have wider concept that cover said invention .

(iv) In cases where a point having some matters specifying the invention has been found out to have novelty and inventive step as a result of examining inventions that became the subject of the examination based on special technical features, other inventions that include said matters specifying the invention.

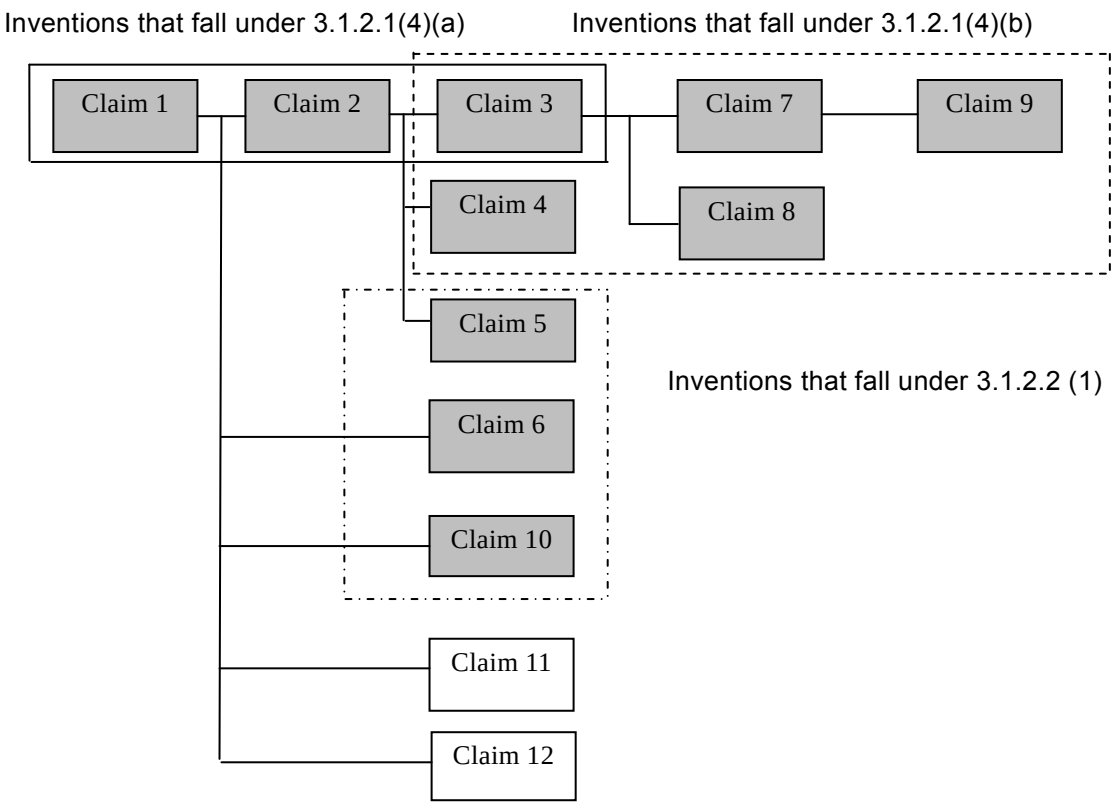
(v) Other inventions whose difference from inventions that became the subject of the examination based on special technical features is a “designs modified along specific application of techniques” or “optimally or preferably modified numerical ranges” and it is easily determined said change does not produce any advantageous effects in comparison with the cited inventions (Note 4).

(Note 4) Referred inventions as ones that fall under each item of Article 29(1) with respect to inventions that became the subject of the examination based on special technical features and it does not include inventions that had not been published as of filing.

3.1.3 An example of Decision of Subject of the Examination

There were no STFs in the inventions claimed in claims 1 and 2, but STF was found in the invention claimed in claim 3. The inventions claimed in claims 4, and 7-9 have the same or corresponding STFs to the found STF.

Furthermore, the inventions claimed in claims 5, 6, and 10-12 are in the same category that includes all matters specifying the invention first claimed in claim 1. However, the specific problem to be solved by the invention claimed in claim 11 that can be perceived from the technical feature which was added to the invention claimed in claim 1, and the problem to be solved by the invention claimed in claim 1 have little relevance. Furthermore, the technical feature of the invention claimed in claim 12 which was added to the invention claimed in claim 1 and the technical feature of the invention claimed in claim 1 have low technical relevance.



Claims in shaded boxes are those subjects of the examination.

(Explanation)

(A) Decision of subject of the examination based on special technical features (See 3.1.2.1)

The inventions of Claims 1 - 3 shall become the subject of the examination as inventions for which whether there is any special technical feature has been determined.

The inventions of Claims 4 and 7 - 9 shall become the subject of the examination as inventions having a special technical feature which is the same as or corresponding to the special technical feature found.

(B) Decision of subject of the examination based on the examination efficiency (See 3.1.2.2)

The inventions of Claims 5, 6 and 10 are in the same category that includes all matters specifying the invention of Claim 1 so that they become the subject of the examination as inventions for which it is efficient to make an examination collectively.

The invention of Claim 11 is in the same category that includes all matters specifying the invention of Claim 1. However, the problems to be solved by the invention of Claim 1 and the specific problem to be solved by the invention understood by technical features added to the invention of Claim 1 have little relevance. Therefore, if it is not invention for which an examination may be made without substantially conducting additional prior art searches and making a determination as a result of examining the inventions of Claims 1 - 4, 7 - 9 and there are no other reason that it is efficient to examine an invention collectively, the invention of Claim 11 is excluded from the subject of the examination.

The invention of Claim 12 is in the same category that includes all matters specifying the

invention of Claim 1. However, the technical feature of the invention of Claim 1 and the technical feature added to the invention of Claim 1 have little relevance. Therefore, if it is not invention for which an examination may be made without substantially conducting additional prior art searches and making a determination as a result of examining the inventions of Claims 1 - 4, 7 - 9 and there are no other reason that it is efficient to examine an invention collectively, the invention of Claim 12 is excluded from the subject of the examination.

3.2 Notice of reasons for refusal on the grounds of violation of Patent Act Article 37

In light of what is indicated in 3.1 above, if there is a claimed invention that does not become the subject of the examination, a notice of reasons for refusal is notified on the grounds of violation of Article 37. In the notice of reasons for refusal inventions that do not become the subject of the examination shall be defined and reasons thereof shall be described.

4. Example of “the same or corresponding special technical features” in Specific Examples

4.1 Examples with a Specific Relation among Claimed Inventions

4.1.1 Product and Method of Producing it, Product and Machine, Instrument, Device, the Other Means for Producing it (Cases 29~33)

If a method of producing a product, or product and machine, instrument, device, the other means for producing a product (hereinafter referred to as “production method or production device, etc.”) is suitable for producing “the product,” they have the same or corresponding special technical feature. Even if something other than “the product” is produced by “production method or production device, etc.,” they have the same or corresponding special technical feature, if the “production method or production device, etc.” is suitable for producing “the product.” The word, “the other means” in the above “a machine, instrument, device, the other means for producing a product” is not limited to a machine, instrument and device, but encompasses a catalyst, microorganism and anything else, which acts on other materials, work pieces, etc., and turns them into a product.

(Explanation)

The case where a “production method or production device, etc.” is “suitable” for producing “the product” includes, for example, a case where a special technical feature of “production method or production device, etc.” necessarily causes conversion of raw material into a special technical feature of “the product” (including the product itself). Since a contribution over the prior art made by the special technical feature of “production method or production device, etc.” gives special technical features of “the product,” said contributions over the prior art of the invention made by each of the special technical features are closely related, and thereby they are deemed to have the same or corresponding special technical features.

4.1.2 Product and Method of Using it, and Product and Another Product Solely Utilizing Specific Properties of the Product (Case 34)

(1) If a “method of using a product” is suitable for use of “that product,” they have the same or corresponding special technical feature.

(Explanation)

The case where a “method of using a product” is considered to be “suitable” for use of “that product” is, for example, a case where a special technical feature of the “method of using the product” utilizes properties and/or functions particular to a special technical feature of “the product.”

In this case, the contribution over the prior art of the invention, which is made by the special technical feature of “method of using a product,” lies in the utilization of the particular properties and/or functions of the special technical feature of “the product.” Therefore, the contribution over the prior art which is made by each of the special technical features is closely related and both “product” and “the method of using it” have the same or corresponding special technical features.

(2) If a special technical feature of “a product solely utilizing the specific properties of another product” solely utilizes the special technical feature of “another product,” both “a product” and “another product” have the same or corresponding special technical features.

(Explanation)

if a special technical feature of “a product solely utilizing the specific properties of another product” solely utilizes the special technical feature of “another product,” the contribution over the prior art of the invention, which is made by the special technical feature of “a product solely utilizing the specific properties of another product,” lies in the sole utilization of the specific properties of the special technical feature of “another product.” Therefore, the contribution over the prior art of the invention which is made by each of the special technical features is closely related and both “a product” and “another product” have the same or corresponding special technical features.

4.1.3 Product and Handling Method of the Product, or Product and Another Handling Product of it (Cases 35 and 36)

If a method of handling the product or another product handling the product (hereinafter referred to as “a handling method or another handling product”) is suitable for handling “the product,” both have the same or corresponding special technical features. Even if “a handling method or another handling product” is applicable to handling something other than the product, both still have the same or corresponding special technical features, if they are suitable for handling said product.

(Explanation)

The case where “a handling method or another handling product” is “suitable” for handling “the product” is a case, for example, where the special technical feature of “a handling method or another handling product” necessarily maintains or exercises the function by external action on the special technical feature of “the product” and does not basically give substantial changes to “the product.”

In this case the contribution over the prior art of the invention, which is made by the special

technical feature of “a handling method or another handling product,” is to maintain and exercise the function of a special technical feature of “the product.” Therefore, the contribution over the prior art of the invention which is made by each of the special technical features is closely related and both have the same or corresponding special technical features.

4.1.4 Method and Machine, Instrument, Device, the Other Means Directly Used to Carry Out the Method (Cases 37~39)

If a machine, instrument, device, and the other means directly used to carry out a method (hereinafter referred to as “device directly used to carry out a method”) are suitable for direct use to carry out “the method,” both have the same or corresponding special technical features. Even if the “device directly used to implement a method” can be directly used to carry out a method other than “the method,” both still have the same or corresponding special technical features, if the “device directly used to carry out a method” is suitable for directly carrying out “the method.” The phrase “the other means” in “a machine, instrument, device, and the other means directly used to carry out a method” is not limited to a sort of device, but encompasses catalysts, microorganisms, raw materials, work pieces and all other items directly used to carry out the method.

(Explanation)

The case where a “device directly used to carry out a method” is “suitable” for direct use to carry out “the method” is, for example, a case where a special technical feature of a “device directly used to carry out a method” is directly used to carry out a special technical feature of “the method.”

In this case, the contribution over the prior art of the invention, which is made by the special technical feature of a “device directly used to implement a method,” is to carry out the special technical feature of “the method.” Therefore, the contribution over the prior art which is made by each of the special technical features are closely related and both have the same or corresponding special technical features.

4.2 Markush-Type (Case 40)

Where a claim is described in the Markush-Type, the unity of invention in the claim is examined by finding out whether its alternatives have the same or corresponding special technical features.

Especially, where a claim described in the Markush-Type is related to a compound written in an alternative form, each alternative has the same or corresponding special technical features, if the following (i) and (ii) are satisfied:

(i) All alternatives have a common property or activity; and

(ii) (a) a common chemical structure is present, i.e., a significant structural element is shared by all of the alternatives, or

(b) in cases where the common chemical structure cannot be the unifying criteria, all alternatives belong to a class of chemical compounds recognized as single in the art to which the invention pertains.

In paragraph (ii)(a) above, “a significant chemical structure element is shared by all of the alternatives” refers to cases where the chemical compounds share a common chemical structure which occupies a large portion of their structures, or if the compounds have in common only a small portion of their structures, cases where the commonly shared structure constitutes a structurally distinctive portion in view of prior art. The structural element may be a single component or a combination of individual components linked together.

When dealing with alternatives in the Markush-Type, if at least one of the Markush alternatives is found in the prior art, the question of unity of invention shall be reconsidered.

In paragraph (ii)(b) above, the word “a class of chemical compounds recognized as single” means that there is an expectation from the knowledge in the art that members of the class will behave in the same way in the context of the claimed invention. In other words, each member could be substituted for the other, with the expectation that the similar intended result would be achieved.

4.3 Intermediate and Final Product (Case 41)

In order that an invention related to an intermediate product and another related to the final product have the same or corresponding special technical features, the following requirements (i) and (ii) must be satisfied:

(i) An intermediate and a final product have the same or technically closely related structural element, namely;
(a) the new basic skeleton which are not found in a prior art in chemical structure of the intermediate product is common to that of the final product; or
(b) the chemical structures of both products are technically closely related to each other.

(ii) The intermediate product and the final product are technically related to each other. In other words, the final product is prepared directly from an intermediate product or prepared through a small number of the other new intermediate products that include the same substantial structural element.

Even if the structure is unclear, an intermediate product and a final product may have the same or corresponding special technical features in some cases. For example, an intermediate with a clear structure and a final product with an unclear constitution structure or an intermediate product with an unclear constitution structure and a final product with an unclear constitution structure sometimes may have the same or corresponding special technical features.

In this case, in order to have the same or corresponding special technical features, there must be sufficient evidence showing that the structures of the intermediate product and the final product are technically closely related to each other; for example, the intermediate product includes the same substantial component as that of the final product or the intermediate product incorporates the substantial component in the final product.

In the case where the individual intermediate products, which are used in different

processes to prepare one final product, include the same substantial component, the inventions related to the final product and the individual intermediates have the same or corresponding special technical features because the substantial structural elements are the same or corresponding special technical features.

In cases where the intermediate products and the final products are defined in claims so as to constitute a group of chemical compounds, 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 completely.

Showing that the intermediate products has other effects or exhibits other activities in addition to being used to prepare the final product does not affect the examination of unity of invention.

5. Case Examples

Notes of Use of the Cases

(1) The case examples are made for the purpose of guidance of an application of the unity of invention prescribed under the provision of Article 37. Therefore, in the following cases, it is noted that the description, such as the scope of claims of the invention, of each case is modified, e.g., simplified, for the sake of easy understanding of the unity of invention, so that the description may not be the most suitable example.
(2) In each of the cases 1 through 13 and 29 through 48, comments are made with respect to only the requirements of the unity of invention, provided that an invention as recited in each claim constitutes independent invention and, in principle, satisfies both of the novelty and the inventive step. Further, in each of the cases 14 through 28, comments are made with respect to decision on the subject of the examination. Meanwhile, introduction of a plurality of claims reciting the same invention is naturally allowed by the provision prescribed under Article 36(5).
(3) The cases included in the case examples may include cases concurrently falling under a plurality of determination types. However, in such cases, the comment thereof is made by only focusing on either one of the determination types.

[Example 1] Inventions having the Same Special Technical Feature

[Title of the Invention]
A Method for Dissolving Ceramic Material and Ceramic Material Core Mold

[Scope of Claims]
1. A method for dissolving a ceramic material from an article easily attacked by a caustic solution, characterized in causing a substance containing an acidic donor to be included in the ceramic material, and, subsequently, causing the ceramic material to be immersed within an anhydrous caustic alkaline bath.
2. A method for dissolving a ceramic material core mold of a light metal casting or a light alloy casting, characterized in that the light metal casting or the light alloy casting containing a ceramic material core mold including a substance containing an acidic donor is brought into contact with anhydrous caustic alkaline before the casting cools and the casting is immersed within an anhydrous caustic alkaline bath molten by heat of the casting.

[Excerpt from Detailed Explanation of the Invention]
The present invention relates to a method for dissolving a ceramic material and a ceramic material core mold from an article easily attacked by a caustic solution.

Conventionally, the ceramic material core mold of a nickel-and-cobalt-based alloy casting is removed by being dissolved in a caustic solution; however, the method cannot be applied to light metal castings or light alloy castings since they are attacked by the caustic solution. In the present invention, since the acidic donor is contained in the ceramic material, only the ceramic material can be selectively dissolved in the anhydrous caustic alkaline bath without the light metal casting or the light alloy casting being attacked. In claim 2, “the casting is brought into contact with anhydrous caustic alkaline before the casting cools” in order to dissolve the anhydrous caustic alkaline by using heat of the casting.

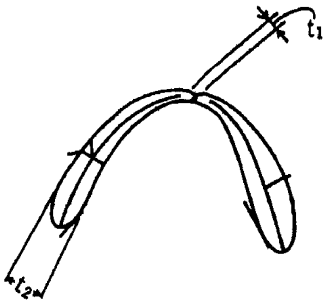
[Explanation]
The following point of “causing a substance containing an acidic donor to be included in a ceramic material and, subsequently, causing the ceramic material to be immersed within an anhydrous caustic alkaline bath” is common to claims 1 and 2. “Causing a substance containing an acidic donor to be included in a ceramic material and, subsequently, causing the ceramic material to be immersed within an anhydrous caustic alkaline bath” makes contribution to the prior art in which only the ceramic material can be selectively dissolved without the light metal casting or the light alloy casting being attacked, which, therefore, can be considered as a special technical feature. Consequently, the inventions according to claims 1 and 2 have the same special technical feature and satisfy the requirements of the unity of invention.

[Example 2] Inventions having the Same Special Technical Feature

[Title of the Invention]
Modified Cross-Section Filament, Line of Thread of Filament, and Knit Fabric

[Scope of Claims]
1. A modified cross-section filament having a V-shaped or a C-shaped cross-section and a notch-like narrow portion at about a center portion of an outer periphery of a protruding side of the cross section, wherein a thickness t_1 of the narrow portion and the maximum thickness t_2 satisfies $0.40t_2 \leqq t_1 \leqq 0.95t_2$ [where, $a \leqq t_2 \leqq b$ (a and b are positive constants)]
2. A line of thread of a latent bulky multi-filament obtained by subjecting the modified cross-section filament according to claim 1 to a fluid turbulence process and a subsequent gum stretching process.
3. A knit fabric made of the modified cross-section filament according to claim 1.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention provides a modified cross-section filament enabling the manufacturing of a knit fabric having a gloss like a silk fabric, showing excellent in opacity, having a dry feel, and a texture almost like the silk fabric in view of the bulkiness and softness and the thread and the knit fabric made of the modified cross-section filament.



[Explanation]
The modified cross-section filament in claim 1 is common to the inventions claimed in claims 1, 2, and 3. The modified cross-section filament in the inventions claimed in claim 1 make a contribution to the prior art enabling the manufacturing of a knit fabric having a texture close to the silk fabric and, therefore, can be considered as a special technical feature. Consequently, the inventions according to claims 1, 2, and 3 have the same special technical feature and satisfy the requirements of unity of invention.

[Example 3] Inventions having the Same Special Technical Feature

[Title of the Invention]
Twine Used for Low Friction Fiber Bearing Surface and Bearing Using the Same

[Scope of Claims]
1. A twine used for a low friction fiber bearing surface including a TFE filament (10) with a volume ratio that is a maximum of 50% of the TFE, and a nylon doubling (11) for high temperature, wherein the nylon doubling is roughly twisted as a core of the TFE filament of the twine so as to allow a synthetic resin to flow into throughout the roughly twisted folded yarn. (See, Fig. 1)
2. A bearing, comprising: a cured synthetic resin (14) on a sliding surface; wherein the synthetic resin (14) is a twine including TFE filaments (10), (13') having a volume ratio of a maximum 50% TEF and nylon doublings (11) and (13") for high temperature which are roughly twisted with the nylon doublings being as a core with respect to the twisted TFE filaments so as to be exposed to a bearing surface (15); and wherein the synthetic resin (14) is substantially compatible with the twine and is formed into a continuous solid body without a cavity. (See, Figs. 1, 2, and 3)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to a low friction fiber bearing and a twine constituting a fiber. A purpose of the present invention is to provide the bearing, which is equipped with reinforcement for reinforcing the low friction fiber on a bearing surface, thereby allowing the TFE filament to be securely held with respect to the rotation of the fragile portion.

In the conventional bearing using the tetrafluoroethylene (TFE) filament for realizing a low friction, the bearing will be remarkably frictionally worn and rapidly broken if the maximum load or more than the maximum load is applied thereto. Further, a mechanical function of the conventional bearing is degraded by an application of the load or a temperature rise, so that the maximum working temperature is extremely controlled.

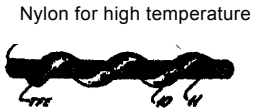


Fig. 1

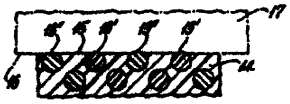


Fig. 2

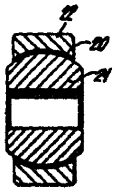


Fig. 3

[Explanation]
The "twine including TFE filaments having a volume ratio of a maximum of 50% TEF, and nylon doublings for high temperature which are roughly twisted with the nylon doublings forming the core with respect to the twisted TFE filaments" is common to the inventions claimed in claims 1 and 2. The "twine including TFE filaments having a volume ratio of a maximum of 50% TEF and nylon doublings for high temperature which are roughly twisted with the nylon doublings forming the core with respect to the twisted TFE filaments" make a contribution to the prior art in which the TFE filaments are securely held with respect to the rotation of the fragile portion and is considered as a special technical feature. Therefore, the inventions claimed in claims 1 and 2 have the same special technical feature and satisfy the requirements of unity of invention.

[Example 4] Inventions having the Same Special Technical Feature

[Title of the Invention]
Anchor for Underground Tank for Reserving Liquefied Gas and Underground Tank for Reserving Liquefied Gas

[Scope of Claims]
1. An anchor for underground tank for reserving liquefied gas comprising: an anchor principle member (10); and a fixing bracket (11) having a cylindrical sealing member (12) which includes a middle portion of the anchor principle member (10) and holds a flexible bearing plate (16), wherein the fixing bracket (11) holds the anchor principle member (10) through tension via an anchor plate (14) retained on an end portion of the fixing bracket (11). (See, Fig. 1)
2. An underground tank for reserving liquefied gas, comprising: a base (5) below tank side walls (3); wherein a peripheral portion of the base (5) is formed with horizontal end faces (5a) that come into contact with bottom surfaces (3a) of the side walls (3) and vertical end faces (5b) that come into contact with lower internal surfaces (3b) of the side walls (3); and wherein the anchors (9) according to claim 1 are embedded at intervals within the peripheral portion of the base (5) from lower interior portions of the side walls (3). (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention is for an anchor that is designed to be used for an underground tank for reserving liquefied gas and an underground tank used for reserving liquefied gas thereof.
An underground tank, in which the tank side walls and base are coupled with steel products that extend there between, is a publicly known technology in this technical field. However, if a load is applied in a direction in which the base is separated from the end faces of the tank side walls, the base may move significantly enough to cause the water sealing plate to break, resulting in inviting possible penetration and freezing of underground water.

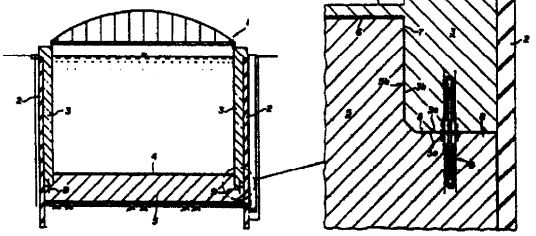


Fig. 2

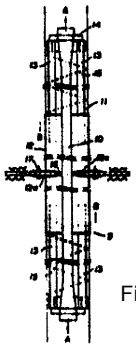


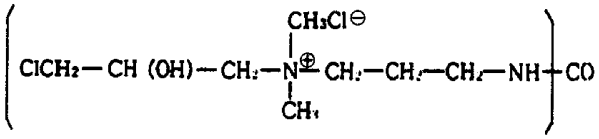
Fig. 1

[Explanation]
The anchor in claim 1 is common to the inventions claimed in claims 1 and 2. The anchor in claim 1 make a contribution to the prior art that can prevent breakage of the tank against loads from all directions and is considered as a special technical feature. Therefore, the inventions according to claims 1 and 2 have the same special technical feature and satisfy requirements of unity of invention.

[Example 5] Invention having the Same Special Technical Feature

[Title of the Invention]
Quaternary ammonium compounds and their use

[Scope of Claims]
1. The quaternary ammonium compounds represented by the following formula.



