Knowledge of Patent Classifications

Japan Patent Office

Asia-Pacific Industrial Property Center, JIPII

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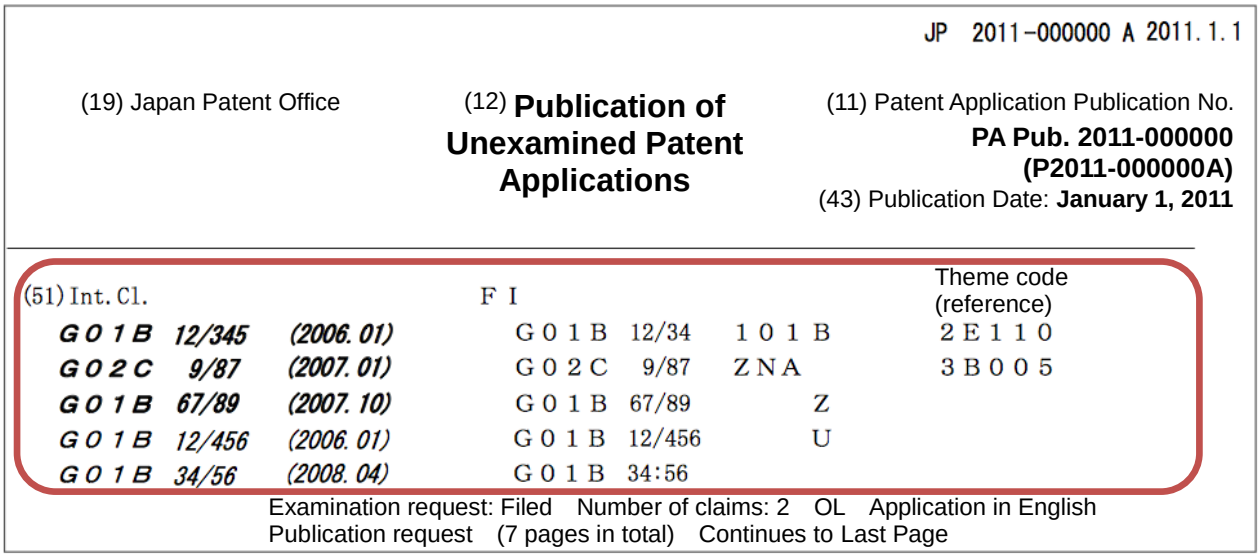
1. What is Patent Classification?



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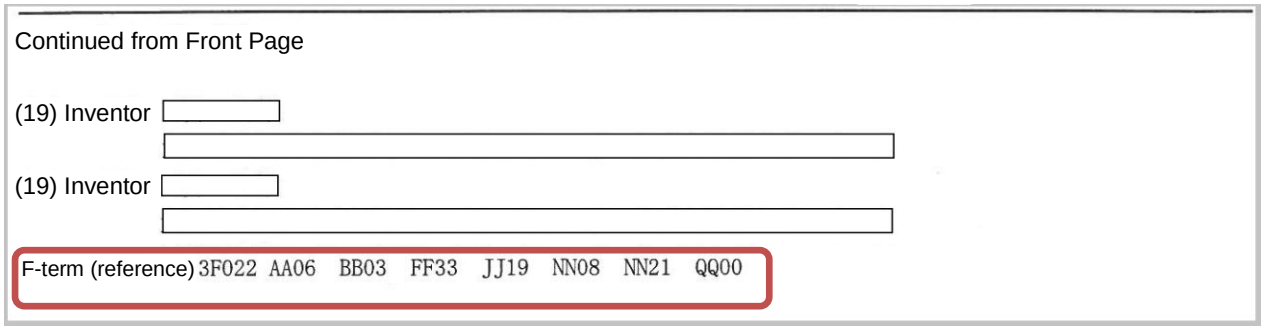

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The portions indicate the patent classifications (IPC, FI and F-term) presented in a Publication of Unexamined Patent Applications of Japan.

1.1 Objectives of Patent Classification

1.1.1. Classification of Information

Various general information needs to be collected from numerous technical documents published over the world (including data in electronic and other media; the same hereinafter); the information thus collected needs to be accumulated; and any of the accumulated information needs to be accessible.

To ensure the efficient use of such information, it is vital that the information be systematically classified in the phase of publication or collection of technical documents that contain useful information. The merits and demerits of the classification system applied play an important part in determining how much the user can take advantage of the information contained therein.

1.1.2. What is Patent Information?

Patent information is published in official gazettes as patent literature resulting from patent applications filed in various technical fields around the world.

This information, which includes application information, right information and technical information, is as valuable as general information, and needs to be collected, accumulated and accessed as appropriate.

1.1.3. Use of Patent Information

The main purpose of a patent application is for examination by a patent office examiner in order to obtain patent rights. The examination involves identifying the technical field that the patent application falls into, as well as the technical scope upon which a prior art search should be performed. Within the technical scope thus identified, patent documents are searched mainly in order to collect information regarding publicly known prior arts and generally known conventional arts.

Once granted through examination, the patent application is published as right information in patent literature, and as within application and technical information within patent literature in many countries after a certain period following application. This published patent literature can serve not only as literature including technical information that is necessary for examination, but also as essential information sources for businesses, researchers and developers in order to explore possible conflicts within rights and technology development trends for use in developing management, business and development strategies.

It is therefore indispensable for published patent documents to be systematically classified by technical field, so that patent office examiners, businesses, researchers and developers can efficiently access patent documents containing patent information such as valuable rights, applications and technical details.

In order to extract all necessary information from the vast amount of patent literature available, it is also essential that the classification system take advantage of the most advanced information-processing capabilities by enabling effective searches.

1.1.4. Roles of Patent Classification System

Patent classification systems were developed in response to the above-mentioned needs, and are indispensable for ensuring rapid and accurate examination by classifying all patent applications and documents. They also play an essential role in collecting information regarding rights, applications and technical data from patent documents for businesses, researchers and developers in order to develop various strategies.

1.2. Patent Classification

As mentioned above, patent applications and other documents to be classified are examined (or prepared for examination) at the JPO. It is the JPO's responsibility, therefore, to allot patent classification symbols to such documents.

1.2.1. Patent Classification in Japan

In Japan the JPO classifies inventions and presents them with their classification symbols, as shown in the sample at the beginning of this chapter, when published in the Unexamined Patent Application Publication 18 months after the application is filed.

Since the examined patent publication often contains information corrected during examination, the invention is classified and then published based upon the scope of claims for which the examiner (or trial examiners) in charge decided to grant a patent.

1.3. Use of Patent Classification System

1.3.1. Use of Patent Classification System by JPO

At the JPO, which is responsible for examining patent applications, the examiner needs to understand the technical content described in the specifications and drawings attached to the application, and to search all publicly known prior arts pertinent to the invention described in the claims of the application, as well as referring to applicable laws, regulations and examination standards in order to properly judge whether the invention has novelty and an inventive step over publicly known and generally known prior arts.

Therefore, the JPO uses a patent classification system mainly to search for prior arts pertinent to the technical fields of the inventions under examination.

In Japan, original classification schemes (as described later) are in place for this purpose: the FI (File Index: subdivision symbols and file discrimination codes) subdivision scheme based on the IPC, the facet classification scheme, and the F-Term scheme, a search index system optimized for mechanical retrieval. In combination with these classification schemes, full-text search functions can be used as well.

In addition, non-patent technical documents in some fields are compiled into a database by being suitably classified for search during examination.

1.3.2. Use of Patent Classification System by Businesses

In order for businesses to pursue strategic research and development (R&D), it is crucial to ensure more efficient R&D by avoiding wasted investments in costly R&D projects as much as possible. It is also vital to identify their own strengths and weaknesses to distinguish them from their competition; select areas of superiority; and concentrate their resources on them. To this end, businesses need to comprehensively understand the following: technological trends in the

technical field of their R&D projects; proceedings and distribution of the R&D projects regarding each technology component; and the characteristics of the relevant businesses' R&D approach. Mostly, such understanding can be clearly gained through analysis of domestic and foreign prior art information, with a focus placed upon patent information.

It is fundamental business strategy to check that products intended for sale within domestic and foreign markets do not infringe the patent rights of other businesses before commercialization. To this end, businesses must search all patent rights within the technical field pertinent to the products concerned as essential preparation for bringing them to the marketplace.

To ensure the swiftness and accuracy of such domestic and foreign searches, most Japanese businesses routinely carry out prior art searches using the universal IPC. Many advanced businesses have more efficient retrieval systems in place that combine the IPC symbols related to their products and their proprietary product classification scheme. More advanced businesses also have a department that specializes in patent searches, including a staff of search specialists.

1.3.3. Use of Patent Classification System by Universities, etc.

Being innovative is obviously important for R&D at universities and research institutions. Universities and research institutions lagging behind in research competition may have to change their research policies or may sometimes be forced to give up their current research projects. In addition, many institutional research projects comprise seed research that may produce unprecedented novel results that suddenly go public.

In this way, universities and research institutions must always confirm whether their own research projects remain innovative. To this end, they must pay attention not only to research information published in papers, but also to the domestic and foreign patent information arising from corporate research.

Although universities and research institutions need to search using the IPC, not all researchers have currently recognized the importance of patent searches.

1.4. Patent Classification Schemes Adopted in Japan

Japan has completely adopted the IPC, which the country subdivides by adding its original FI and facet classification symbols. It has also developed original search indexes called F-terms for computerized retrieval, which are also allotted to each document.

The IPC, FI, facet classification, and F-term schemes will be described later.

1.4.1. International Patent Classification (IPC)

In the past, each country set up its own classification system, based on which the country classified its own patent documents. As international technological exchange became more active, however, with the use of foreign patent documents increasing in many countries, the existence of such individual classification systems hindered the smooth use of patent documents—particularly

foreign ones—since each individual country was required to learn the pertinent foreign patent classification systems and to convert foreign patent documents to its own domestic classification system.

Under such circumstances, the International Patent Classification (IPC) was created in order to enable every country to use the same common classification system. The first objective of the IPC is to set up a classification scheme and rules in order for every patent office around the world to search the patent documents of any country under a common system to evaluate novelty and inventive step.

Further, the IPC's other objectives include serving as a tool for easy access to the technological information contained therein, as well as providing a basis for spreading patent information, exploring the state of the art in given technical fields, and preparing statistics that can be used to evaluate technological developments within various fields.

1.4.2. FI (File Index)

The IPC is originally used in an internationally uniform manner according to the basic points as described above. In Japan, however, additional subdivision and file discrimination codes have been created to respond to the technical circumstances unique to the country.

Japan has some unique technologies and more advanced technological developments than other countries. For these reasons, if the IPC is adopted as it is, numerous patent documents may be collected in one group—thereby causing problems when searching within certain technical fields.

As a result, the JPO has adopted an IPC-based original classification scheme called the FI wherein IPC symbols are followed by additional subdivision and file discrimination codes. This scheme, which is used exclusively in Japan as a means of facilitating IPC searches, includes 189,000 entries.

1.4.3. Facet Classification Symbols

The relationship between the FI and the facet classification symbols is similar to that between IPC symbols and indexing codes.

A facet classification symbol is provided within the entire scope or a prescribed scope of the FI from an aspect different from the FI subdivision. The facet classification symbol consists of three alphabetical letters.

The first alphabetical letter of the symbol is normally the same as the corresponding section symbol. However, the letter "Z" is used as the first alphabetical letter in a broad facet classification symbol that represents a plurality of fields. The second and third alphabetical letters may be any of the alphabetical letters except "I" or "O."

1.4.4 F-Terms

The term “F-term” (File Forming Term) refers to a search index for computerized retrieval that was developed to accelerate prior art searching in patent examinations to address a remarkably increased number of documents, as well as technological developments including technological combination, integration and product diversification.

In some technical fields, the FI alone is too broad in coverage to allow for efficient searches. Especially within emerging technical fields, numerous prior art documents must be searched even within the scope of a single FI. An F-term is a subdivision of the FI from various technical aspects for each specified technical field, characterized by allowing analysis and allocation from multiple technical viewpoints. An F-term is allocated to each document based on the understanding of technical matters in patent information (patent gazettes, etc.) by checking against an F-term list that includes technical viewpoints (purpose, use, structure, material, manufacturing method, processing method, control means, etc.).

Originally, during the times when paper files were used for searching before the development of a computerized retrieval system, materials for prior art searches were managed by rearranging the files within which such materials were contained, or by creating a file including a photocopy of a patent gazette from a new technical viewpoint. Eliminating the limits of such use of paper files, the F-term retrieval system is designed in such manner that a computerized virtual file (a set of documents to be screened) can be created and rearranged by changing a combination of F-terms in each case. Unlike the IPC or FI, an F-term is primarily intended for combined use with another or other F-terms, and in many cases, is designed to narrow down the number of documents in the “virtual file” as targets for searching by use of the logical product of the F-terms involved. The purpose is to narrow down the search targets to a number that allows the screening of relevant prior art documents (from dozens to hundreds of documents, depending on the technical field).

At present, the F-term scheme has been maintained in about 70 percent of all technical fields. The F-term list is reviewed every year in technical fields that need such review to address changes in technological trends and the increased volume of accumulated documents.

1.4.5. Other Patent Classification Systems

European Patent Classification

The European Patent Classification (ECLA) is a patent classification system that the European Patent Office (EPO) created by subdividing the IPC with added original subgroups. The EPO has classified patent applications from European countries in this system, which comprises about 130,000 entries.