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

[Excerpt from Detailed Explanation of the Invention]
This invention concerns the newly developed quaternary ammonium compounds and their application as microbial control and desegregation agents.

[Explanation]
The special technical feature of inventions claimed in claim 1, 2 and 3 is the quaternary ammonium compounds described in the invention claimed in claim 1 and the same. Therefore, the inventions claimed in claim 1, 2 and 3 have common special technical feature and satisfy unity of invention.

[Example 6] Invention having the Same Special Technical Feature

[Title of the Invention]

A method for the desulfurization of molten pig-iron and a molten pig-iron desulfurization agent

[Scope of Claims]

1. A method for the desulfurization of molten pig-iron characterized by blowing powdered calcium carbide containing oil in the proportion of xx% of the weight of the carbide onto the hot metal bath surface using a carrier gas at a rate of ….kg/m^3 against the aforementioned gas.
2. Molten pig-iron desulfurization agent consisting of powdered calcium carbide containing oil in the proportion of xx% of the weight of the carbide.

[Excerpt from Detailed Explanation of the Invention]

This invention concerns a method for the desulfurization of molten pig-iron and a molten pig-iron desulfurization agent for molten pig-iron and molten steel aiming to improve desulfurization efficiency by using the mixture of calcium carbide containing oil as a desulfurization agent during the injection- desulfurization of molten iron.

The types of the above-mentioned oil include gasoline, kerosene, vegetable oil, animal oil and wax. When a desulfurization agent containing such oils is blown onto the hot metal bath surface, gas is rapidly released and the released gas breaks down the particles of calcium carbide and disperses the agglomeration of the particles, and thereby increasing the surface area for reaction with the sulfur in the molten metal. Also the agitation effect of molten metal is enhanced as a result of the quick gasification, and further improves the desulfurization process. Furthermore the oil induces the reducing condition that is convenient for desulfurizing molten metal, and the desulfurization efficiency is expected to improve from this aspect as well.

The mix ratio of oil to the powdered calcium carbide is xx% of the weight of the carbide due to ……..……

In the aforementioned mixture, the calcium carbide particle digests the oil, which is causing the calcium hydroxide to form on the surface, improving the flow of the powder material. This enables the mixture to be blown in at a high ratio of …kg/m^3 against the carrier gas (m^3), where a minimum quantity of carrier gas is needed, and together with the decrease in the consumption of the powdered calcium carbide as a result of the aforementioned improved desulfurization efficiency, a smaller reduction in temperature of the molten metal can be facilitated at the time of desulfurization.

[Explanation]

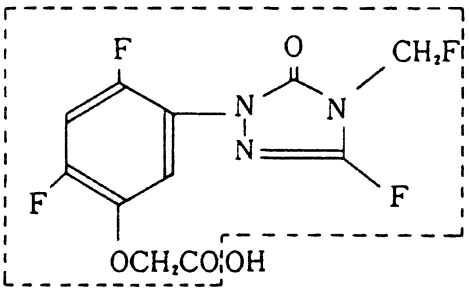
“A molten pig-iron desulfurization agent that is composed of a mixture of powdered calcium carbide and oil in the proportion of xx% of the weight of the carbide” is common to both the invention claimed in claim 1 and 2. The “molten pig-iron desulfurization agent that is composed of a mixture of powdered calcium carbide and oil in the proportion of xx% of the weight of the carbide” makes a contribution over the prior art in that the calcium hydroxide forms on the surface of the calcium carbide particle, which improves the flow of the powder

material, and therefore is a special technical feature. Accordingly, a common special technical feature exists between the inventions claimed in claim 1 and 2 and therefore they satisfy the requirements for unity of invention.

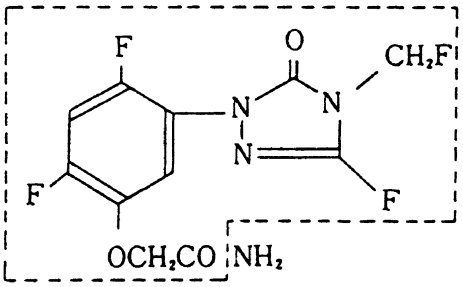
[Example 7] Invention having the Same Special Technical Feature

[Title of the Invention]
Compounds with herbicidal activities

[Scope of Claims]
1. Compounds having formula



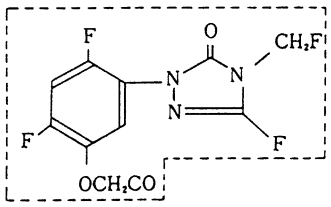
2. Compounds having formula



[Excerpt from Detailed Explanation of the Invention]
This invention relates to two new compounds that share a common new basic skeleton. It is confirmed that both compounds have a similar herbicidal activity.

[Explanation]
In the invention of chemical compounds, when the matter used to specify the invention is a chemical constitution, and both chemicals share a common new basic skeleton, and both chemicals have the same characteristic or activity, it may be said that both chemical compounds share the same special technical feature.

In this example, since the compounds share a common new basic skeleton,



and both compounds have a herbicidal activity, they both share the same special technical feature. Therefore the inventions claimed in claim 1 and 2 satisfy the requirements for unity of invention.

[Example 8] Inventions having the Common or Closely Related Technical Significance

[Title of the Invention]
Multi-Spindle Cooling System

[Scope of Claims]
1. A multi-spindle cooling system, comprising: first and second main spindle units (1, 11), each having a hollow chamber; and first and second heat radiators (8, 81) for discharging heat generated in the first and the second main spindle units (1, 11); wherein the first and the second main spindle units (1, 11) and the first and the second heat radiators (8, 81) are alternately serially connected to each other via steam pipes (10, 101) for guiding steam of working fluid gasified in the hollow chamber to each of the first and the second heat radiators (8, 81) and liquid pipes (12, 121) for guiding the working fluid condensed/liquefied in the first and the second heat radiators (8, 81) to the hollow chamber of each of the first and the second main spindle units (1, 11). (See, Fig. 1)
2. A milti-spindle cooling system, comprising: first and second main spindle units (1, 11), each having a hollow chamber; and a heat radiator (8) for discharging heat generated in the first and the second main spindle units (1, 11); wherein the first and the second main spindle units (1, 11) are connected to the heat radiator (8) via steam pipes (10, 101) for guiding steam of working fluid gasified by the hollow chambers and liquid pipes (12, 121) for guiding the working fluid condensed/liquidified by the heat radiator (8) to the hollow chambers. (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
Both of the inventions relate to a multi-spindle cooling system for cooling bearing of, for example, a plurality of main spindle units in a machine tool. In some of such cooling systems, a heat radiator is provided to each of the main spindle units, which; however, has a drawback that a positional movement between the main spindles degrades processing accuracy since heat deformation and a strain amount vary for each main spindle unit.

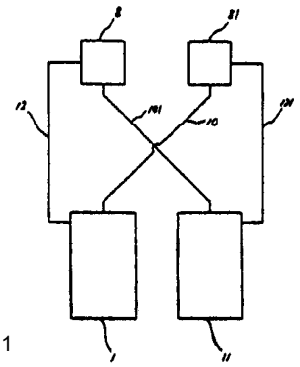


Fig. 1

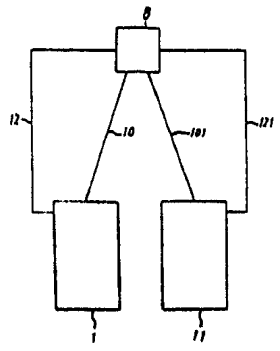


Fig. 2

[Explanation]
The inventions claimed in claims 1 and 2 both have special technical features. The problems in the inventions in contrast with the prior art are to minimize a positional movement between the main spindles and improve processing accuracy by cooling the bearing of a multi-spindle averagely and, therefore, are common or overlapping to each other. Therefore, the technical significances in the inventions claimed in claims 1 and 2 are common or closely related and

the inventions have corresponding special technical features and satisfy the requirements of unity of invention.

[Example 9] Inventions having the Common or Closely Related Technical Significance

[Title of the Invention]
Automatic Gas Shutoff Device

[Scope of Claims]
1. An automatic gas shutoff device, comprising: a bimetal (4) to be engaged with a valve (3); a heat receiving plate (14) for transmitting a temperature of a burner to the bimetal (4); wherein the valve (3) is closed according to deformation of the bimetal (4) when the temperature of the bimetal (4) drops. (See, Fig. 1)
2. An automatic gas shutoff device, comprising: permanent magnets (19, 21); at least two thermo ferrites (20, 22, 23) as passages of lines of magnetization of the permanent magnets (19, 21); a valve (25) of which opening/closing position is kept by a magnetic attractive force of the thermo ferrites (20, 22, 23); and a heat receiving plate (31) for transmitting a temperature of a burner to the thermo ferrites (20, 22, 23);
…
wherein the thermo ferrites (20, 22, 23) have different magnetic property disappearance temperatures. (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention relates to a safety device for automatically shutting off gas upon sensing drop in temperature when a gas appliance using gaseous fuel during combustion is inadvertently turned off, such as by wind.

The safety device using an electronic circuit having a complicated structure to be operated by a commercial power is publicly known in this field. However, such safety device has a drawback of a possible occurrence of a secondary disaster due to a short circuit or the like.

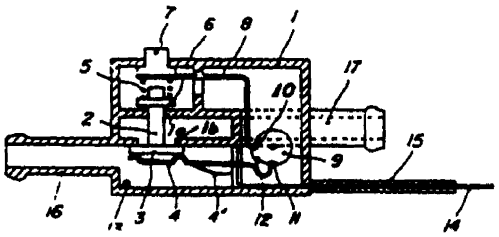


Fig. 1

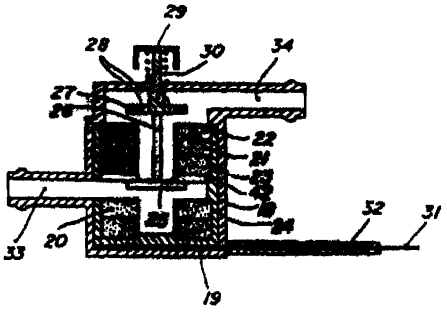


Fig. 2

[Explanation]
The inventions claimed in claims 1 and 2 both have special technical features. The problems in inventions in contrast with the prior art are to enable prevention of a secondary disaster due to a short circuit by an automatic shutoff of gas by a mechanical mechanism actuating according to the drop in temperature and, therefore, are common or overlapping to each other. Therefore, the technical significances to the prior art in the inventions claimed in claims 1 and 2 are common or closely related and the inventions have corresponding special technical features and satisfy the requirements of unity of invention.

[Example 10] Inventions having the Common or Closely Related Technical Significance

[Title of the Invention]
Headlight

[Scope of Claims]
1. A headlight, comprising: a reflector; a high pressure discharge lamp (7) which is horizontally held almost in line with a focal position of the reflector and is lit up on DC; magnetic field application means (8, 9) for applying a magnetic field almost at right angle with respect to an arc of the high pressure discharge lamp (7); and current direction switching means (27, 28) for switching an orientation of arc current of the high pressure discharge lamp (7). (See, Figs. 1 and 2)
2. A headlight, comprising: a reflector; a high pressure discharge lamp (3) which is horizontally held almost in line with a focal position of the reflector and is lit up on DC; magnetic field application means (4, 5) for applying a magnetic field almost at right angle with respect to an arc of the high pressure discharge lamp (3); and a control means (6, 7) for variably controlling vector quantity of the magnetic field applied by the magnetic field application means (4, 5). (See, Figs. 1 and 3)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention relates to a headlight capable of switching a lighting mode between a low beam during which a light amount is reduced for an oncoming vehicle and a main beam during a normal running.

A headlight including a low beam lamp and a main bean lamp which are switched each other is publicly known.

Recently, use of a lamp having high photo transformation efficiency is demanded in view of energy saving and, for achieving the demand, use of a high pressure discharge lamp is considered. However, if the high pressure discharge lamp is used for both lamps, different from the conventional bulb, there was a drawback that the lighting device becomes weighty and takes space because of its structure.

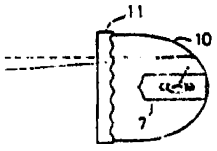


Fig. 1

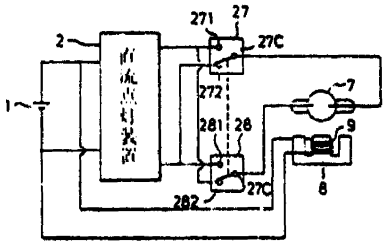


Fig. 2

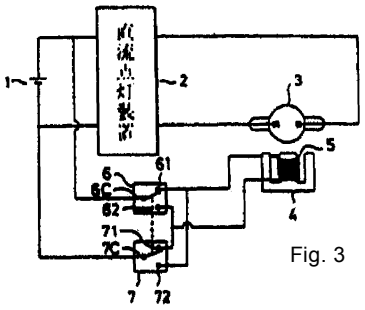


Fig. 3

2 DC lighting device

[Explanation]
The inventions claimed in claims 1 and 2 both have special technical features. The problems in inventions in contrast with the prior art is to achieve downsizing and weight reduction of the headlight of the high pressure discharge lamp with high photo transformation efficiency by

using only one high pressure discharge lamp to curve an arc thereof in an up-and-down direction to gain low beam and main beam and, therefore, are common or overlapping to each other. The technical significances in the inventions claimed in claims 1 and 2 compared to the prior art are common and the inventions have corresponding special technical features and satisfy the requirements of unity of invention.

[Example 11] Inventions of which Special Technical Features Are Complimentarily Related to Each Other

[Title of the Invention]
Drive Belt and Pulley

[Scope of Claims]
1. A toothed belt, comprising: a plurality of belt teeth; and a recessed cylindrical surface-shaped stress reducing portion (23) provided on each belt tooth, each stress reducing portion (23) being provided at a connecting portion between a surface of the tooth and a bottom surface of the tooth; wherein each stress reducing portion (23) has an outer periphery of a range between 40% and 60% of a half of the entire outer periphery of each tooth (14). (See, Fig. 1)
2. A toothed pulley, comprising: a plurality of pulley teeth (16); and a raised cylindrical surface on a shoulder (33) of each pulley tooth;
   …
   wherein the raised cylindrical surface of one side has an outer periphery of a range between 40% and 60% of a half of the entire outer periphery of each tooth (16). (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention is directed to a belt driving apparatus including a toothed belt and a toothed pulley, wherein a connection portion between a surface of a tooth and a bottom surface of a tooth of each belt tooth is formed into a cylindrical surface having a specific size as well as a shoulder of a tip of a tooth of the toothed pulley meshing with the toothed belt is formed into a cylindrical surface in order to prevent the belt teeth of the toothed belt from a shear fracture, thereby improving a shearing strength of the toothed belt. A belt transmission including belt teeth having a trapezoidal shape is publicly known in this field. However, such belt transmission had a drawback that the belt teeth are sheared and fractured according to a stress concentration generated on a tooth base portion (i.e., a base portion).

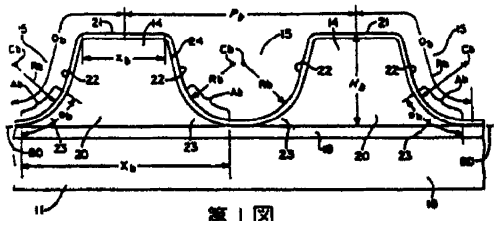


Fig. 1

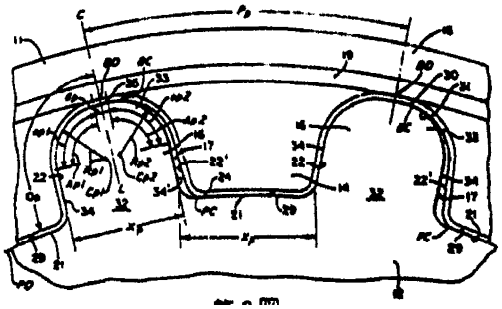


Fig. 2

[Explanation]
The “recessed cylindrical surface having an outer periphery of a range between 40% and 60% of a half of the entire outer periphery of each tooth” of the invention claimed in claim 1 and the “the raised cylindrical surface having an outer periphery of a range between 40% and 60% of a half of the entire outer periphery of each tooth” of the invention claimed in claim 2 are complementally related to each other. The above described features make a contribution

to the prior art for preventing the shear fracturation of the belt teeth of the toothed belt and, therefore, are considered as special technical features. Consequently, the inventions according to claims 1 and 2 have the corresponding special technical features and, thus satisfy the requirements of unity of invention.

[Example 12] Inventions of which Special Technical Features Are Complimentarily Related to Each Other

[Title of the Invention]
Transmission Device and Receiving Device of Image Signal

[Scope of Claims]
1. A transmission device for transmitting image signals, comprising: a plurality of predictive encoders (12-1 through 12-N) for encoding input image signals by using different prediction functions; …
   a run-length encoder (17) for subjecting the optimum predictive encoded signal having the highest predictive value selected from thus acquired predictive encoded signals to run-length encoding; and …
   a delivery control circuit (19) for delivering an identification signal indicative of a prediction function of the optimum predictive encoded signal output from the discrimination circuit (18) together with an output signal from the run-length encoder (17). (See, Fig. 1)
2. A receiving device for receiving image signals, comprising: a receiving circuit (31) for receiving an image signal subjected to predictive encoding and subsequent run-length encoding and, together with the image signal, an identification signal indicative of the prediction function when being subjected to the predictive encoding; a run-length decoder (33) for subjecting the image signal output from the circuit (31) to run-length decoding; a plurality of predictive decoders (35-1 through 35-N) for encoding the outputs from the decoder (33) by using different prediction functions; …; and a selection means (36) for selectively extracting only the decoded output corresponding to the identification signal in decoded outputs output from the prediction decoders (35-1 through 35-N). (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to a signal transmission system for transmitting a highly compressed signal.

Development of a method capable of performing a highly-efficient transmission of an image signal of a facsimile or the like within a limited band of frequency by opening the public communication channels has been demanded. Currently, the run-length encoding method for encoding a continuous length of 1 or 0 is generally employed by which, however, high compressibility cannot be realized. In the present invention, a plurality of predictive encoders is used and, among which, an output of the predictive encoder having the highest predictive value is transmitting after being subjected to the run-length encoding. Therefore, extremely high compressibility can be obtained by the present invention.

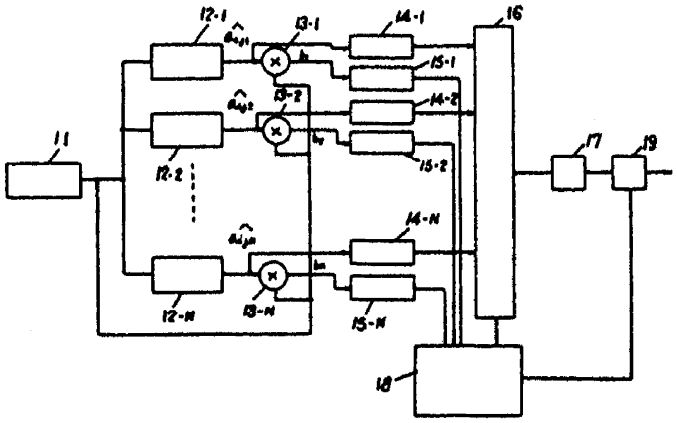


Fig. 1

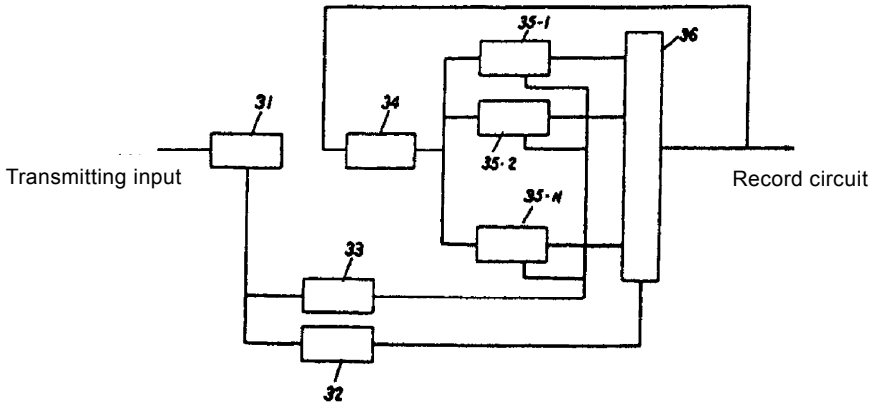


Fig. 2

[Explanation]

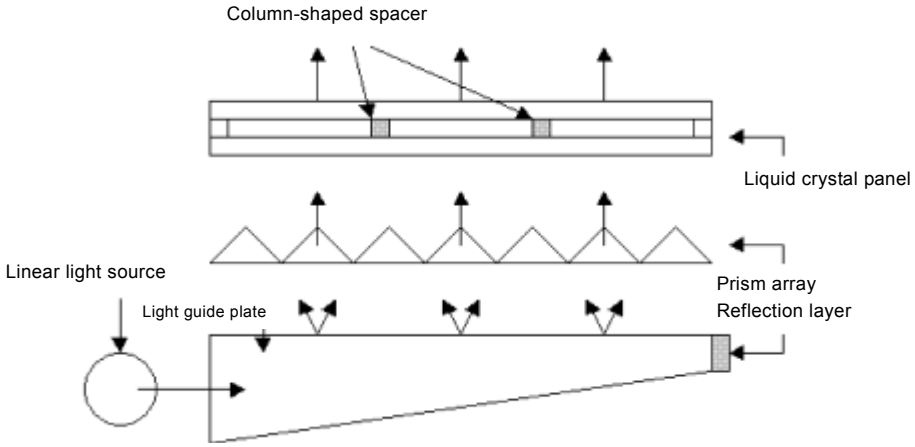
"A plurality of predictive encoders (12-1 through 12-N) for encoding input image signals by using different prediction functions; … a run-length encoder (17) for subjecting the optimum predictive encoded signal having the highest predictive value selected from thus acquired predictive encoded signals to run-length encoding; and a delivery control circuit (19) for delivering an identification signal indicative of a prediction function of the optimum predictive encoded signal output from the discrimination circuit (18) together with an output signal from the run-length encoder (17)" of the invention claimed in claim 1 and "a receiving circuit (31) for receiving an image signal subjected to predictive encoding and subsequent run-length encoding and, together with the image signal, an identification signal indicative of the prediction function when being subjected to the predictive encoding; a run-length decoder (33) for subjecting the image signal output from the circuit (31) to run-length decoding; a plurality of predictive decoders (35-1 through 35-N) for encoding the outputs from the decoder (33) by using different prediction functions; …; and a selection means (36) for selectively extracting only the decoded output corresponding to the identification signal in decoded outputs output from the prediction decoders (35-1 through 35-N)" of the invention claimed in claim 2 are complementarily related to each other. The inventions make a contribution to the prior art that improves the compressibility of the run-length encoding by using the plurality of predictive encoders and, therefore, are considered as the special technical features. Consequently, the inventions claimed in claims 1 and 2 have the corresponding special technical features and, thus, satisfy the requirements of unity of invention.

[Example 13] Inventions Fails to Satisfy the requirements of Unity posteriori

[Title of the Invention]
Liquid Crystal Display

[Scope of Claims]
1. A liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate onto a liquid crystal panel:
(1a) wherein the light guide plate is formed into a cuneiform, i.e., is formed so as to be thinner as the light guide plate comes away from the linear light source;
(1b) wherein a column-shaped spacer having a birefringence property identical to that of the liquid crystal layer of the liquid crystal panel when no voltage is applied is provided as well as the liquid crystal panel is a normally black display type; and
(1c) wherein a reflection layer is provided on a side surface other than the side surface provided with the linear light source of the light guide plate thereon.
2. A liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate to a liquid crystal panel:
(2a) wherein the light guide plate is formed into a cuneiform, i.e., is formed so as to be thinner as the light guide plate comes away from the linear light source;
(2b) wherein a column-shaped spacer having a birefringence property identical to that of a liquid crystal layer of the liquid crystal panel when no voltage is applied is provided as well as the liquid crystal panel is a normally black display type; and
(2c) wherein a prism array for causing the light coming out from the light guide plate to come close to parallel rays is disposed between the light guide plate and the liquid crystal panel.