A subdivision symbol takes a hierarchical structure using one or more dots, as with the IPC and the FI. The number of letters of the symbol represents the depth of the hierarchical level. (For example, A47L9/28B of the ECLA indicates one level lower than A47L9/28 of the IPC, and A47L9/28B2B indicates three levels lower than A47L9/28.)

The IPC and the ECLA have in common the fact that both classification systems are adopted

for use in searches in the official gazettes of multiple countries and authorities. While the patent office of each country classifies items in the IPC, however, leading to differences in classification standards depending on the country, only the EPO classifies items in the ECLA, resulting in zero variance in the classification standards—at least for European patent applications and domestic patent applications in the countries within the region.

The United States and Europe shifted to a new classification system in January 2013 known as the “Cooperative Patent Classification” (CPC) based on the ECLA, ICO (In Computer Only) and United States Patent Classification (USPC) systems. The ECLA has therefore fallen out of use.

2. International Patent Classification (IPC)

2.1. Layout of the IPC

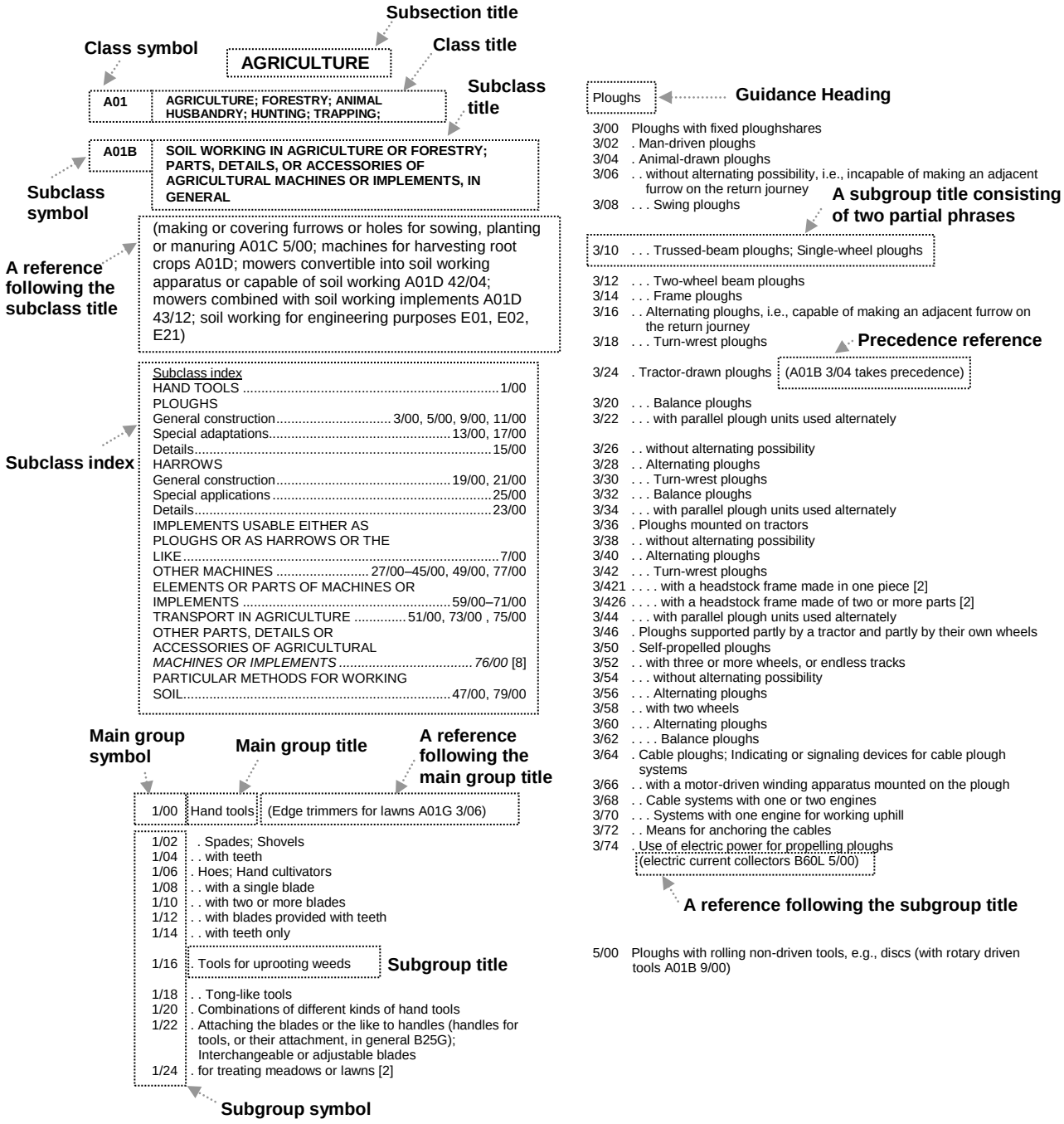
2.1.1. Classification Entries

2.1.1.1. Classification Schemes

The following is an excerpt from the beginning of a classification scheme.

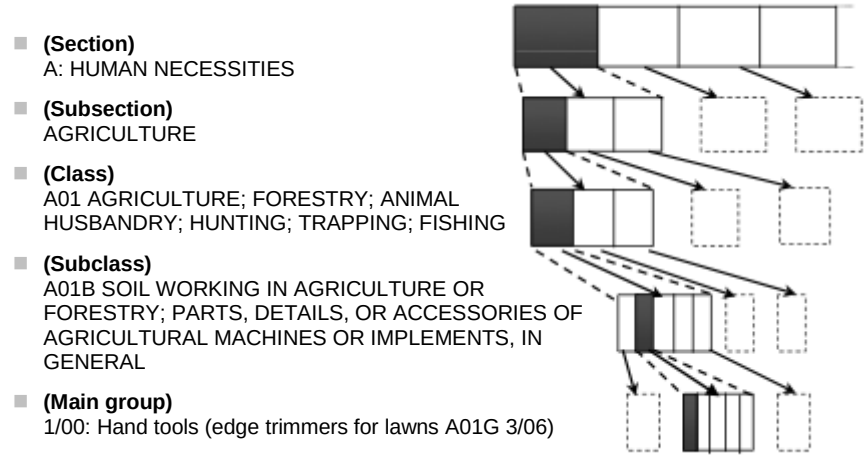
The terms used in this excerpt are described below.

Fig. 1



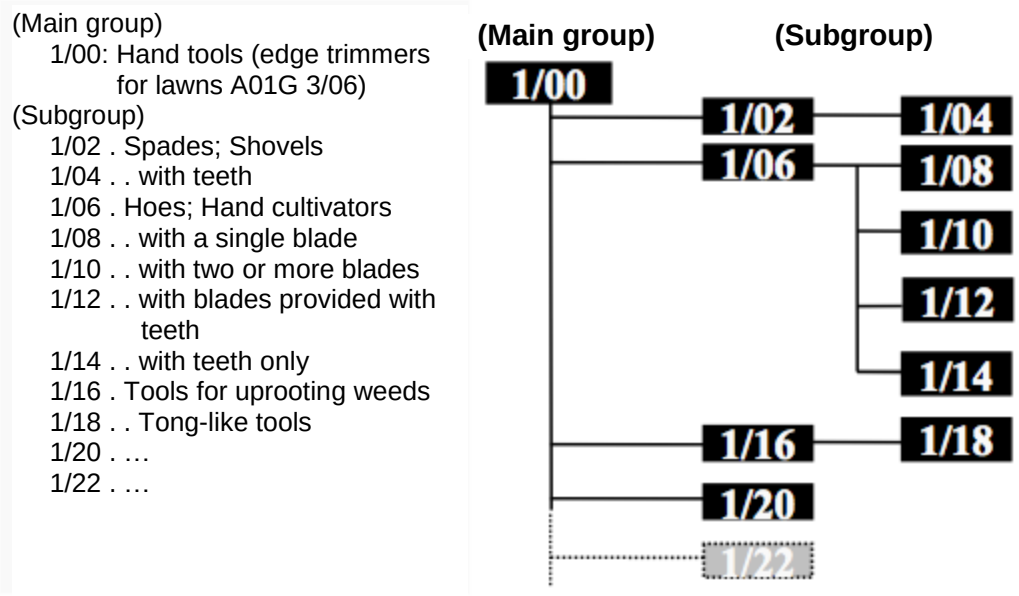
2.1.1.2. Structure of Classification Entries

Classification entries hierarchically subdivide all technical fields regarding the invention, as shown in the following figure:



Main groups are subdivided into subgroups, which are segmentalized with the number of dots before the title, as shown in the following figure.

Fig. 3 Segmentation of main group and subgroup



Section and Subsection

All fields of technology subject to patenting are divided into eight sections. Each section is presented with a capital letter (from A through H) and a section title.

Within individual sections, informative headings form subsections presented with titles without classification symbols.

Class

Each section is subdivided into classes, which are each presented with the section symbol

followed by a two-digit number.

The section and class titles give only an informative summary, not a precise definition, of the content of their respective hierarchical level.

Subclass

Each class is subdivided into subclasses, which are each presented with the class symbol followed by one capital alphabetical letter and a subclass title.

The subclass title defines as precisely as possible the content of the subclass.

Main Group

Each subclass is subdivided into main groups, which are each presented with the subclass symbol followed by a one- to four-digit number, an oblique stroke and the number 00, and a group title.

Subgroup

Each main group is subdivided into subgroups, which are each presented with the main group symbol but with its last two digits other than 00, and a title preceded by one or more dots indicating the hierarchical position of that subgroup.

2.1.1.3. Interpretation of the Title of Each Hierarchical Level

Each IPC hierarchical level has a title. There are several cautions in interpreting the titles.

Section, subsection and class titles

The section, subsection and class titles give a broad classification, not a precise indication, of the content of their respective hierarchical level.

Subclass and group titles

The subclass and group titles define as precisely as possible the content of their respective hierarchical level, considering relative references and notes. The main group and subgroup titles are subject to the limitations of the title of their upper level.

Example: Section A, entitled “HUMAN NECESSITIES,” includes tobacco products. It is pointless, however, to discuss whether or not tobacco products are human necessities. Meanwhile, subclass A24C is entitled “MACHINES FOR MAKING CIGARS OR CIGARETTES,” under which all subdivisions should have any technical matter falling under this subclass title.

2.1.1.4. Scope of Classification for Upper and Lower Groups

Matters included within the subgroup level or lower are specific matters extracted from the

upper levels. Matters not included in any lower group, or with too broad a scope of technical matters to belong to a specific lower group, are classified into their hierarchically superior group.

2.1.1.5. Notes and References

“Notes”

Although each subclass/group title indicates the content of that level as precisely as possible, the scope of classification and terms used therein are explained or defined in a note if necessary. If the classification system is complicated, a note is added to explain the general principle of classification for applying a certain set of rules to classification, in order:

- to show how to define the scope of classification and to classify;
- to define specific terms;
- to show priority rules and indexing codes; or
- to explain basic principles.

“References”

The class, subclass/group title, or note may include a reference in brackets, which falls under one of the following types:

- Limiting reference: This specifies the subject matter that is taken to another place where it is covered, even though it is apparently covered by the title of the place where the reference appears.
- Precedence reference: This indicates that when the subject matter is classifiable in two places, or when different aspects of the subject matter to be classified are covered by different places, the subject matter should be classified in only one of those places.
- Guiding reference: This helps the user when classifying or searching for technical matters.

Considerations for interpretation of references

- A reference is placed at the end of the title to which it belongs.

  Where a reference follows a title consisting two or more distinct parts separated by semicolons, attention must be paid to the scope of places to which the reference relates.

  In the form “Title A; Title B (Reference),” the reference relates to both titles A and B.

  In the form “Title A (Reference); Title B,” the reference relates only to title A.
- A reference following the title of a class, subclass or group relates to all of the hierarchically inferior levels.
- Where only a group number is presented without the indication of a subgroup, a reference refers to a cross-reference among the groups within the same subclass.
- Where a reference quotes a group, it is not necessarily the only relevant group. Subgroups, if any, of the group quoted are also relevant to that reference.
- Where two or more items of the subject matter are referred to the same place, they are

separated by a comma, with the classification symbols of that place given only at the end of that reference.

- References relating to different items of subject matter referred to different places are separated by a semicolon, and are to be read independently.
- Where two or more items of subject matter are referred to different places and a substantial part of their wording is the same, the common wording is given once and the different symbols are separated by a comma.

2.1.1.6. Meanings of Terms and Symbols Used in Titles

Multipart title

Some titles may be separated by semicolons. This type of title is used when it is considered desirable to treat distinct kinds of subject matter together when they cannot be covered conveniently by a single phrase.

Example: A41D 10/00 Pajamas; Nightdresses

“A and B”; “A or B”; “Either A or B, but not Both”

“A and B” requires the presence of both A and B in the same example or embodiment; “A or B” implies the presence of A or the presence of B, or the presence of A and B in the same example or embodiment; and “either A or B, but not both” implies the presence of A or the presence of B but not the presence of both A and B in the same example or embodiment.

“i.e.”

The expression “i.e.” has the sense of “equals,” and the two phrases joined by “i.e.” are to be considered one of the phrases constituting a definition of the other.

“In general”

The expression “in general” is used when indicating things that are considered for their characteristics, disregarding any specific application, or that are not specially adapted for any particular use or purpose.