[Excerpt from Detailed Explanation of the Invention and Drawings]
A purpose of the present invention is to improve a performance of the conventional liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate onto a liquid crystal panel. First, formation of the light guide plate into a cuneiform enables increase of light vertically entering into the liquid crystal panel. Use of the normally black display contributes to prevent light from passing through spacer portion upon black display. Further, in the invention claimed in claim 1, since a reflection layer is provided on a side surface of the light guide plate, light leakage leaking from the side surface of the light guide plate can be decreased, resulting in improvement of efficiency of using the light from the light source.
In the invention claimed in claim 2, since the light from the light source is caused to be close to parallel rays by using a prism array, an uniform display could be realized over the entire surface of the panel.



［Result of Prior Art Search］

Document 1 discloses a liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate onto a liquid crystal panel, (a) wherein the light guide plate is formed into a cuneiform, i.e., is formed so as to be thinner as the light guide plate comes away from the linear light source and (b) a column-shaped spacer having a birefringence property identical to that of the liquid crystal layer of the liquid crystal panel when no voltage is applied is provided as well as the liquid crystal panel is a normally black display type.

[Explanation]

The inventions claimed in claims 1 and 2 are common to each other in that a liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate onto a liquid crystal panel, (a) wherein the light guide plate is formed into a cuneiform, i.e., is formed so as to be thinner as the light guide plate comes away from the linear light source and (b) a column-shaped spacer having a birefringence property identical to that of the liquid crystal layer of the liquid crystal panel when no voltage is applied is provided as well as the liquid crystal panel is a normally black display type.

However, Document 1 discloses that a liquid crystal display for causing light from a linear light source to enter into a light guide plate from a side surface of the light guide plate and for irradiating the light coming out from an upper surface of the light guide plate onto a liquid crystal panel, wherein (a) the light guide plate is formed into a cuneiform, i.e., is formed so as to be thinner as the light guide plate comes away from the linear light source and .(b) a column-shaped spacer having a birefringence property identical to that of the liquid crystal layer of the liquid crystal panel when no voltage is applied is provided as well as the liquid crystal panel is a normally black display type. Therefore, both of (a) and (b) are publicly known as of the filing.

Further, no other the same or corresponding special technical features can be seen between inventions claimed in claim 1 and 2.

Therefore, the inventions claimed in claims 1 and 2 do not have the same or corresponding special technical feature can be seen in the claims and do not satisfy the requirements of unity of invention.

[Example 14] Decision of Subject of the Examination

[Title of the Invention]
Sanitary Sewage Treatment Apparatus

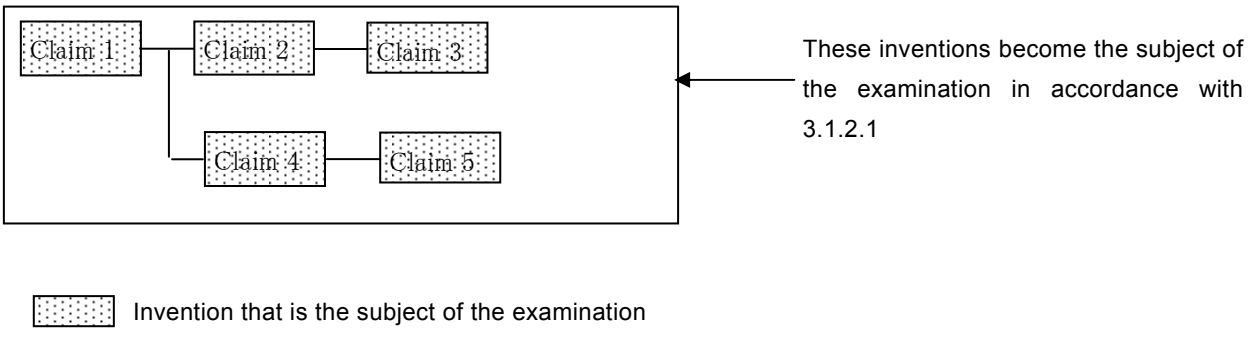
[Scope of Claims]
1. A sanitary sewage treatment apparatus, comprising a light reaction chamber including a high-output lamp for emitting pulsed light of, mainly, a wavelength of ultraviolet light.
2. The sanitary sewage treatment apparatus claimed in claim 1, wherein photocatalyst exists in the light reaction chamber.
3. The sanitary sewage treatment apparatus according to claim 2, wherein an oxidant addition mechanism is provided on an upstream side of the light reaction chamber.
4. The sanitary sewage treatment apparatus according to claim 1 wherein an oxidant addition mechanism is provided on an upstream side of the light reaction chamber.
5. The sanitary sewage treatment apparatus according to claim 4, wherein a return line for returning outflow water of the light reaction chamber to the light reaction chamber is provided.

[Excerpt from Detailed Explanation of the Invention]
The present invention relates to an apparatus for treating sanitary sewage in a highly effective manner by irradiating light of a wavelength of, mainly, high output ultraviolet light to the sanitary sewage heavily containing persistent COD. According to the present invention, since the light is irradiated at high output, long throw of light and high treatment effect can be produced and, since the light is irradiated intermittently for a short period of time, the light is momentary irradiated with extremely strong intensity, on the other hand, the power consumption is remarkably small and cost required for the treatment is low. Further, in a case where the photocatalyst is contained, such an effect can be produced that radical such as hydroxyl radical generated according to an action of the photocatalyst excited by light reacts contaminated material to generate oxidative degradation. Further, when oxidant is added, effect of generating oxidative degradation due to an action of oxidant can be produced. A return line for returning at least a portion of the outflow water from the light reaction chamber to the light reaction chamber is provided. As a result thereof, at least a portion of the unreacted material that could not be treated in the light reaction chamber can be treated in the light reaction chamber again, so that higher treatment effect can be produced.

[Result of Prior Art Search]
The sanitary sewage treatment apparatus of the inventions claimed in claims 1 and 2 has already been publicly known, as disclosed in Document 1.

[Explanation]
The invention claimed in claims1 and 2 lack novelty over Document 1 and has no particular special technical feature.
Next, with the invention claimed in claim3 in the same category that include all matters specifying the invention in claim 2, a special technical feature described as “A sanitary sewage treatment apparatus comprising a light reaction chamber, ”wherein an oxidant addition mechanism is provided on an upstream side of the light reaction chamber” was found.

Therefore, the inventions claimed in claims 1-3 for which whether there is any special technical feature has already been determined and the inventions claimed in claims 4-5 having special technical feature which is the same as or correspond to the special technical feature found shall become subject of the examination.



[Example 15] Decision of Subject of the Examination

[Title of the Invention]
Coating Method for Corrosion Protection and Article to Be Used Therein

[Scope of Claims]
1. A coating method, comprising: atomizing a coating material containing a corrosion protection material X by using compressed air; causing the atomized coating material to be electrostatically charged by using electrode disposition A; and spraying the coating material onto an article to be coated.
2. A coating material, comprising a corrosion protection material X.
3. An electrifier, comprising an electrode disposition A.

[Excerpt from Detailed Explanation of the Invention]
The present invention is directed to a coating method having high corrosion protection effect and less prone to generate coating unevenness. Conventionally, a method for performing corrosion protection coating by spraying a corrosion protection material is known. However, a material having less corrosion protection effect was used for coating in the conventional methods, so that satisfactory corrosion protection effect by coating could not be produced and, in a case where the coating is performed with respect to an article having a complicated structure, coating unevenness was generated. In the present invention, use of a new material X having high corrosion protection effect improves the corrosion protection effect as well as charging of the atomized coating material realizes less coating unevenness. Further, the electrode disposition A for causing the atomized material to be efficiently charged is also a new device.

[Explanation]
The invention claimed in Claim 1 has two special technical features, “a corrosion protection material X” and “electrode disposition A”. In this way, when an invention for which any special technical features has been found has several different special technical features, one of those special technical features are selected, and the inventions having a special technical feature which is the same as or correspond to the special technical feature selected shall become the subject of the examination. That is to say, the special technical feature “a corrosion protection material X” may be selected and the inventions claimed in 1 or 2 become the subject of examination as the inventions having a special technical feature which is the same as or corresponding to the special technical feature selected, or the special technical feature “electrode disposition A” may be selected and the inventions claimed in 1 and 3 become the subject of examination as the inventions having a special technical feature which is the same as or corresponding to the special technical feature selected.

[Example 16] Decision of Subject of the Examination

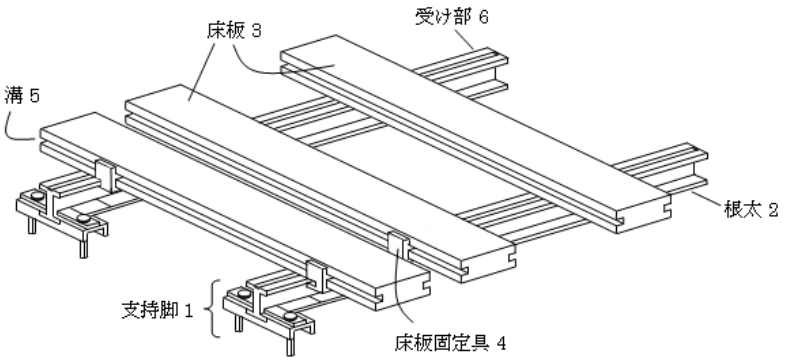
[Title of the Invention]
FLOOR CONSTRUCTION

[Scope of Claims]
1. A floor construction, comprising: bridged beams (2) each having a receiving portion (6) on its upper section; long floor panels (3) placed on the bridged beams (2) and formed with grooves (5) in a longitudinal direction on both side surfaces thereof; and floor panel fixtures (4) for fixing the floor panels (3) to the bridged beams (2) by pinching the receiving portions (6) of the bridged beams (2) in a state that the floor panel fixtures are fit to the grooves (5) of the floor panels (3).
2. The floor construction according to claim 1, wherein the floor panel fixtures (4) are hammered into the bridged beams (2) to pinch the receiving portions (6).
3. The floor construction according to claim 2, wherein the floor panels are made of wood and of which surface is provided with the electron radiation curing resin so as to penetrate into the surface of the floor panel by using the roll coater, followed by hardening the resin to form surface coating.
4. The floor construction according to claim 3, wherein the floor panels use polyester acrylate, epoxy acrylate, and urethane acrylate, or a mixture of the acrylate and the silicon acrylate as an oligomer of the electron radiation curing resin and multi functional acrylate monomer or multi functional methaacrylate monomer as a crosslinker of the electron radiation curing resin.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to a floor construction for underlying a plurality of floor panels on bridged beams.

A purpose of the present invention is to provide a floor construction capable of exchanging only a required floor panel even after construction of the floor with ease and capable of setting joint freely without necessity to screw fixtures of the plate materials into the bridged beams. The floor construction of the present invention comprises bridged beams (2) each having a receiving portion (6) on its upper section; long floor panels (3) placed on the bridged beams (2) and formed with grooves (5) in a longitudinal direction on both side surfaces thereof; and floor panel fixtures (4) for fixing the floor panels (3) to the bridged beams (2) by pinching the receiving portions (6) of the bridged beams (2) in a state that the floor panel fixtures are fit to the grooves (5) of the floor panels (3).

Further, in order to improve durability of a surface of the floor panel, the floor panel is made of wood and of which surface is provided with the electron radiation curing resin so as to penetrate into the surface of the floor panel by using the roll coater, followed by hardening the resin to form surface coating. According to the penetration of the electron radiation curing resin into the floor panel, the durability of the surface of the floor panel can be remarkably improved more than a case where the electron radiation curing resin is merely applied onto the surface of the floor panel. Preferably, polyester acrylate, epoxy acrylate, urethane acrylate, or a mixture of the acrylate and silicon acrylate are used as the oligomer of the electron radiation curing resin and multi functional acrylate monomer or multi functional methacrylate monomer is used as the crosslinker of the electron radiation curing resin.



1 supporting leg
2 bridged beam
3 floor panel
4 floor panel fixture
5 groove
6 receiving portion

［Result of Prior Art Search］

The floor construction of the inventions according to claims 1 and 2 are disclosed in Document 1 and thus is a publicly known art.

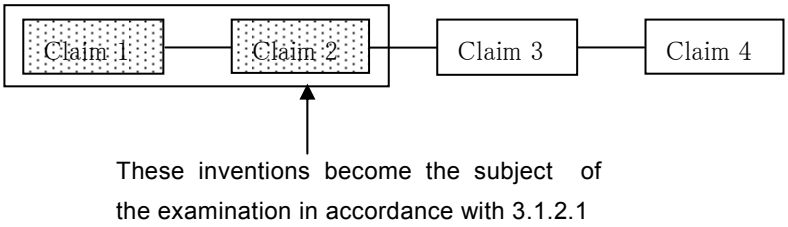
[Explanation]

The invention claimed in claim1,and 2 lack novelty over Document 1 and has no particular special technical feature.

Next, the technical feature added to the invention claimed in claim 3, which is the same category and including all the matters specifying the invention claimed in claim 2, relates to the surface coating of the floor panel which is characterized in the forcing penetration of the electron radiation curing resin, whereas, the technical feature of the invention claimed in claim 2 relates to the fixture of the floor panel onto the bridged beam and thus they have low technical relevance to each other. The problem of improvement of durability of the surface of the floor panel that is seen from the technical feature of the invention claimed in claim 3 has little relevance with the problem of the easy exchange of the floor panel after construction of the invention claimed in claim 2. For this reason, it is not required to determine whether the inventions claimed in claim 3 and 4 have a special technical feature.

In addition, there is no any other reason to decide that it is efficient to examine the inventions claimed in claim 3, 4 together with inventions claimed in claim 1,2.

Therefore, the inventions claimed in claims 1 and 2 shall become the subject of the examination as the invention for which whether there is any special technical feature has already been determined. On the other hand, the inventions claimed in claims 3 and 4 shall not become the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.


Claim 1
Claim 2
Claim 3
Claim 4
These inventions become the subject of the examination in accordance with 3.1.2.1
Invention that is the subject of the examination

[Example 17] Decision of Subject of the Examination

[Title of the Invention]
COOLANT AND FREEZER

[Scope of Claims]
1. A coolant being a mixture mixed with saturated hydrocarbon having a boiling point of a range between -50°C and 0°C.
2. The coolant according to claim 1, wherein the mixture is a mixture of propane (C_3H_8) and butane (C_4H_{10}) having a mixture ratio of 1.6~4.5:1.
3. The coolant according to claim 2, wherein the mixture ratio is 1.8~2.5:1.
4. A freezer using the coolant according to claim 3.
5. The freezer according to claim 4, wherein a metal-made sliding part of a compression mechanism of the freezer includes a surface layer mainly formed of metal and sulfur so as to have a thickness of a range between 1×10^{-3}μm and 50μm or a surface quench-hardened layer having vickers' hardness equal to or more than 400 and a thickness of equal to or more than 2μm.
6. The freezer according to claim 5, wherein at least one oil selected from a group consisting of naphthenic oil, paraffinic oil, and synthetic oil is used as freezer oil

[Excerpt from Detailed Explanation of the Invention]
The present invention relates to a freezer which employs a coolant made of saturated hydrocarbon having low ozone degradation factor and low global warming potential as a replacing CFC coolant as well as, in order to improve reliability and safety of the freezer, durability of the compression mechanism is enhanced and freezer oil (i.e., lubricant) having high reliability is sealed therein. In the present invention, the saturated hydrocarbon is made of propane (C_3H_8) and butane (C_4H_{10}) having a boiling point of a range between -50°C and 0°C and having a mixture ratio 1.6~4.5:1, more preferably, 1.8~2.5:1.

Further, in the compression mechanism of the freezer, the sliding portion of the metal-made sliding part is subjected to the surface treatment and the compound layer mainly including metal and sulfur is formed into a thickness of a range between 1×10^{-3}μm and 50μm to form the surface layer or the metal-made sliding part is formed into the surface quench-hardened layer having Vickers' harness equal to or more than 400 and a thickness equal to or more than 2μm, thereby securing a stable sliding property to improve the durability. Further, the naphthenic oil, paraffinic oil, and synthetic oil having high reliability in use of freezer oil to be used in freezer and being manufactured at low cost are employed to improve the reliability of the sliding member.

[Result of Prior Art Search]
The coolant of the inventions according to claims 1 through 3 is disclosed in Document 1 and thus is a publicly known art.

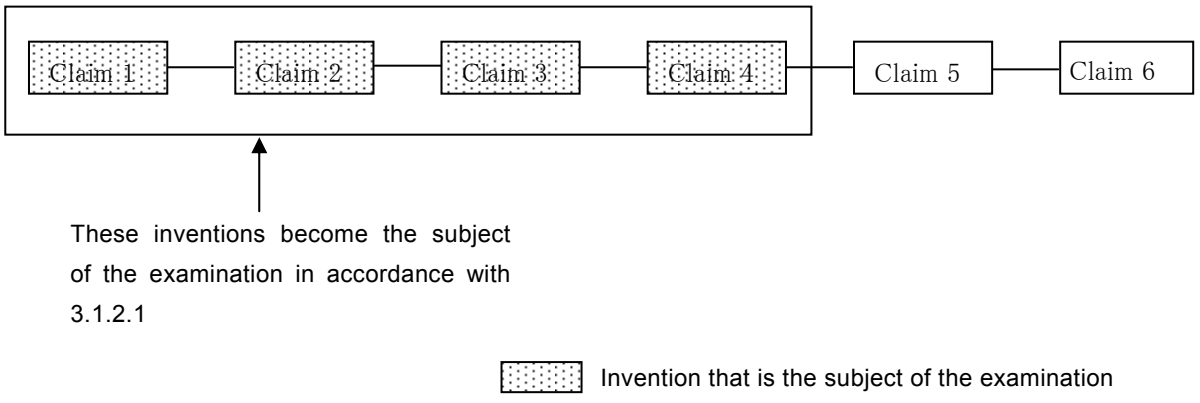
[Explanation]
The invention claimed in claim1-3 lack novelty over Document 1 and has no particular special technical feature. Further, the invention claimed in claim 4 which is the same category and including all the matters specifying the invention claimed in claim 3 is the freezer

employing the coolant disclosed in Document 1 and thus the invention claimed in claim 4 is a mere addition of the well-known art to the prior art disclosed in Document 1 and does not produce any new effect. Therefore, the invention according to claim 4 has no special technical feature.

Next, the technical feature newly added to the invention claimed in claim 5 which is the same category and including all the matters specifying the invention claimed in claim 4 relates to the surface treatment of the sliding portion in the compression mechanism, whereas the technical feature of the invention claimed in claim 4 relates to the composition of the coolant of the freezer, and thus the both inventions have low technical relevance to each other. Such a problem having seen from the technical feature of the invention claimed in claim 5 that the durability is to be improved while keeping the slidability of the compression mechanism has little relevance to the problem of the invention claimed in claim 4 that the coolant having low ozone degradation factor and low global warming potential is to be employed. For this reason, it is not required to determine whether the inventions claimed in claim 5 and 6 have a special technical feature.

In addition, there is no any other reason to decide that it is efficient to examine the inventions claimed in claim 5, 6 together with inventions claimed in claim 1-4.

Therefore, the inventions claimed in claims 1 to 4 shall become the subject of the examination as the invention for which whether there is any special technical feature has already been determined. On the other hand, the inventions claimed in claims 5 and 6 shall not become the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 18] Decision of Subject of the Examination

[Title of the Invention]
ORGANIC ELECTROLYTE SECONDARY BATTERY

[Scope of Claims]
1. An organic electrolyte secondary battery, comprising: a positive electrode and a negative electrode using $LiMO_2$ (M is one or more of transition metal elements) as a cathode active material.
2. The organic electrolyte secondary battery according to claim 1, wherein at least Ni and Co are included as M.
3. The organic electrolyte secondary battery according to claim 2, wherein the cathode active material is $LiNi_{(1-x-y)}Co_xMn_yO_2$ (where $0 < x < 1$, $0 < y < 1$, $x + y < 1$).
4. The organic electrolyte secondary battery according to claim 3, wherein graphite particles of ellipsoidal body having an average grain size of a range between 10μm and 40μm and a ratio between a short axis and a long axis is equal to or more than 1:2 is used as the negative electrode.

[Excerpt from Detailed Explanation of the Invention]
The present invention relates to an organic electrolyte secondary battery to be used as a power source of a portable-type electronic tool such as a digital camera. In such an organic electrolyte secondary battery, by using a general expression of $LiMO_2$ (M is one or more of transition metal elements) as a cathode active material, the organic electrolyte secondary battery which is excellent in energy density can be obtained. The oxide constituting the positive electrode material preferably includes at least Ni and Co as M, more preferably, uses a complex oxide expressed by $LiNi_{(1-x-y)}Co_xMn_yO_2$ (where $0 < x < 1$, $0 < y < 1$, $x + Y < 1$) as the M. More specifically, in a case where the complex oxide expressed by $LiNi_{(1-x-y)}Co_xMn_yO_2$ (where $0 < x < 1$, $0 < y < 1$, $x + Y < 1$) is used, an organic electrolyte secondary battery excellent in cycle characteristic can be obtained.

Graphite particles of an ellipsoidal body having an average grain size of a range between 10μm and 40μm and a ratio between the short axis and the long axis equal to or more than 1:2 is optimum as the negative electrode of the organic electrolyte secondary battery. By using the graphite particles of the ellipsoidal body, a particle orientation becomes random, which is advantageous in the high rate discharge characteristics and the low-temperature characteristics.

［Result of Prior Art Search］
The organic electrolyte secondary battery of the inventions according to claims 1 through 3 is disclosed in Document 1 and thus is a publicly known art.

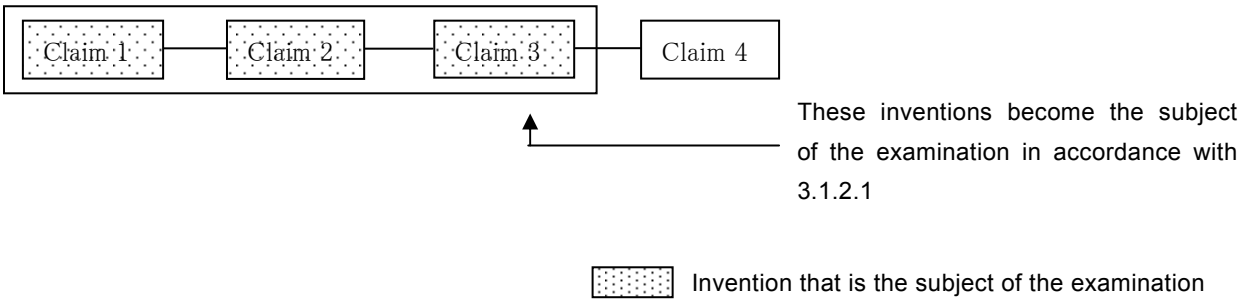
[Explanation]
The invention claimed in claim1-3 lack novelty over Document 1 and has no particular special technical feature.

Next, the technical feature added to the invention claimed in claim 4, which is the same category and including all the matters specifying the invention claimed in claim 3 relates to a shape of the particles to be used in the negative electrode, whereas the technical feature of

the invention claimed in claim 3 relates to a kind of active material of the positive electrode and thus both have low technical relevance to each other. Such a problem seen from the technical feature of the invention claimed in claim 4 that the high rate discharge characteristic and the low-temperature characteristics are realized has little relevance with the problem of realizing the excellent energy density and excellent cycle characteristic of the invention claimed in claim 3. For this reason, it is not required to determine whether the inventions claimed in claim 4 has a special technical feature.

In addition, there is no any other reason to decide that it is efficient to examine the inventions claimed in claim 4 together with inventions claimed in claim 1-3.

Therefore, the inventions claimed in claims 1-3 shall become the subject of the examination as the invention for which whether there is any special technical feature has already been determined. On the other hand, the inventions claimed in claims 4 shall not become the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 19] Decision of Subject of the Examination

[Title of the Invention]
Self-Closing Type Sliding Door

[Scope of Claims]
1. A self-closing type sliding door, comprising: an upper rail attached to an upper section of a frontage in an inclined manner; door rollers running in the upper rail; and a door coupled to the door rollers to be hung from the upper rail; wherein a self-closing type sliding door having such a configuration that the door automatically closes owing to its self-weight is equipped with a braking device for controlling a closing speed of the sliding door when the door closes the frontage.
2. The self-closing type sliding door according to claim 1, wherein the braking device is an air cylinder (8) attached near the upper rail. (See, Fig. 1)
3. The self-closing type sliding door according to claim 1, wherein the braking device includes a rack (4) attached to the upper rail and a braking pinion (22) attached near the door rollers. (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
Conventionally, known is a sliding door hung from an upper rail attached to a frontage upper section in which the door is automatically closed by using the self-weight of the door owing to inclination of the upper rail.