“Per se”

The expression “per se” concerns only an item of the subject matter itself, as opposed to a combination of which that item is a part.

“Specially Adapted for”

The expression “specially adapted for” is used when indicating things that have been modified or particularly constructed for the given use or purpose.

“Or the Like”

The expression “or the like” is sometimes used to emphasize that the classification place in question is not limited to the specific subject matter as specified by the wording, but that it also covers similar subject matter with essentially the same characteristics.

“… Covered by More than One of the Main Groups”

Such groups provide for subject matter that consists of combinations of characteristics not covered as a whole by a single one of the groups specified, but any of the characteristics covered by any of the groups.

“…Not Covered by Any Single One of the Main Groups”

Such groups provide for subject matter that consists of combinations of characteristics not covered separately or as a whole by a single one of the specified groups.

“Not Otherwise Provided for”

This expression means “not provided for in any other group in the same subclass or in any other subclass.”

“Other...”; “… Not Provided for in Groups”

Groups with titles including either of these expressions cover subject matter that is not provided for in any of the groups in the same subclass.

“Details”

Where a title contains this word, details are classified that are common to apparatus in the same hierarchical level as the place with that title.

Therefore, details characterized by only particular apparatus are classified into the classification place of that apparatus.

Other terms

The IPC guide includes a glossary with terms used in the IPC that have multiple meanings or that need some explanation.

However, the glossary does not present the strict definitions of all the classification places where the terms included therein are used. In interpreting any of the terms in practice, it should be kept in mind to read around the context of the classification place where the term is used.

2.1.1.7. Function-Oriented and Application-Oriented Places

The IPC represents classifying in function-oriented and application-oriented places.

Function-oriented places refer to those that cover “things” only characterized by the functional

or constructional aspects, either independent of a particular field or purpose of use.

Application-oriented places refer to those that cover “things” specially adapted for particular purposes or with special manners of use.

Example:

Function-oriented place: a classification place characterized by a valve structure that does not depend on the particular fluid passing through.

Application-oriented place: a classification place for a valve designed for insertion into a human heart.

Function-oriented and application-oriented places are not clearly defined places in the IPC.

These expressions are regarded as relative, to be used when comparing particular classification places.

When it is unclear whether to classify a technical subject into a functional-oriented or an application-oriented place, the following should be observed:

a. If a particular application is mentioned but not fully identified, or if various applications are broadly stated, classification should be made in the function-oriented place.
b. If the subject has essential technical characteristics and its particular use is mentioned, classification should be made in both the function-oriented and the application-oriented places.

2.1.2. Indexing Codes

Indexing codes, which were introduced in the fourth edition of the IPC, should be additionally applied to identify information elements in detail regarding technical subjects within particular classification entries.

2.1.2.1. Functions of Indexing Codes

Indexing codes identify not only technical information elements of ordinary classification symbols, but also elements such as those below:

- Materials of the apparatus
- Shapes of the apparatus
- Radicals constituting the chemical compound

2.1.2.2. Indexing Schemes

Each group of indexing codes is referred to as an indexing scheme, consisting of elements with different aspects from the classification scheme.

Classification entries where indexing codes are desirable are accompanied with a note or heading recommending the indexing scheme from which indexing codes should be added.

2.1.2.3. Presentation of Indexing Codes

Indexing codes have a format similar to classification symbols. Each code consists of the subclass symbol followed by two numbers separated by an oblique stroke (example: F21Y 101/00). As a rule, indexing codes are numbered with the numbers 101/00 onward, but some exceptions are possible (including C12R and B29R).

2.2. Rules for Selection of Classification Places

Since the IPC has a hierarchical classification structure, a step-by-step approach can be taken for determining the classification places in descending order. It is relatively easy to select a subclass or hierarchically higher positions, although selecting a group involves confirming the structure of and the applicable classification rules in the IPC.

The classification rules are based on the principle that one and the same technical subject can be classified in one and the same place in the IPC.

2.2.1. Large and Small Patent Offices

When classifying items in the full IPC, large patent offices use all hierarchical levels up to the subgroup level, while small patent offices, which classify a smaller number of patent documents, use only the main group level. This can optimize the load of classification and searching that each country will bear, depending on the number of patent documents it handles.

2.2.2. General Classification Rules Used in Subclasses

If the technical subject is completely covered by only one group, the subject is classified in that group regardless of the classification rules specified below.

If two or more subjects of the invention are disclosed in one patent document, each subject is classified separately.

If a subcombination of the subject of the invention is novel and non-obvious in itself, it is classified separately according to the general rule used in the subclass.

“Processes”; “Apparatus”

Even if the title of a place includes the term “process,” the apparatus is classified in that place when it is covered in no other classification place. Similarly, even if the title of a place contains the term “apparatus,” the process may be classified in that place.

If no place exists for the manufacture of a product, the manufacturing apparatus or process is classified in the place covering the product.

Articles of Manufacture

When the subject of the invention concerns an article, it is classified in the place for that article. If no place exists for the article itself, it is classified in the place according to the function

performed by the article or, if this is not possible, according to the field of use.

Multistep Processes, Industrial Plants

When the subject of the invention concerns a multistep process or an industrial plant that consists of a combination of process steps or apparatus, respectively, it is classified as a whole—that is, in a place provided for such combination. If no such place exists, it is classified in the place for the product obtained by the process or plant.

When the subject of the invention also concerns each element of the combination, each element is also classified separately.

2.2.3. Three Types of General Classification Rules Used in Subclasses

a. Common Rule

The common rule is applied to classification where the following classification rules b and c are not specified.

Under the common rule, technical subjects can be classified with the following principles applied: groups for more complex matter take priority over groups for less complex matter, and groups for more specialized subject matter take priority over groups for less specialized subject matter.

For example, groups for combinations of technical subjects take priority over groups for subcombinations.

b. Priority Rules

First Place Priority Rule

According to this rule, a technical subject of the invention is classified by successively locating, at each hierarchical group level, the first group covering any portion of the technical subject with the lowest number in the group symbol.

Classification schemes where this rule has been applied include a standardized sequence of groups. This sequence follows the principle of proceeding from the most complex or specialized subject matter at the top of the group to the least complex or specialized subject matter located at the bottom.

Last Place Priority Rule

According to this rule, a technical subject of the invention is classified by successively locating, at each hierarchical group level, the last group covering any portion of the technical subject with the highest number in the group symbol.

Classification schemes where this rule has been applied include a sequence of groups that follow the principle of proceeding from the least complex or specialized subject matter at the top of the group to the most complex or specialized subject matter located at the bottom.

c. Special Rules

In some classification schemes, special rules are applied that override the rules mentioned above.