However, in such a sliding door, when the door closes, since a speed increases due to its self-weight, the door swiftly impacts on a door frame to generate noise when the door reaches a closing end. Further, there is a risk for fingers being caught in the door.

To solve the above described problem, the present invention is configured to include a braking device for controlling the closing speed of the sliding door.

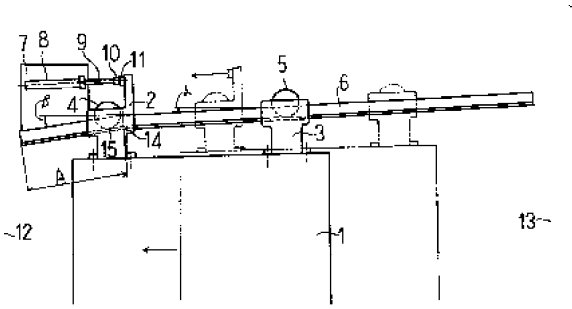


Fig. 1

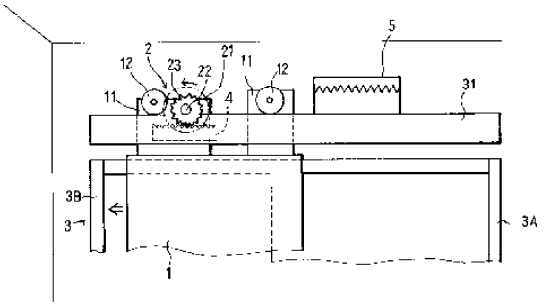


Fig. 2

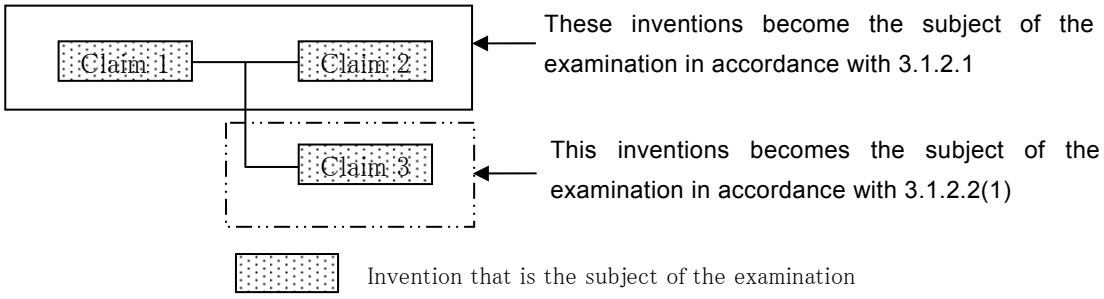
［Result of Prior Art Search］
Document 1 discloses a self-closing sliding door comprising an upper rail attached to an upper section of a frontage in an inclined manner, door rollers running in the upper rail, and a door coupled to the door rollers to be hung from the upper rail, wherein the door automatically closes according to its own weight, the sliding door further comprising a frictional wheel and a frictional plate for the purpose of controlling the speed when the door closes the frontage. The “frictional wheel and the frictional plate” of Document 1 are variation of the “braking device”, so that the invention according to claim 1 is disclosed in Document 1.

[Explanation]

The invention claimed in claim1 lacks novelty over Document 1 and has no particular special technical feature.

Next, with the invention claimed in Claim2 which is the smallest claim number attached out of inventions in claims in the same category that include all matters specifying the invention in claim 1, a special technical feature described as “A self-closing type sliding door, comprising; an upper rail attached to an upper section of a frontage in an inclined manner; door rollers running in the upper rail; and a door coupled to the door rollers to be hung from the upper rail; wherein a self-closing type sliding door having such a configuration that the door automatically closes owing to its self-weight is equipped with a braking device for controlling a closing speed of the sliding door when the door closes the frontage, and wherein the braking device is an air cylinder (8) attached near the upper rail” is found. Therefore, the inventions claimed in Claim 1 and 2 shall become subject of the examination as the invention for which whether there is any special technical feature has already been determined..

In addition to that, the invention claimed in claim 3 is an invention which is in the same category that includes all matters specifying the invention in claim 1, and is determined as an invention that can be examined together effectively and therefore become the subject of the examination.



[Example 20] Decision of Subject of the Examination

[Title of the Invention]
STEPLADDER

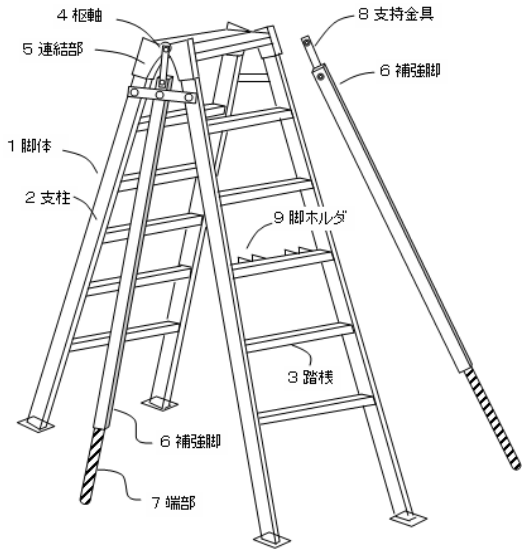
[Scope of Claims]
1. A stepladder, comprising: a pair of leg bodies (1) including a pair of left support and right support (2), in between which tread bars (3) are bridged; wherein the pair of leg bodies (1) are rotationally coupled to each other via pivots (4); wherein, in the stepladder equipped with a pair of left support leg and right support leg (6) for supporting both sides of the leg bodies (1), the pair of left support leg and right support leg (6) are rotatably coupled via pivots (4); and wherein ends (7) of the support legs (6) can be grounded on a ground surface between leg bodies.
2. The stepladder according to claim 1, wherein the support legs (6) can be grounded on the ground surface outside the space between leg bodies.
3. The step ladder according to claim 2, wherein the ends (7) of the support legs (6) are configured to be extendable and positionally adjustable in an inside-and-outside direction of the ground surface between leg bodies.
4. The stepladder according to claim 1, wherein the support fittings (8) are rotatably coupled to the pivots (4) and support fittings (8) and upper ends of the support legs (6) are engageably coupled correspondingly with each other.
5. The stepladder according to claim 3, wherein predetermined tread bar (3) of each leg body (1) is provided with leg holders (9) capable of pinching the support legs (6) and the support legs (6) are disposed between the leg bodies (1) after the leg bodies (1) are folded.
6. The stepladder according to claim 3: wherein the pair of leg bodies (1) are coupled so as to be in flush with each other via coupling portions (5); and wherein the support legs (6) are extending downwardly in a cross direction with respect to flat surfaces of leg bodies from the coupling portions (5) and the ends (7) of the support legs (6) can be grounded on the ground surface.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to a stepladder capable of being manufactured into a simple configuration with less number of parts at low cost, improving stability thereof, being prevented from overturning to thereby secure safety condition thereof, encouraging comfortable working on a top board thereof, having improved user friendliness in using a ladder as well as modifying the existing stepladder and ladder with ease, and, while not in use, being folded into a compact size and, in piling up for storage thereof, protecting the tread bars.

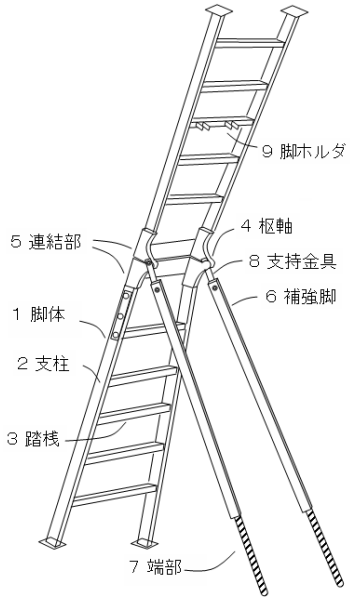
According to the present invention, in a stepladder equipped with a pair of leg bodies (1) including a pair of left support and right support (2), in between thereof thread bars (3) being bridged and the pair of leg bodies (1) being rotatably coupled to each other via pivots (4), and a pair of right support leg and left support leg (6) for supporting both sides of the leg bodies (1), a pair of right support leg and left support leg (6) are rotatably coupled via the pivots (4), the ends (7) of the support legs (6) are configured to be extendable such that the support legs can be grounded on the ground surface between the leg bodies, thereby improving stability of the stepladder and preventing overturning thereof to secure safety thereof in comparison with the convention support legs (6) for supporting one of the leg bodies (1).

Further, the support fittings (8) are rotatably coupled to the pivots (4) and support fittings (8) and upper ends of the support legs (6) are engageably coupled correspondingly with each other, therefore a form of the use can be changed based on the situation of the ground by releasing the couple of support fittings (8) and the support legs (6).

【Fig1】



【Fig2】



1 leg body
2 support
3 thread bar
4 pivot
5 coupling portion
6 support leg
7 end
8 support fitting
9 leg holder

[Result of Prior Art Search]

The stepladder of the inventions claimed in claims 1 and 2 are publicly known as it is disclosed in Document 1. Document 1 is silent on “ends of the support legs are configured to be extendable and positionally adjustable in an inside-and-outside direction of the ground surface between leg bodies”.

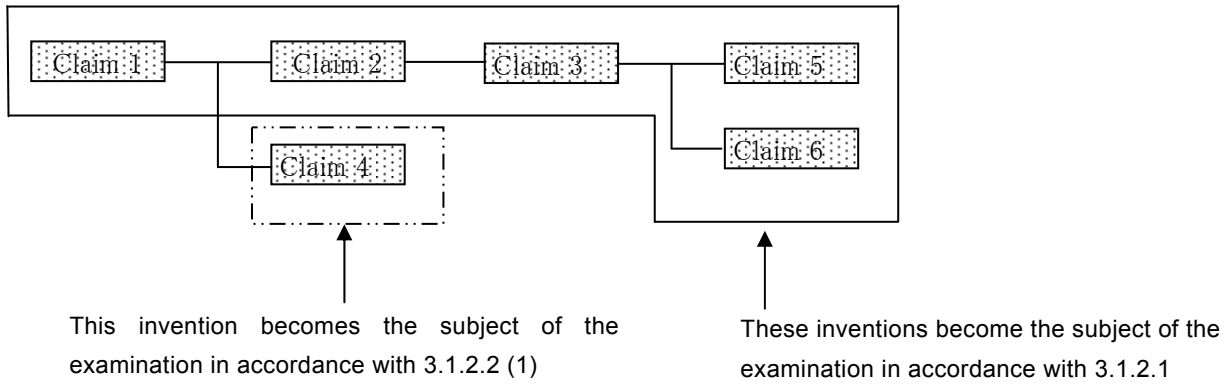
[Explanation]

The inventions claimed in claim1 and 2 lack novelty over Document 1 and have no particular special technical feature.

Next, with the invention claimed in Claim3 which is the same category that include all matters specifying the invention in claim 2, a special technical feature described as “A stepladder wherein the pair of leg bodies (1) are rotationally coupled to each other via pivots (4); the pair of left support leg and right support leg (6) are rotatably coupled via pivots (4); and wherein the ends (7) of the support legs (6) are configured to be extendable and positionally adjustable in an inside-and-outside direction of the ground surface between leg bodies” was found. Therefore, the inventions claimed in Claim 1-3 shall become subject of the examination

as the invention for which whether there is any special technical feature has already been determined. On the other hand, the inventions claimed in Claim 5 and 6 shall become the subject of the examination as the invention having any special technical feature which is the same as or corresponding to the special technical feature found.

The invention claimed in claim 4 are inventions which are in the same category that includes all matters specifying the invention in claim 1, and therefore can be determined as inventions that can be examined together effectively and therefore are inventions that become the subject of the examination.



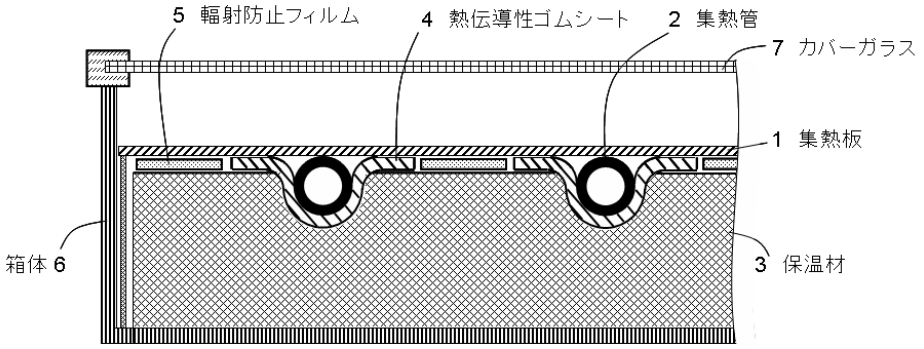
[Example 21] Decision of Subject of the Examination

[Title of the Invention]
SOLAR ENERGY COLLECTOR

[Scope of Claims]
1. A solar energy collector including an absorber plate (1) for absorbing solar heat, a heat collection tube (2) which is disposed in the adjacent to the absorber plate (1) and through which heat transfer medium for receiving heat from the absorber plate (1) flows, and a heat insulation material (3) provided behind the heat collection tube (2): wherein heat transfer from the absorber plate (1) to the heat collection tube (2) is performed by means of a heat conductive rubber (4).
2. The solar energy collector according to claim 1, wherein the heat conductive rubber is a heat conductive rubber sheet (4) which tightly contacts with a periphery of a rear side portion of the heat collection tube (2) of which middle portion contacts the absorber plate (1) as well as of which both ends contacts the absorber plate (1).
3. The solar energy collector according to claim 1, wherein the heat conductive rubber contains graphite having an average grain size of a range between 10μm and 150μm, aluminum powder having an average grain size of a range between 0.1μm and 10μm, and titanate base coupling agent of a total amount of a range between 1 and 30 parts by weight with respect to ethylene-propylene base polymer of 100 parts by weight.
4. The solar energy collector according to any one of claims 1 through 3, wherein the radiation prevention member (5) is provided between the absorber plate (2) and the heat insulation material (3).
5. The solar energy collector according to any one of claims 1 through 4, wherein the absorber plate (1), the heat collection tube (2), and the heat insulation material (3) are provided within a case, a cover glass (7) is provided over an opening portion of the case (6), and a Low-E process having low absorption and reemissivity of thermal energy is provided on a surface of the cover glass (7) inside the case.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention is directed to a solar energy collector equipped with an absorber plate (1) for absorbing solar heat, a heat collection tube (2) which is disposed in the adjacent to the absorber plate (1) and through which heat transfer medium receiving heat from the absorber plate (1) flows, and a heat insulation material (3) provided behind the heat collection tube (2), wherein heat transfer from the absorber plate (1) to the heat collection tube (2) is performed by means of a heat conductive rubber sheet (4). According to the present invention, the heat transfer from the absorber plate (1) to the heat collection tube (2) is performed by means of the heat conductive rubber having elasticity. With the above configuration and, further preferably, the heat conductive rubber sheet (4) is tightly contacted to the periphery of the heat collection tube (2), a contacting area between the absorber plate (1) and the heat conductive rubber and a contacting area between the heat conductive rubber and the heat collection tube (2) increase, thereby achieving improvement of heat conduction efficiency from the absorber plate (1) to the heat collection tube (2) and improvement of heat collector efficiency. Further, the heat conductive rubber is made of graphite having an average grain size of a range between 10μm and 150μm, aluminum powder having an average grain size of a range

between 0.1μm and 10μm, and titanate base coupling agent of a total amount of a range between 1 and 30 parts by weight with respect to ethylene-propylene base polymer of 100 parts by weight, resulting in improving the heat conduction efficiency and improving the collector efficiency. Still further, according to the present invention, since the radiation prevention member (5) is provided between the absorber plate (1) and the heat insulation material (3), heat loss due to radiation from the absorber plate (1) to the heat insulation material (3) can be decreased to thereby improve the collector efficiency. Still further, since the cover glass (7) having subjected to the Low-E processing in which the absorption and/or reemissivity of the thermal energy is low is provided over the opening portion of the case (6), thermal radiation from the absorber plate (1) is controlled to improve the collector efficiency.



1 absorber plate
2 heat collection tube
3 heat insulation material
4 heat conductive rubber sheet
5 radiation prevention member
6 case
7 cover glass

[Result of Prior Art Search]

The solar energy collector of the invention according to claim 1 is disclosed in Document 1 and thus has already been publicly known.

[Explanation]

(A) Decision of subject of the examination based on special technical features (See 3.1.2.1)

The invention claimed in claim1 lacks novelty over Document 1 and has no particular special technical feature.

Next, with the invention claimed in claim 2 which the smallest claim number attached out of inventions in claims in the same category that include all matters specifying the invention in claim 1, a special technical feature described as “A solar energy collector wherein heat transfer from the absorber plate (1) to the heat collection tube (2) is performed by means of a heat conductive rubber (4) and the heat conductive rubber is a heat conductive rubber sheet (4) which tightly contacts with a periphery of a rear side portion of the heat collection tube (2) of which middle portion contacts the absorber plate (1) as well as of which both ends contacts the absorber plate (1).” has been found. Therefore the subject of the examination are the inventions claimed in claim 1 and claim 2, for which where the whether there is any special

technical feature has already been determined, and the invention claimed in claims 4-2, 5-2, 5-4-2, which have the same or corresponding special technical feature with the found special technical feature.

(B)Decision of subject of the examination based on examination efficiency (See 3.1.2.2)

The inventions claimed in claims 4-1, 5-1, 5-4-1 are inventions which are in the same category that includes all matters specifying the invention in claim 1, and therefore are determined the subject of the examination.

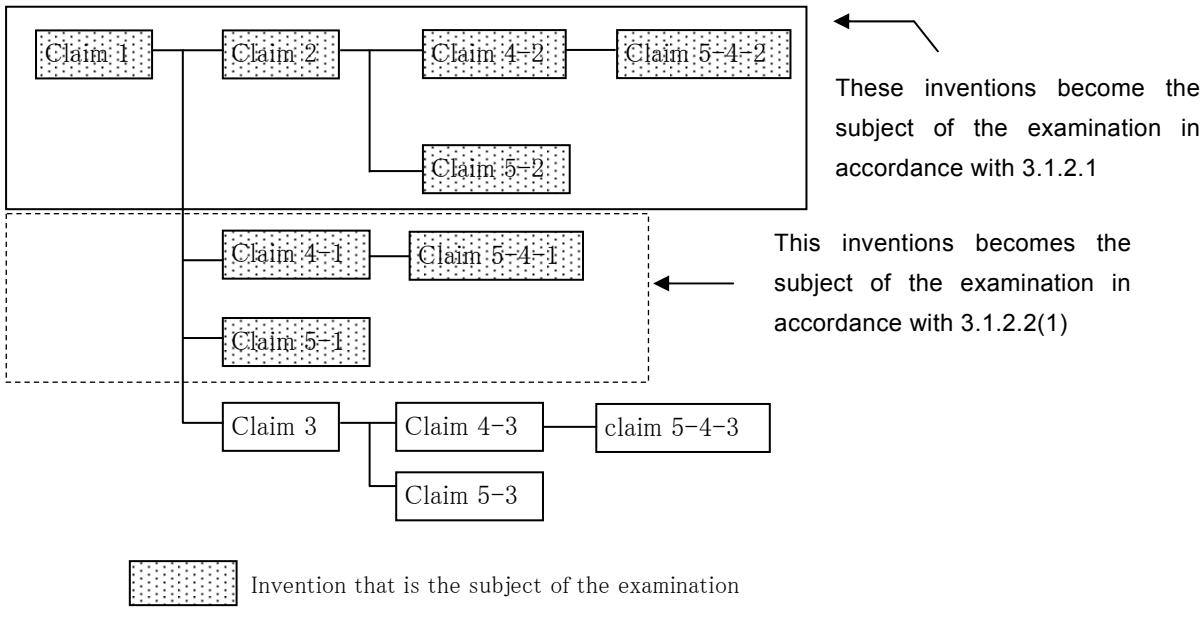
The invention claimed in claims 3, 4-3, 5-3, 5-4-3 are also inventions which are in the same category that includes all matters specifying the invention in claim 1. However, compared with the technical feature added to claim 3, 4-3, 5-3, 5-4-3 in relation to the invention claimed in claim 1 relating to materials of heat conductive rubber, the technical feature of the invention claimed in claim1 relate to the structure of the solar energy collector, so there is low technical relevance between the two technical features.

In addition, the invention claimed in claim 3, 4-3, 5-3, 5-4-3 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1, 2, 4-2, 5-2, 5-4-2, nor are there any other reason to decide that it is efficient to examine them together with the inventions claimed in claims 1, 2, 4-2, 5-2, 5-4-2.

Therefore, the inventions claimed in claim 1, 2, 4-1, 4-2, 5-1, 5-2, 5-4-1, 5-4-2 are subject of the examination, and the invention claimed in claim 3, 4-3, 5-3, 5-4-3 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.

[How to Recite Multiple Dependent Form Claims]

For example, “claim 4-2” indicates an invention reciting claims 2 among the claims selectively recited in multiple dependent form type claim 4.



[Example 22] Decision of Subject of the Examination

[Title of the Invention]
Prism sheet and surface illumination device

[Scope of Claims]
1. A prism sheet characterized by having a flat sheet, a prism section comprising plural prisms that are arranged on the entire surface of one side of said prism sheet, and a lens section comprising plural prisms that are arranged on a part of the surface on the other side of said sheet.
2. A prism sheet according to claim 1 comprising said lens section that extends and intersects with said prism section, and comprising plural projections, the height of which reduces from one end of said prism sheet to the other. (see Figure 1)
3. A surface illumination device comprising multiple LED light sources, and a light guide plate with a light incidence surface for receiving light beams emitted by the multiple LED light sources and a light emission surface for emitting the received light, a prism sheet according to claim 2 that is located opposite said light emission surface of said light guide plate, and is characterized in that the surface illumination device has the side end face of said light guide plate comprising a light incidence surface, and the lens section of said prism sheet forming plural projections, the height of which reduces from one end of said side end face to the other.
4. A surface illumination device comprising multiple LED light sources, and a light guide plate with a light incidence surface for receiving light beams emitted by multiple LED light sources and a light emission surface for emitting the received light and a prism sheet according to claim 1 that is located opposite said light emission surface of said light guide plate, and is characterized in that the surface illumination device has a phase difference film arranged between said light guide plate and the prism sheet, and said phase difference film shows dispersion in both the in-plane phase difference and the phase difference in the film thickness direction. (see Figure 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The mechanism of a backlight module that places a LED chip on the end face of a light guide plate had a problem of an increase in brightness irregularity where light and of shadow cast areas appeared in the regions around where the LED was positioned (light incident part) on the prism sheet that was placed on the upper part of the light guide plate. Furthermore a liquid crystal display had a common problem in that there was a significant viewing angle dependency where contrast and color varied according to the viewing angles. The present invention provides an optimal prism sheet and a surface illumination device that can solve these problems.

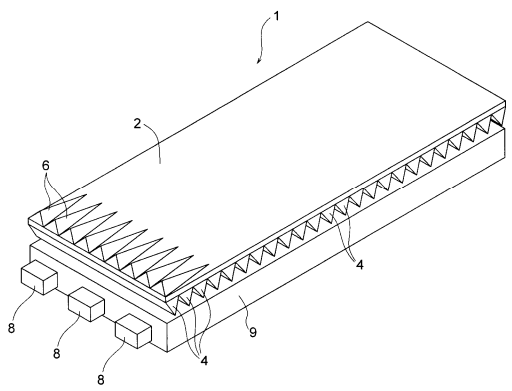


Fig. 1

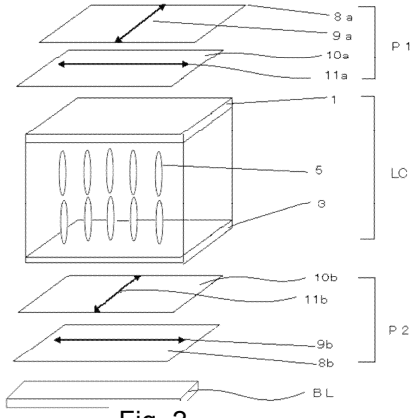


Fig. 2

[Results of the Prior Art Search]

The prism sheet claimed in the claim 1 is described in Document 1 and is known in the prior art.

[Explanation]

The invention claimed in claim 1 lacks novelty according to Document 1 and does not have any special technical features.

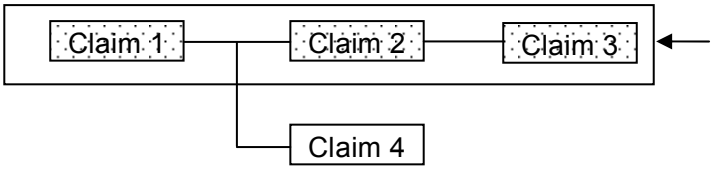
Next, with the invention claimed in claim 2 which the smallest claim number attached out of inventions in claims in the same category that include all matters specifying the invention in claim 1, a special technical feature described as “a prism sheet having a lens section that extends and intersects with said prism section and comprises plural projections, the height of which reduces from one end of said prism sheet to the other” has been found. Therefore the subject of the examination are the inventions claimed in claim 1 and claim 2 for which whether there is any special technical feature has already been determined and the invention claimed in claim 3 which have the same or corresponding special technical feature with the found special technical feature.

The invention claimed in claim 4 is an invention in the same claim category that all the matters specifying the invention claimed in claim 1. However, while the problem of the invention claimed in claim 1 is an increase in brightness irregularity where light and of shadow cast areas appeared in the regions around where the LED was positioned, the specific problem the invention is trying to solve that can be understood from the additional technical feature of the invention claimed in claim 4 (a phase difference film showing dispersion in both the in-plane phase difference and the phase difference in the film thickness direction), is that the screen has significant viewing angle dependency, and therefore they have a little relevance.

In addition, the invention claimed in claim 4 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1~3, nor are there any other reason to decide that it is efficient to examine them together with the inventions claimed in claim 1~3.

Therefore, the inventions claimed in claim 1~3 are subject of the examination, and the invention claimed in claim 4 will be excluded from the subject of the examination. Since there

are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



Inventions that are determined as the subject of the examination based on 3.1.2.1.

Invention that is the subject of the examination

[Example 23] Decision of subject of the examination

[Title of the Invention]
OPTICAL COMMUNICATION DEVICE

[Scope of Claims]

1. An optical communication device, comprising: a visible light emitting portion for emitting visible light; an infrared light emitting portion for emitting infrared light; a photometry portion for measuring light intensity of light around the optical communication device; a switching portion for switching a mode between a transmission mode of a data signal transmitted by the infrared light and a transmission mode of the data signal transmitted by the visible light according to a measurement result of the photometry portion; a transmitting portion for transmitting a intensity-modulated optical data signal by controlling emission of either one of the visible light or the infrared light; and the said visible light emitting portion is illuminating lamp.

2. The optical communication device according to claim 1, further comprising: a location information memory portion for storing memory of location information relating to latitude and longitude at the said optical communication device installed; an information acquisition portion for acquiring information of the time of sunrise and sunset of the day based on the said location information; and the said switching portion switch the said transmission mode based on the measured result of the said photometry portion and the information of the time of sunrise and sunset acquired by the said information acquisition portion

3. The optical communication device according to claim 1, further comprising: a location information memory portion for storing memory of location information relating to latitude and longitude at the said optical communication device installed; an information acquisition portion for acquiring information of the solar position of the day based on the location information; and the said switching portion switch the said transmission mode based on the measured result of the said photometry portion and the information of the solar position of the day acquired by the said information acquisition position.

4. The optical communication device according to claim 1, further comprising: a road traffic information receiving portion for receiving the road traffic information around the said optical communication device installed; a dimming control portion for dimming emission of the said visible light emitting portion in case where the said visible light emitting portion is emitting at the time of the amount of traffic by the said road traffic information is lower than predetermined value.

5. The optical communication device according to claim 1, further comprising: a satellite communication portion for receiving a satellite signal to obtain a urgency data signal; an urgency signal transmission control portion for interrupting transmission of a data signal currently in transmission and for transmitting the satellite signal repetitively for a predetermined period of time when the urgency data signal is received.

[Excerpt from Detailed Explanation of the Invention and Drawings]

The present invention is optical communication device which provides a variety of information to mobile communication terminals like car, and relates to the optical communications device which makes efficient use of lighting facility installed on the road and makes electric power saving possible. The lighting facility measures light intensity by a photometer and, when the light intensity becomes a value equal to or less than a predetermined light intensity, the illuminating lamp is turned on. The present optical communication device realizes electric power saving by transmitting optical data by modulating the intensity of infrared light in the daytime, illuminating lamp is lucent, and for transmitting a data signal by modulating intensity of visible light in the nighttime, illuminating lamp is not lucent,.

Moreover, the optical communication device of the present invention acquires sunrise and sunset time information from a server based on the installed position information (information about latitude and longitude), controls lighting and extinction of the illuminating lamp by using one or both of intensity of light measured by the photometer and the information of the time of sunrise and sunset. It is possible to use the solar position information instead of the said sunrise and sunset time information.

Further, the optical communication device of the present information comprises a road traffic information receiving portion for receiving the road traffic information around the said optical communication device installed and a dimming control portion for dimming emission of the said visible light emitting portion in case where the said visible light emitting portion is emitting at the time of the amount of traffic by the said road traffic information is lower than predetermined value to reduce power consumption during nighttime.

Further, the optical communication device of the present invention has a function of transmitting urgency disaster information transmitted from a disaster control center via a satellite to a mobile terminal. The optical communication device repetitively transmits the data to a mobile terminal in preference to the other data in a case where the urgency of the data is received via the satellite.

Fig. 1

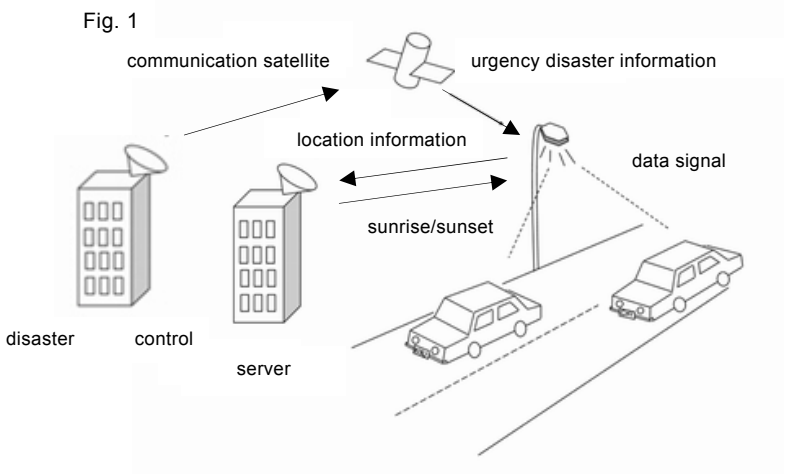


Fig. 2

Location		Jan. 1	Jan. 2	…
Longitude XXX Latitude YYY	Sunrise	6:50	6:50	
	Sunset	16:38	16:39	
Longitude XXY Latitude YYZ	Sunrise	7:00	7:00	
	Sunset	16:58	16:58	
Longitude XYY Latitude YZY	Sunrise	6:45	6:46	
	Sunset	16:15	16:16	
⋮				

[Result of Prior Art Search]

The optical communication device of the inventions according to claims 1 is disclosed in Document 1 and thus is a publicly known art.

[Explanation]

The invention claimed in claim 1 lacks novelty according to Document 1 and does not have any special technical features.

Next, with the invention claimed in claim 2 which the smallest claim number attached out of inventions in claims in the same category that include all matters specifying the invention in claim 1, a special technical feature described as “Optical communication device comprises: an information acquisition portion for acquiring information of the time of sunrise and sunset of the day based on the location information relating to latitude and longitude at the said optical communication device installed ; a switching portion switch the said transmission mode based on the measured result of the said photometry portion and the information of the time of sunrise and sunset acquired by the said information acquisition portion ” is found. Therefore, the invention claimed in claims 1 and 2 shall become the subject of the examination as the invention for which whether there is any special technical feature has already been determined.

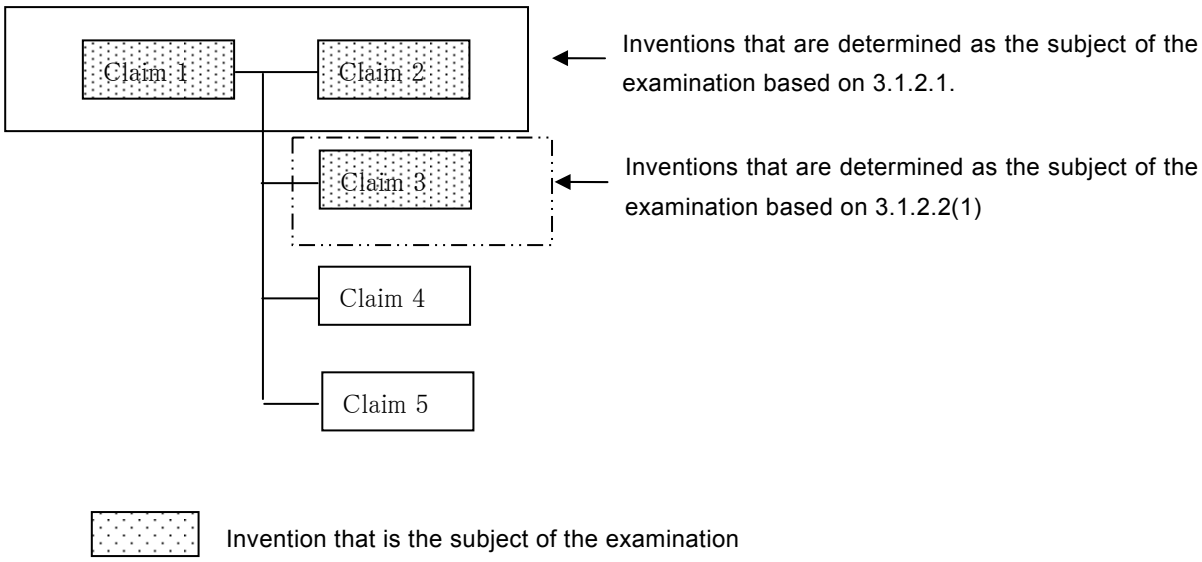
The invention claimed in claim 3 is the invention which is in the same category that includes all matters specifying the invention in claim 1, and therefore can be determined as inventions that can be examined together effectively and therefore it becomes the subject of the examination.

The invention claimed in claim 4 is an invention in the same category a that includes all matters specifying the invention first mentioned in claim 1. However, compared with the technical feature added to claim 4 in relation to the invention claimed in claim 1 is “ a dimming control portion for dimming emission of the said visible light emitting portion in case where the said visible light emitting portion is emitting at the time of the amount of traffic by the said road traffic information is lower than predetermined value”, the technical feature of the invention claimed in claim1 is “An optical communication device comprising a switching portion for switching a mode between a transmission mode of a data signal transmitted by the infrared light and a transmission mode of the data signal transmitted by the visible light according to a measurement result of the photometry portion; and a transmitting portion for transmitting a intensity-modulated optical data signal by controlling emission of either one of the visible light or the infrared light”, so there is low technical relevance between the two technical features.

The invention claimed in claim 5 is an invention in the same category that includes all matters specifying the invention first mentioned in claim 1. However, a concrete problem understood from the technical feature added (a satellite communication portion for receiving a satellite signal to obtain a urgency data signal, an urgency signal transmission control portion for interrupting transmission of a data signal currently in transmission and for transmitting the satellite signal repetitively for a predetermined period of time when the urgency data signal is received) in claim 5 in relation to the invention claimed in claim 1 is “to send the urgency data signal for certain”, and it has little relevance with the problem of the invention claimed in claim1, “to realizes electric power saving in optical communication device.” Also, technical feature added by claim 5 has low technical relevance with technical feature of the invention claimed in claim 1.

In addition, the invention claimed in claims 4,5 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1,2, nor are there any other reason to decide that it is efficient to examine together the inventions claimed in claims 1,2.
Therefore, the inventions claimed in claim 1-3 are subject of the examination, and the invention claimed in claim 4-5 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on

the grounds of violation of the requirements of unity of invention is notified.



[Example 24] Decision of subject of the examination

[Title of the Invention]
SCHEDULE CONTROL DEVICE

[Scope of Claims]

1. A schedule control device, comprising, a display means for displaying a schedule table region and a software component; an input means for designating a predetermined position on a GUI screen; a shifting means for causing software component to move based on an instruction of the input means; a detection means for detecting overlapping between the schedule table region and the software component; the said input means is a touch-pad. (See Fig 1)
2. The schedule control device according to claim 1, wherein the said display means displays the software components, and components which are often used based on the frequency of use are displayed in different colors than other software components.
3. The schedule control device according to claim 1, wherein the said display means displays the software components, and components which are often used based on the frequency of use are displayed closer to the schedule table region than other software components.
4. The schedule control device according to claim 1, wherein the said touch pad comprises polyethylene terephthalate (PET) resin as a material of a surface protection sheet.
5. The schedule control device according to claim 1, wherein the said touch pad is optical sensor type touch pad which comprises X-type compound semiconductor as a material of an optical absorbing layer and high resistance buffer layer above the said optical absorbing layer. (See Fig 2)
6. The schedule control device according to claim 1, comprising: an electronic program table obtaining unit; and a transmission unit for transmitting a picture recording program signal in a case where a kind of the software component overlapped on the schedule table region is a part of the electronic program table.
7. The computer program for making the computer function as causing software component displayed in the displayed means to move based on an instruction of the input means and a detection means for detecting overlapping between the schedule table region and the software component.

[Excerpt from Detailed Explanation of the Invention and Drawings]

The present invention relates to a schedule control device including a simplified schedule processing unit. The schedule control device of the present invention includes an input means for designating a predetermined position on the GUI screen and a GUI display means for displaying a schedule table region, a member selection part, and a calendar part, wherein a software component such as a division and a name as the member selection part and a software component indicating month and day as a calendar part are displayed in a movable manner by the instruction from the input mean, and processed according to a kind of software component overlapped on the schedule table region.

For example, in a case where a user desires to display schedules of “K” and “S” on April 13th (today) on the schedule table region, the user selects the software component of an “ES group” from the member selection part to move it to overlap on the schedule table region. The detection means detects that the software component indicating a member of the member

selection part is overlapped on the schedule table region and notifies a result thereof to the processing unit. In the processing unit, the schedules of “K” and “S” are displayed on the schedule table region.

Moreover, in order to make simpler selection and movement of the software component of the present invention, the number of times that each software component is laid on top of the schedule table region, i.e., frequency in use, is memorized, and, as for frequently-used software components, it is desirable to display in a different colors or closer to the schedule table region.

The input means of the present invention is constituted from a touchpad of the electric capacity system used with a common touchpad, and polyethylene terephthalate (PET) resin etc, which are rich in flexibility suitable for operatively, are used for the material of the protection sheet of the surface. In order to improve the operatively of an input means more, it is also possible to constitute an input means from a touchpad of the optical sensor type touch pad which comprises X-type compound semiconductor. X-type compound semiconductor is developed as an object for the optical absorption layers of the optical sensor for touchpad, its optical absorption coefficient is higher than the silicon which is used conventionally, and also it is preparing a high resistance buffer layer on an optical absorption layer, the sensitivity of an optical sensor improves.

The present schedule control device can also be used as a remote controller of a video recording device. In other words, the schedule control device is provided with the electronic program table obtaining unit and the transmission unit for transmitting a picture recording program signal in a case where a kind of software component overlapped with the schedule table region is the electronic program table part, thereby, in a case where the software component corresponding to a program the user desires to reserve is overlapped on the schedule table region, displaying a reserved time on the schedule table region as well as causing the transmission unit to transmit the reservation signal of the video.

Fig. 1

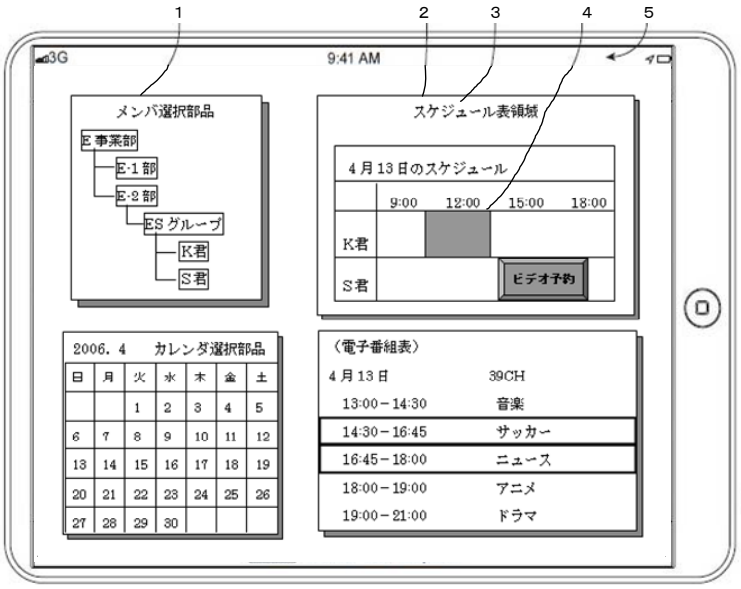
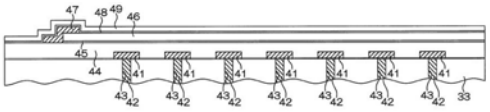


Fig. 2



[Result of Prior Art Search]

The schedule control device of the invention according to claim 1 is disclosed in Document

1 and thus is a publicly known art.

[Explanation]
The invention claimed in claim 1 lacks novelty according to Document 1 and does not have any special technical features.

Next, with the invention claimed in claim 2 which the smallest claim number attached out of inventions in claims in the same category that include all matters specifying the invention in claim 1, a special technical feature described as “A schedule control device, comprising a display means for displaying a schedule table region and a software component; an input means for designating a predetermined position on a GUI screen; a shifting means for causing software component to move based on an instruction of the input means; a detection means for detecting overlapping between the schedule table region and the software component; the said display means displays the software components, and components which are often used based on the frequency of use, are displayed in different colors than other software components.” is found. Therefore, the invention claimed in claims 1 and 2 shall become the subject of the examination as the invention for which whether there is any special technical feature has already been determined.

The invention claimed in claim 3, 4 is the invention which is in the same category that includes all matters specifying the invention in claim 1, and therefore can be determined as inventions that can be examined together effectively and therefore it becomes the subject of the examination.

In addition, the technical feature added to claim 4 is “the said touch pad comprises polyethylene terephthalate (PET) resin as a material of a surface protection sheet” and it is a invention which added well-known or commonly used art with respect to the invention of Claim 1, which does not produce any new effects. Therefore, the invention claimed in claims 4 can be added as the subject of the examination as an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1.

The invention claimed in claim 5 is the invention which is in the same category that includes all matters specifying the invention in claim 1. However, compared with the technical feature added to claim 5 in relation to the invention claimed in claim 1 is “the said touch pad is optical sensor type touch pad which comprises X-type compound semiconductor as a material of an optical absorbing layer and high resistance buffer layer above the said optical absorbing layer”, the technical feature of the invention claimed in claim1 relates to the operational tool of the schedule control device, so there is little technical relevance between the two technical features.

In addition, the invention claimed in claims 5 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1,2 because “optical sensor type touch pad which comprises X-type compound semiconductor as a material of an optical absorbing layer and high resistance buffer layer above the said optical absorbing layer” is not well-known art nor are there any other reason to decide that it is efficient to examine together the inventions claimed in claims 1,2.

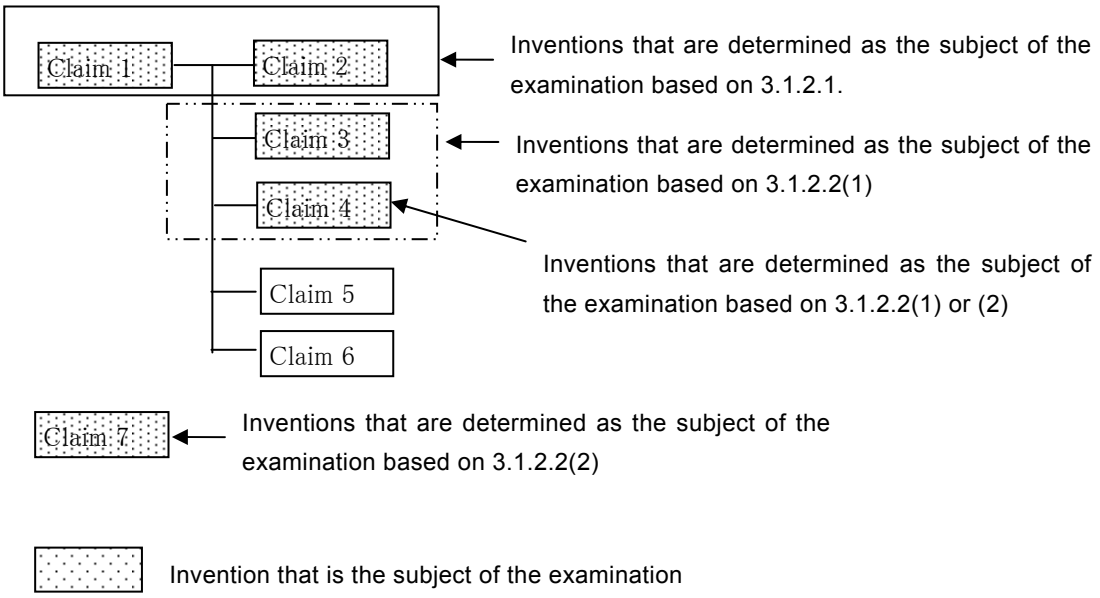
The invention claimed in claim 6 is the invention which is in the same category that includes all matters specifying the invention in claim 1. However, while the problem of the invention

claimed in claim 1 is facilitation of operating of schedule device, the specific problem the invention is trying to solve that can be understood from the additional technical feature of the invention claimed in claim 6 is realizing programmed recording in schedule control device, so there is little relevance between them. In addition, the additional technical feature of the invention claimed in claim 6 relates to programmed recording by using the electronic program table, so there is low technical relevance between the two technical features.

In addition, the invention claimed in claims 6 is not an invention for which an examination may be made without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1,2, nor are there any other reason to decide that it is efficient to examine together the inventions claimed in claims 1,2.

The invention claimed in claim 7 is the invention which that differ only in terms of expression from the invention claimed in claim1, so the invention claimed in claim7 is subject of the examination.

Therefore, the inventions claimed in claim 1,2,3,4,7 are subject of the examination, and the invention claimed in claim 5,6 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 25] Decision of subject of the examination

[Title of the Invention]
Broccoli Plant

[Scope of Claims]
1. A broccoli plant having a flower head with flower buds, with an etiolating rate of the flower buds on the flower head being less than 15% in average, and at least 50% of the flower buds on the flower head not contacting each other.
2. The said broccoli plant as claimed in claim 1, whereof each flower head has at least six isolated flower buds.
3. The said broccoli plant as claimed in claim 1, whereof the mean length of flower buds is at least 10cm.
4. Seeds which can produce the broccoli plant as claimed in claim 1.
5. The broccoli plant as claimed in claim 1 which is wrapped with a container consisting of material X.

[Excerpt from the Detailed Explanation of the Invention]
The present invention relates to a broccoli plant. It is thought that a broccoli with a uniformly deep green flower head have the preference. Also, in response to the change of a consumption trend, not only globular heads of broccoli as before but also broccolis which are separated into several flower buds and then individually wrapped are recently sold as a simple convenience foods.

The purpose of this invention is, in response to these needs, to provide a broccoli plant including its seeds which is not virtually etiolated but have deep green flower buds, and with the flower buds on the flower head not densely growing but being separate each other so as to facilitate the separating work of flower buds. Besides, we aim at wrapping a broccoli with a container made of material X to prevent etiolating of the broccoli in distribution.