2.3. Presentation of the IPC

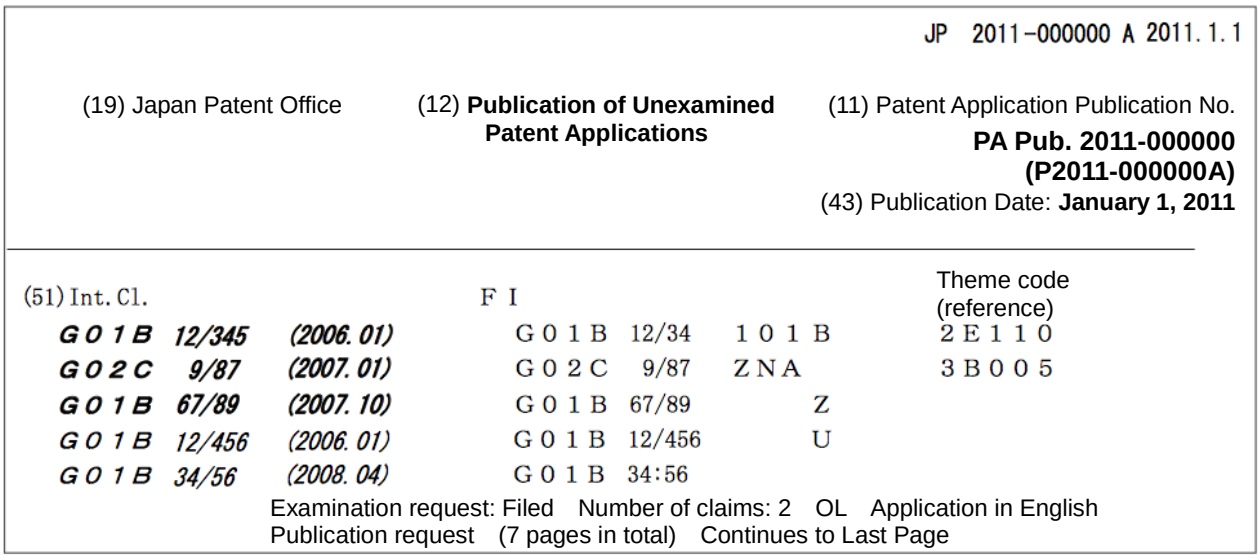
The official abbreviation for the IPC indicated in a patent document is “Int.Cl.” This abbreviation is to be placed before the classification symbol for a document classified by the IPC.

When being classified in the full IPC, each IPC symbol should be followed by the parenthesized version notation stating when the IPC symbol was established or revised, as follows: (YEAR.MONTH).

The font styles used in classification symbols have the following respective meanings:

- Italics: Information classified in the full IPC
- Non-italics: Information classified in the main groups only
- Bold: Classification symbol for invention information
- Non-bold: Classification symbol for additional information

Example of Japan’s publication of patent application



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G01B 12/345	*(2006.01)*	G01B 12/34	101B		2E110
G02C 9/87	*(2007.01)*	G02C 9/87	ZNA		3B005
G01B 67/89	*(2007.10)*	G01B 67/89		Z	
G01B 12/456	*(2006.01)*	G01B 12/456		U	
G01B 34/56	*(2008.04)*	G01B 34:56			

Examination request: Filed Number of claims: 2 OL Application in English
Publication request (7 pages in total) Continues to Last Page

In the example shown above, the classification symbols indicating invention information are: G01B 12/345, G02C 9/87 and G01B 67/89. Those indicating additional information are: G01B 12/456 and G01B 34/56. In Japan, all classification symbols are in italics since classification is performed in the full IPC.

2.4. Recent Reform of the IPC

2.4.1. Reform of the IPC from 7th to 8th Edition

The IPC was used as one purpose of developing an effective patent document search tool for

patent office examiners, applicants and other users. However, there was a problem with the IPC: it was so broad that substantial searching was too difficult for large patent offices that had massive numbers of documents; and it was so detailed that the load of classifying was too great for small patent offices that had small numbers of documents.

Furthermore, another problem arose from large patent offices setting up their original classification systems to ensure more efficient searching within their own countries. The offices had to become proficient in the original classifications of other foreign countries, or had to have foreign patent documents classified into their original classifications. It was also pointed out as problematic that reform every five years was not quick enough to provide search capabilities that were suitable for coping with rapid technological advancements.

Under such circumstances, the Committee of IPC Union Experts (the "Committee of Experts") decided at its March 1999 meeting to launch a reform of the IPC. As a result of this reform, the IPC 8th edition took effect in January 2006, with the major changes introduced below.

2.4.1.1. Division of the IPC into Two Levels

The IPC 8th edition was divided into an "advanced level" and "core level."

The advanced level, a classification to be made by large patent offices including the JPO, allowed for revisions every three months (January 1, April 1 and July 1) in order to cope flexibly with technological developments. A special subcommittee of the Committee of Experts was established as an organization to amend the advanced level, and its constituent members were the international secretariat and three patent offices (the JPO, EPO, and US Patent and Trademark Office, or USPTO)—whose load for reanalyzing the PCT Minimum Documentation exceeded 20% of all documents. Amendments to the advanced level were prescribed to take effect only after reclassification of the patent documents according to the amendments approved by the special subcommittee.

On the other hand, the core level was prescribed as a stable classification that could easily be made by small to medium patent offices, with the number of classification entries narrowed down to around 30% of the advanced level. The core level was to be amended upon adoption by the Working Committee for IPC Revisions and approval by the Committee of Experts. In the three-year revision cycle, revision for the level took effect in 2009.

2.4.1.2. Reclassification of Previously Published Documents by the Latest Edition of the IPC

Until the IPC's 7th edition, patent documents were classified in an official gazette by the IPC valid at the issuance of that official gazette. Searches required the use of the IPC edition valid at the issuance of the official gazette in order to be searched.

Consequently, it was prescribed from IPC's 8th edition onwards that the PCT minimum documentation be reclassified according to the latest IPC edition to enable searching of all official gazettes using the latest IPC.

2.4.1.3. Review of Classification Rules

It is preferable that dispersion in classification be small and stable in order to improve the convenience of the IPC. For this reason, considerations have been given to make the rules for classification simpler and clearer. A “First Place Priority Rule” was introduced as a result, and it was prescribed as a general regulation that this rule be applied to fields where the IPC is to be revised in the future.

2.4.1.4. Standardized Sequence of Classification Entries

The Standardized Sequence is a sequence arranged according to the principle of proceeding from the most complex or specialized subject matter at the highest hierarchy of the classification group to the least complex or general subject matter at the lowest hierarchy. This sequence has been introduced into fields in which the First Place Priority Rule is to be applied.

Even in technical fields where the Standardized Sequence is not adopted, a function to sort and display the main groups into the Standardized Sequence is provided on the IPC classification schemes on the WIPO website (http://www.wipo.int/ipcpub/).

2.4.1.5. Handling of Indexing Codes

Indexing codes were expressed with colons in the IPC editions until the 7th edition. In the 8th edition, however, their expression system was changed to the same as that for classification symbols using slashes.

Furthermore, codes used for both classification and indexing purposes were abolished, as were links for indexing codes.

2.4.1.6. Unification of Expressions for Classification Definitions

Since there is a disparity in the expressions of explanations given for each IPC subclass, WIPO is currently proceeding with a unified format for rewriting the definitions, notes, references, indices, etc., in the subclasses.

The rewritten and adopted definitions have been published on the WIPO website. (Click the “D” button on the left of the subclass symbol to display the definition adopted for that subclass.)

Furthermore, work is now in progress to cease the provision of “informative references” within titles, and instead mention them only in definitions.

2.4.1.7. Abolition of “X” Symbol

Invention information disclosed within patent documents is usually covered appropriately by one or more classification places. Since the active classification schemes were not necessarily capable of covering all newly disclosed subject matters, however, such subject matters were classified by adding an “X” to their class, subclass, section or main group symbols until the IPC’s

7th edition due to constant technological development.

This “X” symbol has been abolished from IPC’s 8th edition onwards, however, and a special “residual main group” has instead been introduced for each of the sections concerned. Invention information of patent documents that cannot be properly covered by any of the subclasses of the most appropriate section will be classified into this special residual main group, and be indicated by attaching “99Z 99/00” subsequent to each section symbol. Discussions are still underway, however, regarding the introduction of this residual main group.

2.4.2. From IPC’s 8th Edition to Full IPC

As stated above, the IPC was divided into two levels, although in practice, most patent offices worldwide are using the advanced level for classification. The two-layered structure of the IPC also has negative effects such as complexity, as well as the separate reform cycles and procedures.

Under these circumstances, the Committee of Experts decided at its February 2008 meeting to review the structure and composition of the Special Subcommittee for the Advanced Level of the IPC. The Committee of Experts held numerous discussions, and decided at its March 2009 meeting to make revisions to the IPC reform and publication procedures, including an integration of the advanced and core levels. Furthermore, the Committee of Experts discussed the matter in more detail at its February 2010 meeting, with the final decisions explained below.

2.4.2.1. Integration of Core and Advanced Levels

It was decided that the core and advanced levels be integrated and that a single classification scheme equivalent to the current advanced level be maintained and published in the future. This classification scheme is called the “full IPC.”

Small patent offices with difficulty using the full IPC, however, may classify a given document in either the subclass level of the full IPC or the main groups only.

2.4.2.2. IPC Reform Cycle

Along with the introduction of the full IPC, it was decided in March 2009 that the IPC be reformed annually (effective every January 1).

2.4.2.3. Integration of Organizations Considering IPC Reforms

All IPC reform projects have been entered into discussion at the IPC Revision Working Group. A classification schemes approved by the Working Group will be issued upon adoption by the Committee of Experts.

2.5. International Movement for Classification Harmonization

The IPC Revision Working Group discusses the following types of IPC reform proposal:

- IPC revision proposals from the Japan-US-Europe Trilateral Classification Harmonization

(TCH) project

- IPC revision proposals from the Common Hybrid Classification (CHC) project under cooperation among the five largest intellectual property offices of Japan, the US, Europe, South Korea and China (IP5 Offices)
- Other IPC revision proposals approved by the Committee of Experts of the IPC Union

IPC revision proposals from the TCH or CHC project will be handled preferentially at the IPC Revision Working Group. The details of the TCH and CHC projects are as follows:

(1) Trilateral Classification Harmonization Projects

The Japanese, US and European IP offices agreed in November 2000 to embark on a TCH project. They have since proceeded with classification harmonization work, keeping in mind the adoption of the IPC schemes that were agreed upon between the commissioners of the trilateral offices.

Specifically, about 80 fields underwent review for classification harmonization, and those on which the commissioners have agreed are under discussion for adoption into the IPC at the IPC Revision Working Group or have been issued as part of the IPC.

To accelerate discussions on the TCH project, trilateral office examiners met to discuss classification harmonization in 2005 and have since held trilateral examiner exchanges on classification. In 2010, trilateral examiner exchanges took place for discussion on 8 fields.

In order to focus on the CHC project in which the IP5 Offices are involved, however, as shown in paragraph (2), the trilateral offices completed all projects under discussion by the end of 2011.

(2) CHC Project under Cooperation among IP5 Offices

In October 2008, the commissioners of the IP5 Offices agreed at the 2nd IP5 Heads Meeting in Cheju, South Korea to work together on the 10 Foundation Projects for promoting work sharing. They also agreed regarding classification harmonization that the EPO would take the lead in the CHC project as one of the 10 Foundation Projects.

The CHC project is designed to segment the IPC using the IP5 Offices' internal classifications (JPO's FI, EPO's ECLA, etc.); i.e., a project that would adopt into a common classification system among the IP5 Offices classifications suitable for segmentation selected in each technical field from the IP5 Offices' internal classifications. Depending on the technical field, several internal classifications may be combined.

The CHC project has been developed from the need for large resources on the TCH project mentioned in paragraph (1) to create a new classification scheme.

One reason behind the adoption by the IP5 Offices of the CHC project is their expectations that the project would contribute to promoting work sharing among the IP5 Offices under circumstances where there are an increasing number of patent documents issued around the world.

The use of a common classification scheme among the IP5 Offices would provide examiners with the advantage of being able to search with easier access to documents issued by patent offices in other countries. The common classification, if adopted as the IPC, would also help reduce the reclassification resources of the IP5 Offices as reclassification results are reflected at the patent family unit.

By June 2011, CHC project proposals were presented in about twenty fields, of which six have seen proposals actually proceed into discussions.

3. FI (File Index)

3.1. FI Subdivision Symbols

FI subdivision symbols represent subdivisions into which groups—the smallest units of the IPC—are further divided. As with group symbols, subdivision symbols are hierarchical structures with dots following the IPC levels.

Subdivision symbols are always presented with complete IPC symbols. If two or more subdivision symbols are allotted to one group, only the first IPC symbol appears in an official gazette, with the IPC symbol before the other subdivision symbol(s) omitted.

3.2. File Discrimination Codes

File discrimination codes are used to further subdivide IPC symbols or subdivision symbols. These symbols use one of the alphabet letters A to Z, except I or O.

The symbol “Z Others” is always reserved for all groups to which a file discrimination code is applied. The symbol Z is applied to those that do not belong to any other file discrimination code.

Recently, hierarchical structures using dots have appeared in the file discrimination code system. These structures are independent of the hierarchical levels of the IPC and subdivision symbols.