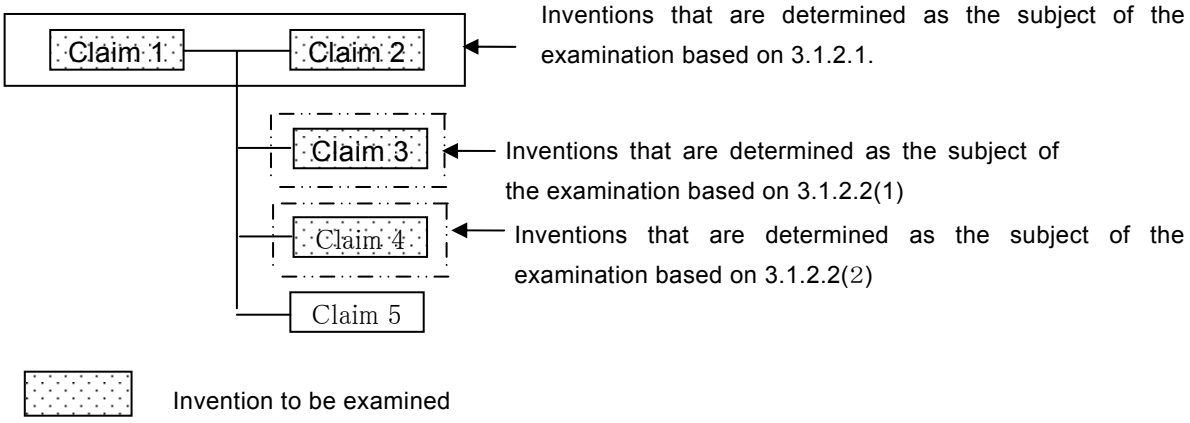
[Results of the Prior Art Search]
The broccoli plant defined in claim 1 and claim 2 is described in Document 1 and is already well known.

[Explanation]
Both the invention claimed in claim 1 and the invention claimed in claim 2, which is the smallest number of claim in the same category of claims which have all the matters defining the invention claimed in claim 1, lack novelty of invention as shown in the document 1 and have no special technical features. Therefore the inventions claimed in claim 1 and claim 2 for which whether there is any special technical feature has already been determined, are the subject of the examination.

The invention defined in claim 3, which is in the same category that includes all matters specifying the invention in claim 1, is added to the subjects of the examination. Also, the invention relating to claim 4 will be added to the subjects of the examination, as the examination of the invention claimed in claim 4 was possible without substantially conducting additional prior art searches and making a determination as a result of examining invention claimed in claim 1.

The invention relating to claim 5 is in the same category that includes all matters specifying the invention in claim 1. The technical feature of the claim 1 concerns the broccoli plant “the etiolating rate of flower buds on the flower head being less than 15% in average, and at least 50% of the flower buds on the flower head not contacting each other” itself. In contrast, the technical feature of the invention claimed in claim 5 which is added to the invention relating to claim 1 is a broccoli plant which "was wrapped with a container consisting of material X." Therefore, the technical relevance for those two claims is low. Furthermore, since “a container consisting of material X" is not well known art, it cannot be said that the invention claimed in claim 5 can be examined without substantially conducting additional prior art searches and making a determination as a result of examining inventions claimed in claims 1 and 2. Moreover, there are no other reasons that it is efficient to examine together the invention defined in claim 5 together with the inventions defined in claim 1 and claim 2.

Therefore, the inventions defined in claim 1~4 are subject of the examination, and the invention defined in claim 5 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 26] Decision of subject of the examination

[Title of the Invention]
Image Forming Device

[Scope of Claims]
1. An image forming equipment including multiple image carriers, multiple charging devices to charge said image forming equipment, multiple developing devices to form a toner image by attaching the toner to the latent image of said image carriers, multiple charger cleaning devices that cleans said charging devices, and the image forming equipment is characterized by said developing devices that comprises a developing roller that has a contact with said image carriers and toner feed roller that supplies the toner to said developing devices, and said developing roller and toner feed roller is formed by the axis and the polyurethane layer provided in the outer periphery of said axis.
2. An image forming equipment defined in claim 1 characterized by a toner feed roller in said developing devices with an irregular concavity and convexity forming on the surface of the polyurethane layer. (see Figure 1)
3. An image forming equipment defined in claim 2 characterized by the irregular concavity and convexity on the surface of the toner feed roller of said developing devices having an arithmetic mean coarseness (Ra) in the lap direction and axis direction of 5-100μm, and a ten point height of irregularities (Rzjis) in the lap direction and axis direction of 20-400μm. (see Figure 1)
4. An image forming equipment defined in claim 1 characterized by a toner feeder roller of said image carriers with a cell diameter of 0.2~0.3mm, and consisting of a polyurethane layer that has partition walls that are wider that half the diameter of the cell. (see Figure 2)
5. Said image forming equipment is an image forming equipment defined in claim 1 that is characterized by having a usage history calculating device that calculates the usage history of said image carriers, and based on the usage history calculated by the said usage history calculating device being able to set the operating conditions of said charger cleaning devices individually. (see Figure 3)

[Excerpt from Detailed Explanation of the Invention and Drawings]
In recent years the image forming equipment using the electronic photography method has become popular not only for conventional office use, but also for on-demand printing. At the same time the image forming equipment is being required to produce high-resolution full color images. The optimal image forming equipment for creating a high-resolution full color image is composed of multiple image carriers, multiple charging devices, multiple developing devices and multiple charger cleaning devices. Furthermore, when toner feed roller was low on the toner feeding capability, the toner quantity supplied to the developing roller was inadequate and lead to a problem of not being able to obtain good images. Moreover, it is common for an image forming equipment having multiple image carriers to have multiple charging devices with different operating times, and therefore each charging device differs in their dirtiness. Therefore even if the cleaning of the multiple charging devices were conducted simultaneously, the cleaning will not be suitable for the dirtiness of each charging device and it will be difficult to maintain the electrostatic charge performance if each charging device.

Fig. 1

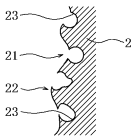


Fig. 2

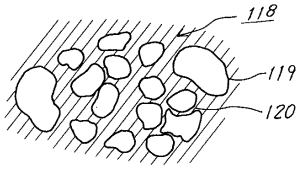
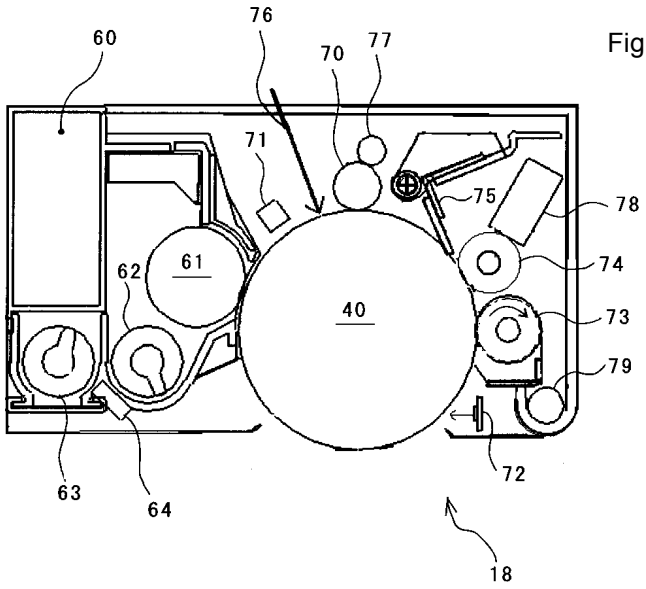


Fig. 3



[Results of the Prior Art Search]

The image forming equipment defined in claim 1 and claim2 is described in Document 1 and is known in the prior art. Furthermore, the production of high-resolution full color images is a well-known problem that was solved prior to the filing of the patent application.

[Explanation]

The invention claimed in claim 1 and claim 2 lack novelty according to Document 1 and does not have a special technical feature.

Next, with the invention claimed in claim 3 which is in the same category that include all matters specifying the invention in claim 2, a special technical feature described as “the irregular concavity and convexity on the surface of the toner feed roller having an arithmetic mean coarseness (Ra) in the lap direction and axis direction of 5-100μm, and a ten point height of irregularities (Rzjis) in the lap direction and axis direction of 20-400μm” has been found. Therefore the inventions claimed in claim 1 ~ claim 3 for which whether there is any special technical feature has already been assessed are the subject of the examination are (see “3.1.2.1. Decision on the subject of the examination based on special technical features”).

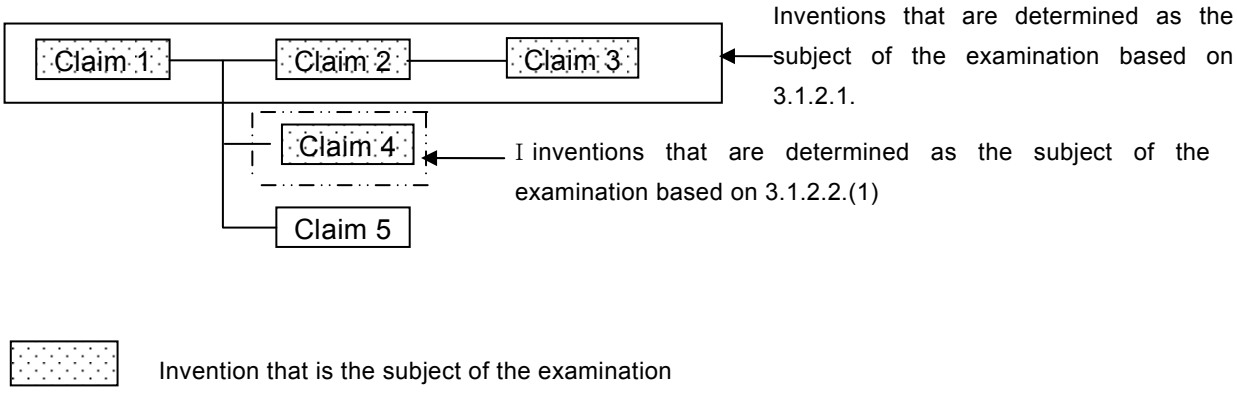
Furthermore, since the invention claimed in claim 4 is in the same category that includes all matters specifying the invention in claim 1, it is to be included in the subject of the examination.

Meanwhile, the production of high-resolution full color images is a well-known problem that was solved prior to the filing of the patent application. Taking into consideration the specific problem the invention is trying to solve determined by the additional technical features of claim 2 and claim 3, that are have been determine as the subject of the examination in “3.1.2.1. Decision on the subject of the examination based on special technical features”, in relation to the invention defined in claim 1, the problem the invention defined in claim 1 is trying to solve can be understood to be how to improve the toner feeding capability of the toner feed roller.

On the other hand, the technical feature added to claim 5 in relation to the invention defined in claim 1 is that it is equipped with a usage history calculating device that calculates the usage history of image carriers, and based on the usage history calculated by the said usage history calculating device being able to set the operating conditions of said charger cleaning devices individually. The specific problem the invention is trying to solve that can be understood from the additional technical feature of the invention defined is how to conduct cleaning according to multiple charging devices with different usage times. The specific problem the invention is trying to solve that can be understood from the additional technical feature of the invention defined has little relevance with the problems of the invention defined in claim 1.

In addition, the invention defined in claim 5 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions defined in claims 1~3, nor are there any other reasons to decide it is efficient to examine together the inventions defined in claim 1~3.

Therefore, the inventions defined in claim 1~4 are subject of the examination, and the invention defined in claim 5 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 27] Decision of subject of the examination

[Title of the Invention]
Cell differentiation accelerant

[Scope of Claims]
1. A plant cell differentiation accelerant with adventives root formation promoting effects of a plant.
2. The plant cell differentiation accelerant as claimed in claim 1, characterized by containing a compound expressed in either one of general formulae (1) - (4).
3. A culture medium for developing roots from the shoots of a plant containing the plant cell differentiation accelerant claimed in claim 1 or 2.
4. The production method of the clone seedlings by cultivating plant shoots and making roots to be developed from said shoots of a plant under the presence of the plant cell differentiation accelerant claimed in claim 1 or 2.

[Excerpt from Detailed Explanation of the Invention]
This invention relates to a plant cell differentiation accelerant with adventives root formation promoting effects of a plant.
Particularly, the taking root of scions is promoted and effective production of clone seedlings is viable by using the compound described in either one of general formulae (1) - (4).

[Result of the Prior Art Search]
The plant cell differentiation accelerant of the invention claimed in claim 1 is a well-known art at the time of the application as described in the Documents 1-5.

[Explanation]
(A) Decision on the subject of the examination based on special technical features (see 3.1.2.1)
The invention of a plant cell differentiation accelerant in claim 1 is well-known art and does not have any special technical features.
The Invention claimed in claim 2 which is in the same category that include all matters specifying the invention in claim 1, is the invention of a plant cell differentiation accelerant containing a compound expressed in either one of general formula (1) - (4) (claims 2 (1) is a part of claim 2, which relates to an invention includes general formula (1), Parts related to general formula (2) (3) (4) are 2 (2), 2 (3), and 2 (4) respectively). The invention relating to claim 2 (1) is not described in prior art documents, and a special technical feature was discovered in that it is using a chemical compound which has a partial structure X in the chemical structure, expressed as q general formula (1), as a plant cell differentiation accelerant.
And a compound expressed as general formulae (2) and (3) has the aforementioned partial structure X, and the invention claimed in claim 2 (2) and claim 2 (3) has the special technical feature which is the same as or corresponding to the aforementioned special technical feature.
In regard to the parts of invention claimed in claim 3 which recites claims 2 (1), (2), and (3), they have the special technical features which is the same as or corresponding to the aforementioned special technical feature. In regard to the invention claimed in claim 4, the

parts that also recites claims 2 (1), (2), and (3) are the same.

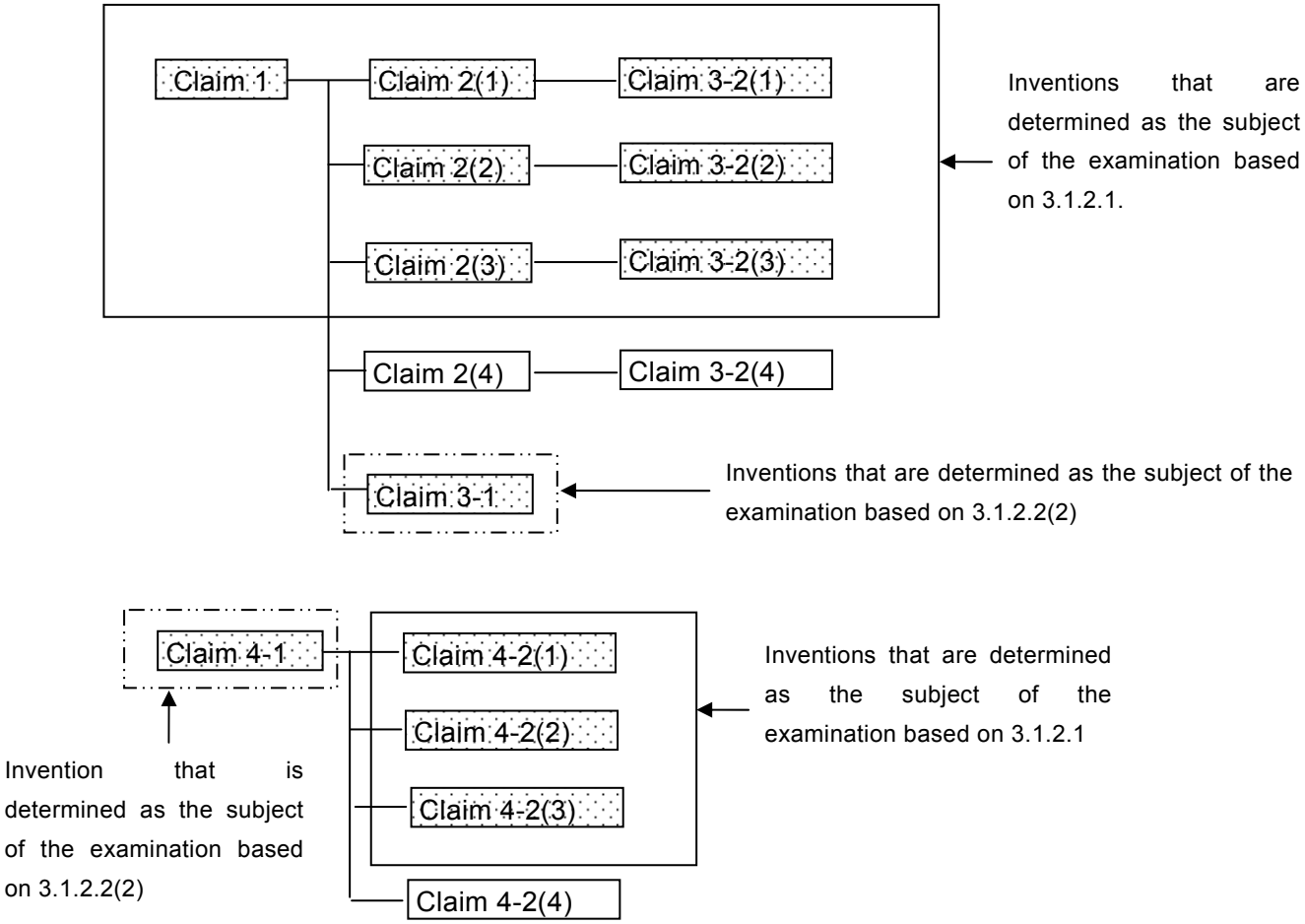
Therefore, the claim 1 and the claim 2 (1), (2), and (3), and the parts of the claims 3 and 4 that recite the claim 2 (1), (2), and (3) (hereinafter “invention decided as the subjects of the examination in (A)”)are subject of the examination on the basis of special technical features.

(B) A ruling on the subject of the examination based on the efficiency of the examination (see 3.1.2.2)

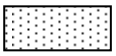
The invention related to the claim 1 is a well-known art, and the technical feature of the invention claimed in claim 1 perceived by taking into consideration of other technical features of the invention decided as the subjects of the examination in (A), is the plant cell differentiation accelerant containing a chemical compound in the general formula (1), (2) or (3). In contrast, as to the invention claimed in claim 2 (4) which was not included in the subjects to be examined in (A), the technical feature added to the invention claimed in claim 1 a plant cell differentiation accelerant containing a compound of the general formula (4). Furthermore, the compound expressed in a general formula (4) does not share the common partial structure with the compound described in the general formulae (1), (2) or (3) and the corresponding technical relevance is low between the technical feature of the invention claimed in claim 1 perceived by taking into consideration of other technical features of the invention decided as the subjects of the examination in (A) and the technical feature added to the invention related to the claim 1 of the invention claimed in the claim 2 (4). And the invention claimed in 2(4) is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the invention decided as the subjects of the examination in (A), nor are there any other reason to decide that it is efficient to examine together with the inventions that were decided as the subject of the examination in (A). As to the invention claimed in claims 3 and 4, the same applies to the part reciting claim 2(4).

On the other hand, as concerning the inventions claimed in claims 3 and 4, the part reciting claim 1 is another invention which adds, deletes or replace well-known art or commonly used art to the invention claimed in claim 1 which was determined as the subject of the examination based on a specific technical feature and which does not generate any new effects,. Therefore, as a result of examining the invention decided as the subjects of the examination in (A), the part of the claims 3 and 4 reciting claim 1 shall be added to the subject of the examination, because said part can be examined without substantially conducting additional prior art searches and making a determination.

Therefore, the inventions claimed in claims 1, 2(1), 2(2), 2(3) and the part citing the claims1, 2(1), 2(2), 2(3) in the invention claimed in claims 3 and 4 are subject of the examination, and the invention claimed in claim 2(4) and the part citing claim 2(4) in the inventions defined in claim 3 and claim 4 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



- Although the invention claimed in claim 4 formally quotes the claim 1, said invention is not in the same category as the invention claimed in claim 1.



Invention that is the subject of the examination

[Example 28] Decision of subject of the examination

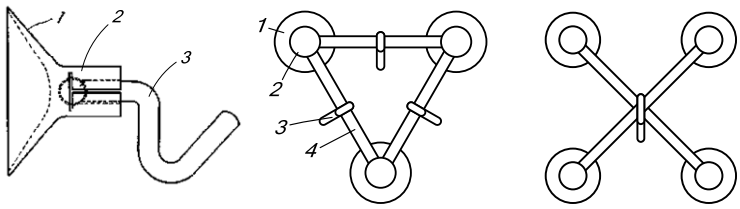
[Title of the Invention]
Sucker-type suspension structure

[Scope of Claims]
1. A sucker-type suspension structure characterized by being provided with suckers (1) having a front part that can adhere to a smooth surface and a junction area (2), and stops (3) supported by said junction area.
2. A sucker-type suspension structure defined in claim 1 characterized by having a multiple of said suckers (1) and said stop (3) is supported by at least 2 of said junction areas (2) of the suckers of said multiple suckers (1).
3. A sucker-type suspension structure claimed in claim 2 characterized by having 3 said suckers (1), and said suckers (1) are located on the different vertex points of a triangle, and said stops (3) are supported by said joint areas (2) through a shaft-like part (4) that binds said joint areas (2) of 2 adjacent suckers (1).
4. A sucker-type suspension structure claimed in claim 2 characterized by having 4 said suckers (1), and said suckers (1) are located on the different vertex points of a quadrangle, and said stops (3) are supported by said joint areas (2) through a shaft-like part (4) that binds said joint areas (2) of 2 suckers (1) that are located diagonally on said quadrangle.
5. A sucker-type suspension structure claimed in claim 3 or claim 4 characterized by attaching said stops (3) to said shaft-like part to rotate freely.
6. A sucker-type suspension structure claimed in claim 1 characterized by having transformation detection means to detect the transformation of said suckers (1) and warning means that provides a predefined warning output when the transformation of said suckers (1) is detected by said transformation detection means.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention concerns a sucker-type suspension structure for hanging an object on a stop attached to the structure and being fastened to a wall surface using suckers. There are conventional methods such as use of nails, adhesives, magnets and suckers to fasten an object onto a wall surface. However there are drawbacks with nails in that traces are left on the surface when they are removed. Also with adhesives there are drawbacks in that it is not suitable for repetitive use and with magnets the location of usage is limited since they could only be fastened to a metal surface. A sucker can be used anywhere there is a smooth surface, can be used relatively anywhere without being selective, can be attached and removed easily and is also suitable for repetitive use. However there had been no inventions relating to suspension structures for hanging various objects such as pet leashes. Also there were drawbacks with suckers in that they could fall off from the wall surface abruptly and third parties could remove them intentionally.

The present invention provides a suspension structure that has joint areas in the center of the rear surface portion of the suckers that can be used without being selective about the place of usage, is easy to attach and remove and suitable for repetitive use. Also if multiple said suckers are used the load capacity of the present invention can be increased. Furthermore, the present invention is equipped with transformation detection means to detect the transformation of said suckers and warning means that provides a predefined warning

output when the transformation of said suckers is detected by said transformation detection means, and notifies the user when the suckers are about to abruptly fall off the wall surface or is about to be intentionally removed by third parties, which leads to the prevention of the detachment or the theft of the suckers.



[Results of the Prior Art Search]

The sucker-type suspension structure claimed in claim 1 and claim 2 lacks novelty according to Document 1. Moreover, the sucker-type suspension structure defined in claim 1 is commonly used.

[Explanation]

(A) Decision on the subject of the examination based on special technical features (see 3.1.2.1)

The inventions claimed in claim 1 and claim 2 lacks novelty and there are no special technical features.

Next, with the invention claimed in claim 3 which is in the same category that includes all matters specifying the invention in claim 2, a special technical feature described as “provided with 3 suckers having a front part that can adhere to a smooth surface and a back part with a junction area, said joint areas of two adjacent suckers are bound by a shaft-like part, and through said a shaft-like part a stop is supported by said junction area” has been found. Therefore the inventions claimed in claim 1~ claim 3 for which whether there is any special technical features has already been determined, and of the part of invention claimed in claim 5 that recites claim 3, which has the same or corresponding said special technical features, are the subject of the examination.

(B) Decision on the subject of the examination based on the examination efficiency (see 3.1.2.2)

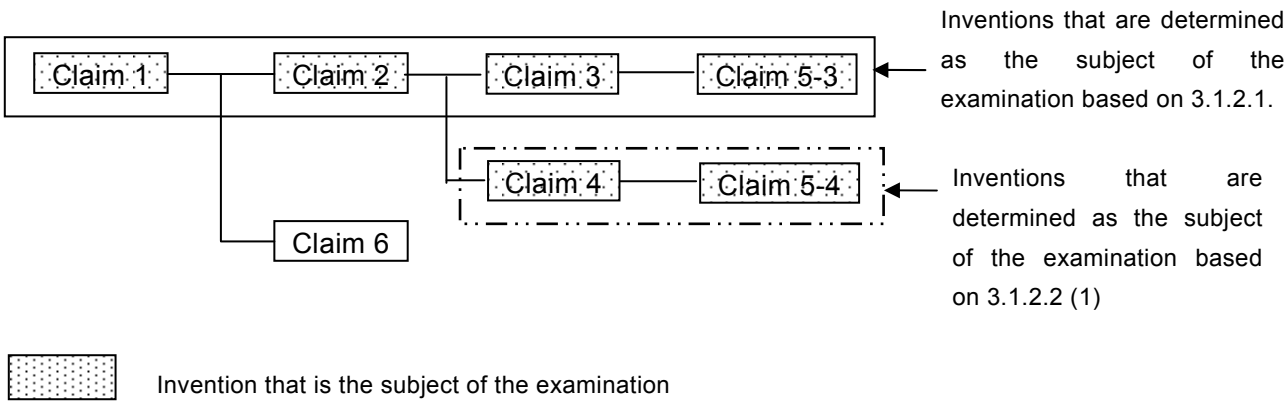
The invention claimed in claim 4 and of the invention claimed in claim 5 the invention that recites claim 4, are inventions which are in the same category that includes all matters specifying the invention in claim 1, and therefore can be determined as inventions that can be examined together efficiently and therefore are inventions that are the subject of the examination.

The invention claimed in claim 6 is also an invention which is in the same category that includes all matters specifying the invention in claim 1. However the sucker-type suspension structure in claim is, as aforementioned, commonly used and is considered as a common general knowledge. Therefore the technical feature of the invention claimed in claim

1 that can be determined by the technical features of the inventions claimed in claim 2, claim 3 and of the invention in claim 5 the invention reciting claim 3 is “it is equipped with multiple suckers that have rear surface portions with junction areas, and of said multiple suckers at least 2 suckers support the stops through said junction areas”. On the other hand, the technical feature added to claim 6 in relation to the invention claimed in claim 1 is “transformation detection means to detect the transformation of said suckers and warning means that provides a predefined warning output when the transformation of said suckers is detected by said transformation detection means”, and there is low technical relevance between the two technical features.

In addition, the invention claimed in claim 6 is not an invention that can be examined without substantially conducting additional prior art searches and making a determination as a result of the examination of the inventions claimed in claims 1~3, and of the invention claimed in claim 5 the invention reciting claim 3, nor are there any other reason to decide that it is efficient to examine together the inventions claimed in claim 1~3 and of the invention claimed in claim 5 the invention reciting claim 3.

Therefore, the inventions claimed in claim 1~5 are subject of the examination, and the invention claimed in claim 6 will be excluded from the subject of the examination. Since there are claims which are not the subject of the examination, notice of reasons for refusal on the grounds of violation of the requirements of unity of invention is notified.



[Example 29] Product and Product for Producing the Same

[Title of the Invention]
Structure of Anti-Slipping Device of Blind Nut

[Scope of Claims]
1. Anti-slipping device of blind nut (10) 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 (24), fit and thus preventing the slippage of the blind nut (10). (See Figures 1 and 2)
2. The tool for forming the mounting hole (22) with anti-slippage groove, 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 (26), 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 Detailed Explanation 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).

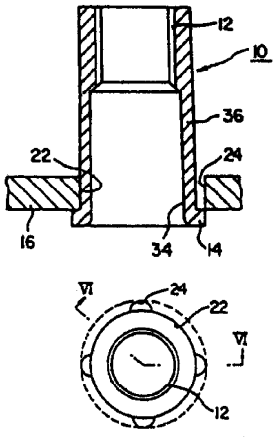


Fig. 1

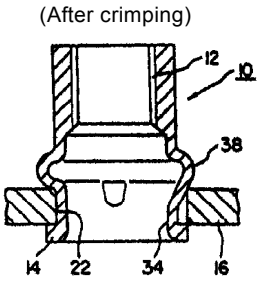


Fig. 2

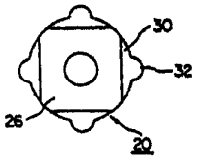


Fig. 4

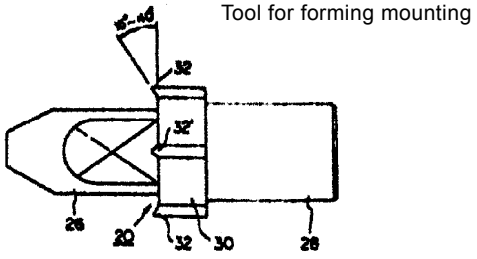


Fig. 3

[Explanation]
The invention claimed in claim 2's special technical feature is "edge (32) affixed at an angle of 15-40o and protruding in the outside direction of the radius of the edge of the flange" and

the invention claimed in claim 2's special technical feature is "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)". The special technical feature of the claim 2 inevitably provides change to the special technical feature of the claim 1. Therefore, the tool of claim 2 is appropriate to produce the Anti-slipping device of claim 1 and the inventions have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 30] A product, a process specially adapted for the manufacture of the said product

[Title of the Invention]
Antibiotic A/16686 and microbes to produce the antibiotic

[Scope of Claims]
1. Antibiotic A/16686, a sodium salt of white crystal substance, comprising A) having themelting point of 224-226°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, $[\alpha]_{D24}$=+49.7°, …J), amino acidanalysis showing ornithine, aspargine… …after hydrolyzing in 6 N nitric acid at 110°C for 6hours.
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 Detailed Explanation 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 the invention claimed in claim 2 is suitable for the production of the antibiotics of the invention claimed in claim 1. Therefore, the inventions of claim 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 31] Product and Product for Producing the Same

[Title of the Invention]
Ignition Trigger Pulse Generator and Magnetizer Thereof

[Scope of Claims]
1. An ignition trigger pulse generator mounted on a drive shaft of an internal combustion engine, comprising: a pick-up coil device (13) and a ring-shaped permanent magnet (18): wherein the permanent magnet (18) includes a first magnetized component and a second magnetized component which are separated each other in an axis direction; and wherein each of the first magnetized component and the second magnetized component forms a sharp magnetic flux reversal area (24), (25), respectively, between one of the components and a semi-circumferential portion magnetized in a radial direction at a constant magnetic level of one direction and between the other one of the components and a semi-circumferential portion magnetized in a radial direction at a constant magnetic level in an opposite direction and the first magnetized component and the second magnetized component are magnetized in the opposite directions each other. (See, Figs. 1 and 2)
2. A magnetizer (31), (32) of a ring-shaped permanent magnet (18) constituting an ignition trigger pulse flux generator for an internal combustion engine, the magnetizer comprising: a pole part (33) including a first pole and a second pole arranged side by side in an axis direction so as to contact a half of an outer periphery of the ring-shaped permanent magnet, the pole part having a U-shaped cross section; a magnetizing coil (37) disposed along an internal and external surface of the pole part (33); and a power supply for supplying selected polar and current of a constant value to the coil (37). (See, Fig. 3)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention relates to a generator for supplying a trigger pulse to a condenser discharge ignition system for 2-cylinder engine in an outboard motor having a generator mounted on the driving shaft, wherein two components separated in an axis direction of the ring-shaped permanent magnet and two components opposing to each other across a diameter of the ring-shaped permanent magnet are magnetized so as to have opposite polarities in a radial direction of the magnet to form a magnetic flux reversal area (24), (25), respectively, between unlike poles, thereby obtaining a steep trigger pulse from the pick-up coil. The magnetizer to be used therein is configured to polarize the ring-shaped permanent magnet so as to have the above described polar and is used after the ring-shaped permanent magnet is assembled with the drive shaft.

The assembly of the pulse generator is conventionally coupled to a lower end of the generator, so that a long engine shaft is required. As a result thereof, the generator becomes larger as well as the generator could not obtain the steep trigger pulse. Also, during assembly of the generator, if the permanent magnet is polarized, the permanent magnet absorbs the other parts to invite degradation of its workability.

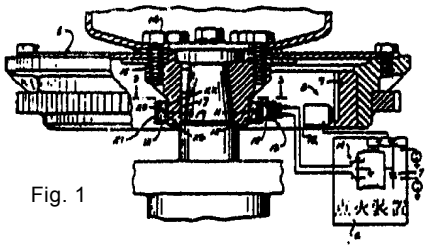


Fig. 1

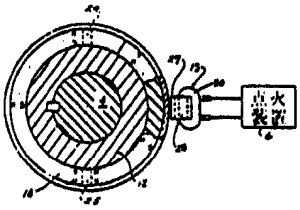


Fig. 2

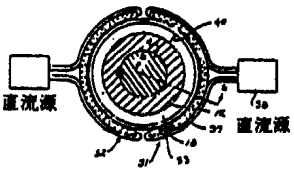


Fig. 3

6 ignition system
30 DC source

[Explanation]

The magnetizer in the invention claimed in claim 2 is used in polarizing the ring-shaped permanent magnet of the pulse generator after the pulse generator is assembled in the invention claimed in claim 1. Thus, the magnetizer of claim 2 is suitable for manufacturing the pulse generator of claim 1. Therefore, the inventions of claim 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 32] Product and Product for Producing the Same

[Title of the Invention]

Rotary Solvent Extirpation Equipment and Process of Field Assembly of Cell Assembly of Rotor of the Same

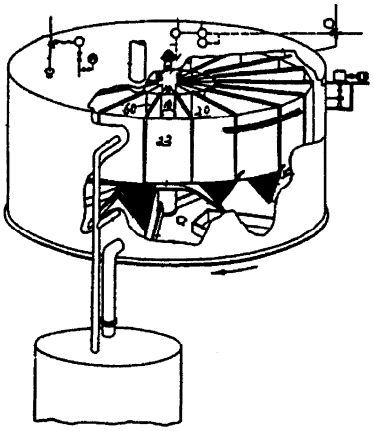
[Scope of Claims]

1. Rotary solvent extirpation equipment including a cell assembly (16) which includes a plurality of upper support beams (12) and lower support beams (14) extending in a radial direction with respect to a rotor shaft and cells of a rotor, each being formed between the neighboring 4 upper and lower beams, the cell assembly (16) being characterized in that:
   (a) side walls (20) including upper and lower positioning elements (40) and inside and outside positioning elements (42, 44) are held by the upper and lower support beams;
   (b) inside walls (18) are affixed inbetween the sidewalls;
   (c) outside walls (22) are affixed inbetween the sidewalls; and
   (d) gable structures (60) are placed on the opposing sidewalls of the neighboring cells. (See Figures 2, 3, and 4)
2. A process of field assembly of a cell assembly (16) of a rotor of rotary solvent extirpation equipment having upper support beams (12) and lower support beams (14) extending in a radial direction with respect to a rotor shaft and cells of a rotor, each being formed between the neighboring 4 upper and lower beams, the process comprising:
   (a) positioning side walls (20) with inside and outside positioning elements (42, 44) on the upper and lower support beams by means of upper and lower positioning elements (40) to secure the side walls (20) thereon;
   (b) securing inside walls (18) between side walls by means of the inside positioning elements of the sidewalls; and
   (c) securing out side walls (22) between side walls by means of outside positioning elements of the sidewalls.

[Excerpt from Detailed Explanation of the Invention and Drawings]

This invention relates to rotary solvent extirpation equipment and a process of a field assembly of a cell assembly of a rotor of the rotary solvent extirpation equipment. More specifically, the invention relates to modifications of the extirpation equipment equipped with the cell assembly of the rotor made of inside walls, outside walls, and side walls for the purpose of shipping at any time to a working field for field assembly and the process of the field assembly of the cell assembly of the rotor of the extirpation equipment. The process of the field assembly of the present invention enables an easy and secure field assembly of the cells to the rotary solvent extirpation equipment at the working field.

The gable structures prevent solvents from dripping inbetween the neighboring cells and facilitates solvents to flow into the neighboring cells, and the process of field assembly of this invention is applicable also to a rotary solvent extirpation equipment of the type other than that having the gable structure.



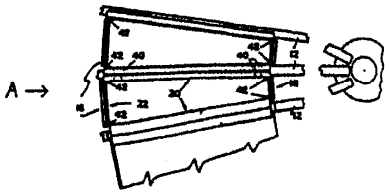


Fig. 2　Plan view of the cell assembly

Fig. 1　Conceptual diagram of the rotary solvent extirpation equipment

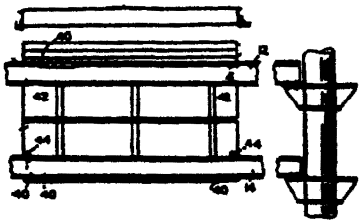


Fig. 3　Elevation view of the cell assembly

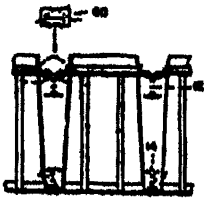


Fig. 4　End view seen from the A direction in Fig.2

[Explanation]

The process of the filed assembly of claim 2 is optimum to manufacturing of the rotary solvent extirpation equipment of claim 1. Therefore, the inventions of claim 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 33] Product and Product for Producing the Same

[Title of the Invention]
Keyboard Switch and Manufacturing Method Thereof

[Scope of Claims]
1. A keyboard switch, comprising: an insulated portion (2) made of an elastomer resin protruding from a surface of a metal sheet (1) on a predetermined portion of the surface of the metal sheet (1); a flat electrode (4) which is a portion other than the insulated portion (2) formed into an electrical contact member (3); and a substrate (5) provided with a membrane electrode (6) at a position opposing to the electrical contact member (3); wherein the flat electrode (4) and the substrate (5) are formed into a piece of layer so as to be faced to each other. (See, Fig. 1)
2. A keyboard switch, comprising: an insulated portion (12) made of an elastmer resin charged into a recess portion of a predetermined portion on a surface of a metal sheet (11) to protrude from a surface of the metal sheet (11); a flat electrode (14) which is a portion other than the insulated portion (12) formed into an electrical contact member (13); and a substrate (15) provided with a membrane electrode (16) at a position opposing to the electrical contact member (13); wherein the flat electrode (14) and the substrate (15) are formed into a piece of layer so as to be faced to each other. (See, Fig. 3)
3. A method for manufacturing a keyboard switch, comprising: forming a masking layer (8) made of a material without affinity to an elastmer resin on a surface of a metal sheet (1); adhering an elastomer resin on the surface of the exposing metal sheet (1); removing the masking layer (8) to form thereon a flat electrode (4) including a predetermined protruding insulated portion (2) made of the elastomer resin and an electrical contact member (3) other than the insulated portion (2); and wherein the flat electrode (4) and the substrate (5) having the membrane electrode (6) are layered into one piece such that the electrical contact member (3) and the membrane electrode (6) are faced to each other. (See, Figs. 1 and 2)
4. A method for manufacturing a keyboard switch, comprising: forming a masking layer (18) made of a material without affinity to an elastomer resin on a surface of a metal sheet (11); providing a recess portion on a surface of the exposed metal sheet (11) by etching; charging the elastomer resin into the recess portion until the elastomer resin reaches a surface of the masking layer (18); and removing the masking layer (18) to form thereon a flat electrode (14) including a predetermined protruding insulated portion (12) made of the elastomer resin and an electrical contact member (13) other than the insulated portion; wherein the flat electrode (14) and a substrate (15) including a membrane electrode (16) are layered into one piece such that an electrical contact member (13) and the membrane electrode (16) are faced to each other. (See, Figs. 3 and 4)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to a keyboard switch and a method for manufacturing the same.

Since the conventional keyboard switch using press buttons has a complicated structure, the manufacturing thereof requires many steps and further the resulting keyboard switch has a relatively large volume, particularly, is relatively thick. Therefore, the conventional keyboard

switch is not suitable as a keyboard switch for an electric calculator having a feature of weight saving.

The conventional keyboard switch using a film such as a piezoelectric polymer film and a film provided with electrodes with conductive ink has a simple structure and is thin; however, the piezoelectric polymer film or the conductive ink has a large resistance, so that a contact resistance of the switch becomes larger. Consequently, such films are not suitable to be used in a case of applying a heavy current.

The keyboard switch according to the present invention is directed to a keyboard switch having a structure that a light press of an upper surface of a flat electrode with a finger upon using thereof compresses an elastomer resin portion corresponding to a portion immediately below the finger to allow the electrical conducting member (3) to contact the membrane electrode (6), thereby allowing the switch to operate.

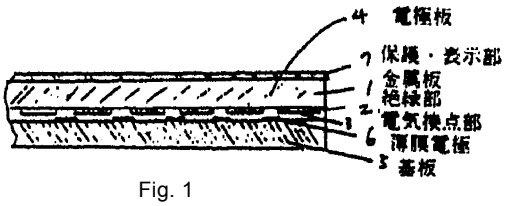


Fig. 1

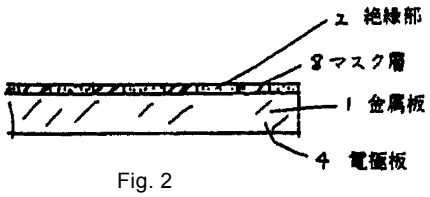


Fig. 2

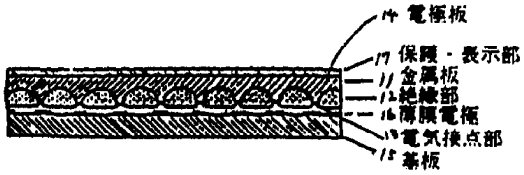


Fig. 3

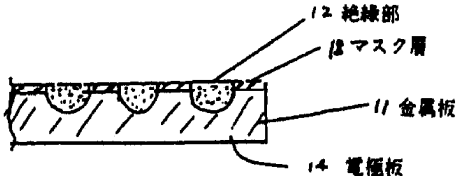


Fig. 4

1,11 metal sheet
2,12 insulated portion
3,13 electrical contact member
4,14 flat electrode
5,15 substrate
6,16 membrane electrode
7,17 protection and display unit
8,18 masking layer

[Explanation]

The “insulated portion made of an elastomer resin protruding from a surface of a metal sheet” is common to inventions claimed in claim 1 and claim 2. The “insulated portion made of the elastomer resin protruding from the surface of the metal sheet” makes a contribution to the prior art in which the elastormer resin portion is compressed to allow the electrical contact portion (3) to contact the membrane electrode (6) to cause the switch to operate, thereby achieving light weighting of the keyboard switch. Therefore, the inventions claimed in claims 1 and 2 have the same special technical feature.

The manufacturing method according to claims 3 and 4 involves inevitable modification to the

“insulated portion made of an elastomer resin protruding from a surface of a metal sheet” as the special technical feature of claims 1. Therefore, the manufacturing methods are suitable for manufacturing the keyboard switches according to claims 1.
Therefore, the inventions of claim 1 - 4 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

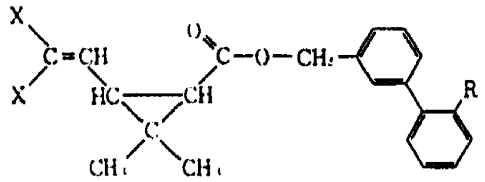
[Example 34] A product, a method to use said product, and a product that uses the specific feature of said product

[Title of the Invention]

A cyclopropanecarboxylate derivative, insecticides containing the same and the method for killing insects using the same

[Scope of Claims]

1. A cyclopropanecarboxylate derivative represented by a general formula (1).



2. An insecticide which contains at least one compound represented in claim 1 as an active ingredient.
3. An insect killing method to perform the application of an effective dose of at least one compound represented in claim 1 in a place where the extermination of insects is required.

[Excerpt from Detailed Explanation of the Invention]

The present invention concerns (1,1'-biphenyl)-3-ylmethyl 3-(2,2-dihaloethenyl)-2,2-dimethylcyclopropanecarboxylates groups that have substituent groups on the benzene rings of the biphenyl unit, and exhibit continuous insecticidal activity, insecticides containing the same and the method for killing insects using the same

[Explanation]

The insecticide of the invention in claim 2 is an article that exclusively uses the insecticidal activity of the cyclopropanecarboxylate derivative of the invention in claim 1.

The method of the invention in claim 3 is an method that uses the cyclopropanecarboxylate derivative of the invention in claim 1 and the insecticide of the invention in claim 2.

Therefore, the inventions of claim 1 - 4 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 35] Product and Product for Handling the Same

[Title of the Invention]
Magnetic Card for Learning and Card Type Recorder

[Scope of Claims of the Invention]
1. A magnetic card for learning, comprising: a recording or recordable magnetic track (5) including an upstream as a part for questions and the subsequent downstream as a part for answers corresponding to the part for questions in a running direction of a card; and a notch (7) for causing the card to pause between the part for questions and the part for answers. (See, Fig. 1)
2. A card type recorder including a pausing system, comprising: a detector (45) for detecting presence or absence of a card with respect to a transfer route (22) of the card and a notch formed on the card; and a power switch (44) for controlling a card driving system according to an operation of the detector. (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention is directed to a magnetic card for learning whose recording part is divided into two parts by means of a notch, wherein, when a card is inserted into the transfer route, a power switch (44) is turned on via a detector (45) by using a front edge of the card itself to transfer the card and, when the notch (7) of the card reaches a position of the detector (45), the recorder can be put in a pausing state by turning off a power source and the pausing state can be canceled by pressing a rear edge of the card.

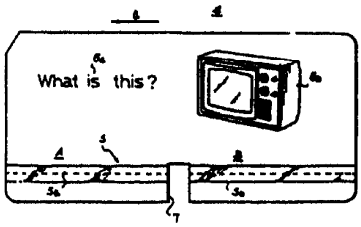


Fig. 1

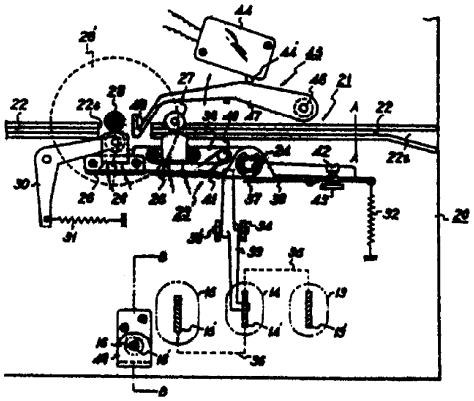


Fig. 2

[Explanation]
The “pausing system comprising a detector (45) for detecting presence or absence of a card with respect to a transfer route (22) of the card and a notch formed on the card and a power switch (44) for controlling a card driving system according to an operation of the detector” as a special technical feature of the invention in claim 2 inevitably demonstrates the function thereof by providing an external operation with respect to the “notch (7) for causing the card to pause” as the special technical feature of the invention in claim 1. Therefore, the card type recorder of claim 2 is suitable for handling the magnetic card for learning of claim 1. Therefore, the inventions in claims 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 36] Product and Method for Treating the Same

[Title of the Invention]
Cassette and Mechanism Inserting/Ejecting Cassette to/from Projector

[Scope of Claims]
1. A cassette, comprising: detachable covers (16, 18) for protecting a projection mask (14); a gas passage way (68) formed in one cover (16) for causing gas to flow therethrough in order to exchange the gas between an inside and an outside of the cassette; and a normal closed valve provided within the gas passage way. (See, Fig. 1)
2. A mechanism for inserting/ejecting a cassette into/from a projector, comprising: attaching covers (16, 18) on a surface of a mask (14) of the cassette; evacuating the cassette to protect the mask (14) from outside air; placing the cassette in a receptacle of the projector; releasing the vacuum of the cassette in the receptacle of the projector; removing the covers (16, 18); causing the cassette to move to a projecting place and to return the cassette in the receptacle of the projector after projection; attaching the covers (16, 18); evacuating the cassette; and ejecting the cassette from the receptacle of the projector. (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]
The invention relates to a projection mask for semiconductor printing and a projector for projecting a mask image on a silicon substrate. The projection mask is required to be protected by covers in order to prevent the projection mask from adhesion of dust and opening/closing of the covers are also required to be performed automatically within the projector.

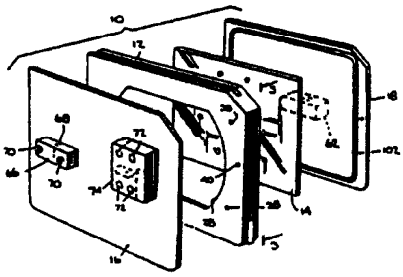


Fig. 1

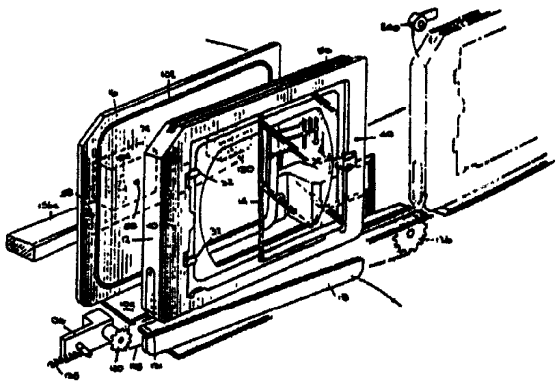


Fig. 2

[Explanation]
The method of claim 2 is directed to perform attachment/detachment of the covers of the cassette of claim 1 as well as to perform automatic insertion/ejection of the cassette into/from the projector, thereby causing the cassette to demonstrate the function thereof, and thus is suitable for handling the cassette of claim 1.

Therefore, the inventions in claims 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 37] Method and Product Directly Used in Carrying Out the Method

[Title of the Invention]
Method for Forming Heat Insulating Material and Mixing Gun to Be Used in the Method

[Scope of Claims]
1. A method for forming a fire-resistive heat insulating material, wherein a mixture composed of synthetic polymer foaming particles, synthetic polymer latex binder, and an organobromine contain compound for applying fire-resistive property to the combined synthetic polymer foaming particles is introduced into a cavity portion between surfaces.
2. A mixing gun: wherein a high-pressure gas ejection tip (3) is provided in a suction chamber (4); wherein an injection pipe (1) is connected to a front surface of the high-pressure gas ejection tip (3) wherein a suction tube (6) for sucking synthetic polymer foaming particles is connected in a branch-form near the high-pressure gas ejection tip (3) of an inner side of the suction chamber (4); and wherein an injecting portion (5) to which a latex binder and a fire retardant are introduced at a position in the adjacent to an injection tip (2) of a tip of the injection pipe is provided.

[Excerpt from Detailed Explanation of the Invention and Drawings]
The present invention relates to heat insulation in a place where the heat conduction between surfaces spaced to each other is desired to be minimized, e.g., heat insulation in an architectural construction.

Since the expandable polystyrene beads have a cellular structure, the expandable polystyrene beads are suitable for heat insulation of a cavity portion. However, the expandable polystyrene beads have extremely low bulk density and free flowing characteristics, so that it frequently difficult to prevent the expandable polystyrene beads kept in the cavity from leakage thereof through joints or defective portions of cavity walls. A solution of the above described problem developed by the applicant of the present application is to cover the expandable polystyrene beads with the synthetic polymer latex binder. According to the above method, the latex binder can prevent the expandable polystyrene beads from flowing and can prevent the expandable polystyrene beads from flowing out through an opening.

The present invention is characterized in that the synthetic polymer foaming particles are mixed with a latex binder flow and a fire retardant flow at a desired rate to be introduced into the cavity portion by using a mixing gun by which the generated mixture is sent into the cavity via the injection tip (2) of the gun.

In the above described mixing gun, the high polymer foaming particles are mixed with the latex binder flow and the fire retardant flow at a position in the adjacent to the injection tip (2) of the injection pipe (1), followed by immediate injection of the mixture through the injection tip (2). Therefore, even if a portion inserted into the cavity is made longer by using a longer injection pipe, possible adhesion of the mixture to an inner wall of the injection pipe (1) can be decreased and thus the mixture can be charged into the cavity continuously and uniformly.

The mixing gun can be used also as a mixture spraying gun for constructing wall surfaces having noise insulation property and water proof property by preliminary applying adhesion on the wall surfaces and spraying the mixture on the wall surfaces having been applied with the adhesion.

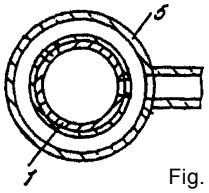


Fig. 2

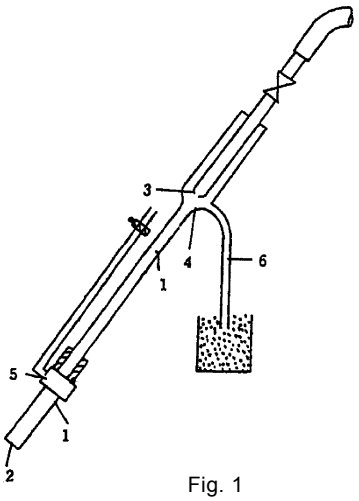


Fig. 1

[Explanation]

The mixing gun of claim 2 is applicable also to a method other than the method of claim 1. However, the mixing gun of claim 2 is suitable for carrying out the method of claim 1 directly. Therefore, the inventions in claims 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 38] Method and Product Directly Used in Carrying Out the Method

[Title of the Invention]

System for Transmitting/Displaying Television Image Signal and Transmitting/Receiving Device of Television Image Signal

[Scope of Claims]

1. A system for transmitting/displaying a television image signal: wherein the television image signal is subjected to a time-base expansion at a screen center portion, whereas the television image signal is subjected to a time-base compression at a screen surrounding portion; and wherein the television image signal is transmitted by a relatively narrow occupied channel suitable for the time-based expanded television image signal at the screen center portion and the received television image signal is decoded to an original-time based signal at a receiving side to display the decoded television image signal.
2. …A transmission device for transmitting a television image signal equipped with a control means for controlling deflection of the imaging means nonlinearly, the control means controlling so as to expand a time base of the transmitted television image signal obtained from the imaging means at a screen center portion, whereas the control means controlling so as to compress the television image signal at a screen surrounding portion.
3. … A receiving device for receiving a television image signal equipped with a time base conversion circuit which compresses the time base of the received television signal at a screen center portion, whereas which expands the time base of the received television signal at a screen surrounding portion.

[Excerpt from Detailed Explanation of the Invention]

The conventional scanning operation of a television screen is performed with a linear speed in both of a horizontal direction and a vertical direction of the screen in both cases of a television camera and an image display device such as an image receiver to achieve a uniform resolution at everywhere on the screen. Therefore, in a case where the number of scanning lines of the screen is increased as it is done in a future expected high-quality television, since a frequency bandwidth required in transmitting the television image signal becomes several number of times or several tens of number of times of the conventional numbers, it is difficult to realize such high-quality television.

According to the present invention, use of a difference in visual feature between the screen center portion and the screen surrounding portion in the image display screen enables more stable transmission of a high-quality color television image signal by using a narrow band transmission pathway.

[Explanation]

The transmission device and the receiving device of claims 2 and 3 are used directly in the time-based expansion of the television image signal at the screen center portion and the time-based compression of the television image signal at the screen surrounding portion and decoding thereof as the special technical feature of the transmission/display system of claim 1.

The “control means controlling so as to expand a time base of the transmitted television

image signal obtained from the imaging means at a screen center portion, whereas the control means controlling so as to compress the television image signal at a screen surrounding portion" of claim 2 and the "time base conversion circuit which compresses the time base of the received television signal at a screen center portion, whereas which expands the time base of the received television signal at a screen surrounding portion" of claim 3 complementally relate to each other. The inventions make a contribution to the prior art that enables more stable transmission of the high-quality color television image signal via the narrow band transmission pathway by using the difference in visual feature between the screen center portion and the screen surrounding portion in the image display surface and, therefore, are considered as the special technical features. Consequently, the inventions according to claims 2 and 3 have the corresponding special technical features.

Thus, the inventions according to claims 1, 2, and 3 satisfy the requirements of unity of invention.

[Example 39〕Method and Product Directly Used in Carrying Out the Method

[Title of the Invention]
Tunnel Enlargement Excavation Method and Enlargement Shield Machine

[Scope of Claims]

1. A tunnel enlargement excavation method, comprising: partially excavating to enlarge an enlargement planned area of an existing tunnel (3) having been built by a shield construction method; assembling and installing an enlargement shield machine (18) for excavating an outer periphery of the existing tunnel (3) at the enlarged portion (6); and causing an enlargement shield machine (18) to move forward along the existing tunnel (3) while removing the existing tunnel linings (2) one after another to thereby construct the enlargement section. (See, Fig. 1)
2. The tunnel enlargement excavation method according to claim 1, wherein an entire cutting face in a propulsive direction is excavated by using a power assisted excavator (22a) installed in the enlargement shield machine (22). (See, Fig. 2)
3. An enlargement shield machine (18), further comprising: a guide plate (12) for guiding the enlargement shield machine (18) along a primary shield segment (2) in an inner periphery of the machine; and a jack (15) for causing the enlargement shield machine (18) to move forward with a reaction from a secondary segment (19) mounted on an inner surface of the enlarged tunnel. (See, Fig. 1)
4. The enlargement shield machine according to claim 3, further comprising: a rotational cutter (22a) moving reciprocately in a circumferential direction of the enlargement shield machine (22) around an outer perimeter of a primary shield segment (21) on an advancing surface of the enlargement shield machine (22). (See, Fig. 2)

[Excerpt from Detailed Explanation of the Invention and Drawings]

The present invention relates to a tunnel enlargement excavation method for providing an enlargement excavation section at every predetermined distance on the way of the tunnel and an enlargement shield machine to be used in the tunnel excavation method.

Conventionally, a method in which an enlargement planned area is provided with pits from the ground after excavation of a tunnel having a normal diameter to construct the enlargement portion by using the pits is known as the above described excavation method.

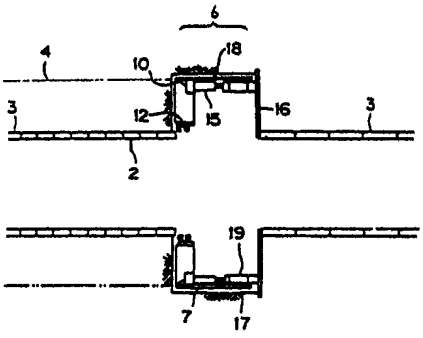


Fig. 1

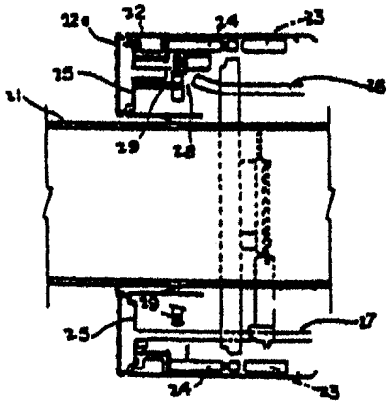


Fig. 2

[Explanation]

The invention claimed in claim 2 has the same or corresponding special technical features of claim 1.

Claim 3 and 4 recites an invention of a machine to be directly used in carrying out an invention of a method of claim 1. Therefore, the inventions in claims 1 and 3 have the same or corresponding special technical features.

Therefore, the inventions according to claims 1 through 4 satisfy the requirements of unity of invention.

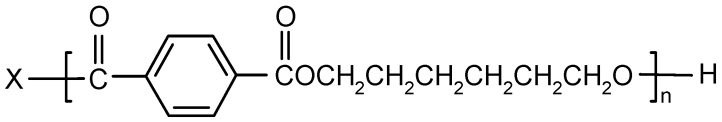
[Example 40] Markush practice

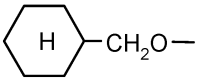
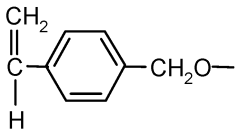
[Title of the Invention]

Poly(hexamethylene terephthalate) derivatives

[Scope of Claims]

1. A compound represented by general formula

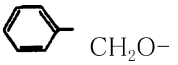


However X  is  or

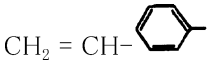
50 <= n <= 100

[Excerpt from Detailed Explanation of the Invention]

The compound obtained by the esterification of terminal carboxyl groups of the  and the well-established poly(hexamethylene terephthalate) and terminal carboxyl groups has a heat deterioration resistance characteristic due to the reduction of the number of free carboxyl groups that cause heat deterioration.

On the other hand, when the compound obtained by the esterification of the terminal carboxyl groups of the vinyl compound containing the ingredient  and the well-established poly(hexamethylene terephthalate) is stiffened by mixing with unsaturated monomer (addition reaction), it becomes a raw material for hardening agents of epoxy resins.

[Explanation]

The alternatives that are obtained by the vinyl compound containing the ingredient  does not have a heat deterioration resistance characteristic, and it cannot be deemed that all the alternatives in the claim cannot have a property or activity in common. Therefore the invention claimed in claim 1 does not satisfy the requirements for unity.

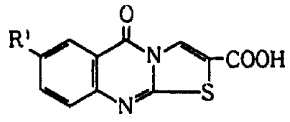
[Example 41] Intermediate and final products

[Title of the Invention]

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

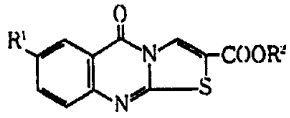
[Scope of Claims]

1. A compound indicated by general formula [I]



(In this formula, R1means a methylthio group or a methylsulfinyl group.)

2. A compound indicated by general formula [II]



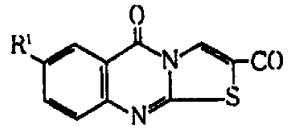
(In this formula, R^1 means a methylthio or methylsulfinyl group, whereas R^2 means a loweralkyl group).

[Excerpt from Detailed Explanation 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 invention claimed in claim 2 is an intermediate of a final compound of the invention claimed in claim 1. Additionally, such new basic skeleton



are common between both compounds. Furthermore, since the compound of the claim 1 is directly manufactured from the compound of claim 2, the inventions in claims 1 and 2 have the same or corresponding special technical features and satisfy the requirements of unity of invention.

[Example 42] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
Polynucleotides

[Scope of Claims]
1. An isolated polynucleotide comprising a DNA sequence as shown in SEQ ID NO:10.

[Excerpt from Detailed Explanation of the Invention]
This invention relates to the cDNAs between 400 - 500bp obtained from the human liver cDNA library. These polynucleotide have different structures and can be used as a probe to obtain a full-length cDNA. However there is no description of the function or biological activity of the proteins encoded by the full-length cDNA. Furthermore, the polynucleotides claimed are not homologous to each other.

[Results of the Prior Art Search]
There is no prior art available.

[Explanation]
The polynucleotides of Claim 1 would be regarded as having the same or corresponding special technical feature if all the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

In this example, the description fails to disclose that all of the polynucleotides SEQ ID NOs: 1-10 share a common property or activity. While each sequence may serve as a probe to isolate its own respective full length cDNA, due to the lack of homology between SEQ ID NOs: 1-10, a probe derived from SEQ ID NO: 1 cannot be used to isolate SEQ ID NOs: 2-10, respectively.

Moreover, since the polynucleotides are not homologous to each other, they fail to share a common structure i.e., a significant structural element. The sugar-phosphate backbone cannot be considered a significant structural element, since it is shared by all nucleic acid molecules. Therefore, the 10 polynucleotide molecules in claim 1 do not share any significant structural element and invention in claim 1 cannot be considered as having the same or corresponding technical feature and claim 1 does not meet the requirement of unity of invention.

The mere fact that polynucleotide fragments are derived from the same source is not sufficient to meet the criteria for unity of invention. The polynucleotides fail to share a common property or activity and fail to share a common structure. Since they don’t share a common property or activity and a common structure, the group of polynucleotide molecules of claim 1 does not meet the requirement of unity of invention.

[Example 43] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
Polynucleotides

[Scope of Claims]
1. An isolated polynucleotide selected from the group consisting of the nucleotide sequences SEQ ID NOs: 1-10.

[Excerpt from Detailed Explanation of the Invention]
This invention relates to the cDNAs between 400 - 500bp obtained from the human liver cDNA library. The polynucleotides of claim 1 all share a significant structural element and their corresponding mRNAs are expressed only in the hepatocytes of patients with disease Y. The corresponding mRNAs are not expressed in the hepatocytes of healthy individuals.

[Results of the Prior Art Search]
There is no prior art available. The shared structural element had not been identified before, nor had any link been established between genes expressing mRNA containing that structural element and patients afflicted with disease Y.

[Explanation]
The polynucleotides of claim 1 would be regarded as having the same or corresponding technical feature if the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

In this example, the description discloses that SEQ ID NOs:1-10 share a common property, that is, expression of an mRNA present only in patients afflicted with disease Y. Moreover, SEQ ID NOs: 1-10 share a significant structural element that is essential to the common property, i.e., a probe comprising the shared structural element can detect the mRNA of patients afflicted with disease Y. Since both of these requirements are met, the group of polynucleotide molecules of claim 1 have the same or corresponding special technical feature and meets the requirement of unity of invention.

[Example 44] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
Single Nucleotide Polymorphisms (SNPs)

[Scope of Claims]
1. An isolated nucleic acid molecule comprising SEQ ID NO: 1 with a single polymorphic change at one of the positions as shown below:

Polymorphism	Specific position from SEQ	Change ID NO: 1
1	10	G
2	27	A
3	157	C
4	234	T
5	1528	G
6	3498	C
7	13524	T
8	14692	A

[Excerpt from Detailed Explanation of the Invention]
SEQ ID NO: 1 is 22,930 nucleotides in length. The SNPs 1-8 are not characterized, that is, no common property or activity has been disclosed.

[Results of the Prior Art Search]
SEQ ID NO: 1 has been described in the prior art but no specific function has been identified.

[Explanation]
The polynucleotides of claim 1 would be regarded as having the same or corresponding technical feature if the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

In this example, the description fails to disclose that all of the SNPs 1-8 share a common property or activity. The fact that all point mutations are within a nucleic acid molecule of SEQ ID NO: 1 is not sufficient to establish unity of invention since SEQ ID NO: 1 has already been described in the prior art, and no functional relationship exists among the different SNPs claimed. For this reason, the SNPs of claim 1 lack unity of invention.

[Example 45] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
A fusion protein which can induce an antibody for Escherichia coli

[Scope of Claims]
1. A fusion protein comprising carrier protein X linked to a polypeptide having SEQ ID NO: 1, 2, or 3

[Excerpt from Detailed Explanation of the Invention]
Carrier protein X is 1000 amino acids in length and functions to increase the stability of the fusion proteins in the blood stream. SEQ ID NOs: 1, 2, and 3 are small epitopes (10-20 residues in length) isolated from different antigenic regions of E.coli. However SEQ ID NOs: 1, 2, and 3 do not share any significant common structure.

[Results of the Prior Art Search]
Both the structure of protein X and its function as a carrier protein are known in the prior art. Fusion proteins that generate an antigenic response to E. coli are known in the prior art.

[Explanation]
The fusion proteins of claim 1 would be regarded as having the same or corresponding technical feature if the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

In this example, the only common structure shared by the fusion proteins is carrier protein X. The fusion proteins share a common property, i.e., generation of an antibody response specific for E. coli. However, immunization with the carrier protein alone does not result in the common property; SEQ ID NO: 1, 2, or 3 is required for this property.

In this instance, the fact that all three fusion proteins have a common property is not sufficient to establish unity of invention. This is because SEQ ID NOs: 1, 2, and 3, which impart the common property, do not share a significant structural element, the common structure, carrier protein X, does not impart the common property to generate an antibody response specific for E. coli,, and fusion proteins that generate an antigenic response specific for E. coli are known in the prior art. Therefore, the fusion proteins of claim 1 lack unity of invention.

[Example 46] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
Nucleic acids that encode dehydrogenases

[Scope of Claims]
1. An isolated nucleic acid selected from SEQ ID NO: 1, 2, or 3.

[Excerpt from Detailed Explanation of the Invention]
The three nucleic acids encode dehydrogenases that include a conserved sequence motif defining the catalytic site and the dehydrogenase function of these proteins. The three nucleic acids were isolated from three different sources (mouse, rat, and human). These three nucleic acids are homologous based upon their overall sequence similarity (85-95% identity) at both the nucleotide and amino acid sequence levels.

[Results of the Prior Art Search]
The prior art describes a nucleic acid molecule isolated from monkeys, which has high sequence similarity (e.g., 90%) to SEQ ID NO: 1. The monkey nucleic acid encodes a dehydrogenase that includes the catalytic site defined by the conserved motif.

[Explanation]
The nucleic acids of claim 1 would be regarded as having the same or corresponding technical feature if all the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

However, in this example, a nucleic acid molecule which encodes a dehydrogenase and contains the shared structural element has already been isolated from a different source (monkeys). Thus, the technical feature is not special because the functional and structural similarity between the claimed molecules cannot form the contribution that the group of inventions as a whole makes over the prior art. Therefore, unity of invention is lacking with the nucleic acids of claim 1.

[Example 47] Example Relating to Unity of invention in the Field of Biotechnology

[Title of the Invention]
Method of screening and compounds identified by the method

[Scope of Claims]
1. A method to identify compounds that are antagonists of receptor R comprising the steps of:
process 1: a process to contact cells expressing on their outer membrane receptor R with its natural ligand;
process 2: a process to contact said cells bound to said ligand with a candidate compound selected from a library of compounds; and
process 3: a process to observe any change in the binding of the ligand.
2. Compound X, having formula 1.
3. Compound Y, having formula 2.
4. Compound Z , having formula 3.

[Excerpt from Detail Explanation of the Invention]
Receptor R and its natural ligand are proposed as a drug target. Compounds that antagonise receptor R are proposed to have physiological effects that may be useful in therapeutic treatment. The aim of this invention is to identify lead compounds as a basis for further screening and testing of combinatorial libraries. A library is described as providing many possible structurally different compounds. Method of claim 1 can be used to identify compounds affecting the physiological effect of binding of the natural ligand to the receptor.

In reality, only compounds X, Y and Z were shown to have such effects, but they do not appear to share a significant structural element. The relationship between the structure of compounds described in claims 2~4 and the antagonistic function, and the relationship between the antagonistic function of the compounds and the structure of receptor R are unknown.

[Results of the Prior Art Search]
Receptor R, its biological functions, and its natural ligand are already well known, but compounds that act as an antagonist of receptor R are unknown.

[Explanation]
The special technical feature of method mentioned in claim 1 resides in the step of observing the effect of the candidate compounds on ligand binding in a screening assay.
Neither the same nor a corresponding special technical feature is present in any of compounds X, Y, or Z described in claims 2~4.

The screening method of claim 1 is neither a method of manufacturing nor a method for using the compound X, Y or Z described in claims 2-4. In the absence of any teaching as to the structure required for a compound to act as a receptor R antagonist, there is no single general concept that links the method to the claimed compounds described in claims 2~4. Thus, unity of invention is lacking.

Compounds X, Y, and Z described in claims 2~4 would be regarded as having the same or corresponding technical feature if all the alternatives had a common property or activity, and shared a significant structural element that is essential to the common property or activity.

While compounds X, Y, and Z do share the common property of antagonising receptor R,

there is no teaching as to a shared significant structural element, and hence, there is no disclosure of the same or corresponding special technical feature. Therefore, the compounds described in claims 2-4 do not meet the requirements of unity of invention.

[Example 48] Example Relating to Unity of invention in the Field of Biotechnology

[Title of invention]

Interleukin-1 and DNA that encodes the said interleukin-1

[Scope of Claims]

1. Isolated interleukin-1 with the amino acid sequence of SEQ ID NO: 1.
2. Isolated DNA molecules encoding interleukin-1 described in claim 1.

[Excerpt from Detailed Explanation of the Invention]

This invention relates to interleukin-1 which is water-soluble cytokine related to lymphocytic activation. Interleukin-1 is isolated and purified for the first time by this invention. SEQ ID NO 1 shows an amino acid sequence of the said interleukin-1, while SEQ ID NO: 2 shows the base sequence of the DNA molecules encoding of the said interleukin-1.

[Result of Prior Art Investigation]

There is no available prior art.

[Explanation]

Since the DNA molecules described in claim 2 encodes interleukin-1, the interleukin-1 and the DNA molecule that encodes the said interleukin-1 may define a contribution over the prior art. Therefore, claims 1 and 2 meet the requirements of unity of invention.