3.3. Correspondence between FI and IPC Editions

FI symbols have existed since long before the IPC’s 7th edition. Some of them are therefore presented in accordance with the rules of the previous IPC editions.

For example, some FI symbols use a colon used in indexing codes, are used for both indexing and classification purposes, or are in parentheses linked to their corresponding IPC symbols.

3.4. FI Revisions

The FI is currently revised through additions, abolishment or renewal once or twice every year. Re-classification work is carried out in response, during which searching requires the use of both old and new FIs.

Information on FI revisions can be found on the JPO’s website.

4. F-Term

4.1. Expression of an F-Term

4.1.1. Theme

F-terms are created and maintained in units of technical fields specified by FIs, with each unit referred to as a “theme.” Each theme is invariably given a “theme name,” which plainly indicates the relevant technical field and a “theme code” comprising a five-digit alphanumeric character.

Example: FI coverage: G11C 17/00 to 17/06, 301
Theme name: Read-only memory
Theme code: 5B125

At present, all technical fields are divided into some 2,600 themes, of which some 1,800 (approx.70%) have an F-term created for use as a search key with respect to domestic patent documents. A theme for which an F-term list has been created is referred to as an “F-term theme,” and one for which an F-term list has not been created is referred to as an “FI theme.”

A list containing FI coverage, a theme name and a theme code for each theme is referred to as an “F-term list”.

In the early days when the F-term retrieval system was developed, the scope of the theme was defined in units of technical fields where searching within a single theme would often serve the purpose at hand. At that time, themes were created in order to make the scope roughly equivalent to that of the main groups under the IPC. Thereafter, some technical fields were integrated into a broader unit against a background of increasingly compartmentalized technical fields combined with an increasing number of accumulated documents, as well as an improved performance of the retrieval system, and changes in technological trends.

4.1.2. Viewpoint and Additional Code of F-term

An F-term is expressed by: a “theme code (five-digit alphanumeric character)” + a “viewpoint (two-digit alphanumeric character)” + a “two-digit number.” Since a theme code is often presented separately, the term “F-term” is often used to refer to a term with the first five-digit part omitted, which is only comprised of a two-digit viewpoint and a two-digit number.

The term “viewpoint” as used herein refers to an aspect established to represent a concept under which a number of F-terms fall. Typical examples of viewpoint include “purpose,” “function,” “structure,” “use,” and “manufacturing method.”

In addition to the constituent elements under the expression system shown above, some themes contain an alphanumeric character referred to as an “additional code.” This additional code fulfills the function of complementing the F-term and is preceded by a dot (“.”) following the F-term.

An additional code is intended to add a different technical viewpoint from those where an FI is

subdivided to create F-terms. Unlike “viewpoints” in F-terms where each theme has a common meaning, the additional code can be used to link information to each of the F-terms given. At present, additional codes are adopted in more than 70 themes.

4.2. Structure of F-Terms

4.2.1. Types of F-Term

4.2.1.1. Subjects of Analysis of F-terms (Relations between FI and F-terms)

“Need of Analysis”

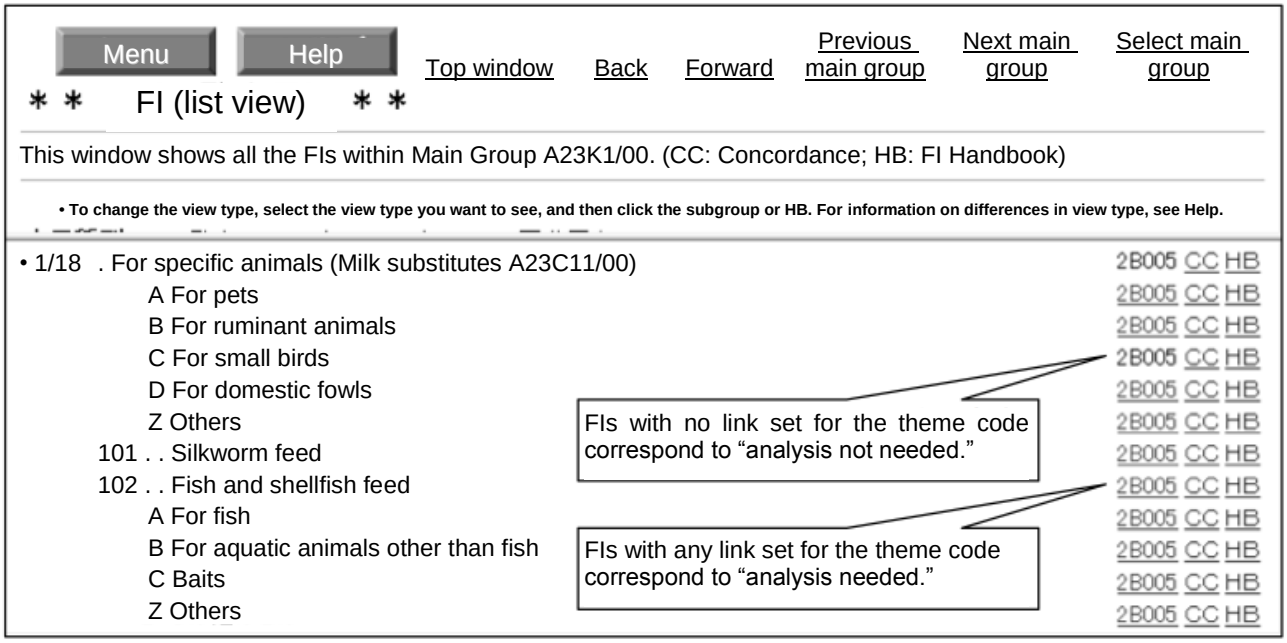
Each FI identifies the “need of analysis” of F-terms. If at least one FI needing analysis in a theme is given to a document, one of the F-terms contained in the relevant F-term list is supposed to be given to the document.

The “need of analysis” may be determined based on whether a hyperlink to the theme code is provided in the current Patent Map Guidance System (PMGS).

Example: Cases Where Analysis is Needed or Not

IPC symbol	Subdivision symbol	File discrimination code	Title	Analysis	F-term 2B005
A23K1/18			. For certain animals (Milk substituting article A23C11/00)	Not Needed	Not to be assigned
		A	For pets	Needed	To be assigned
		B	For ruminants	Needed	To be assigned
		C	For small birds	Not Needed	Not to be assigned
		D	For poultry	Needed	To be assigned
		Z	Other animals	Needed	To be assigned
	101		. . Feed for silkworms	Needed	To be assigned
	102		. . Feed for fish and shellfish	Needed	To be assigned
		A	For fish	Needed	To be assigned
		B	For aquatic animals other than fish	Needed	To be assigned
		C	Baits for fish	Needed	To be assigned
		Z	Others	Needed	To be assigned

Reference: PMGS Window



“Partial F-term theme”

As mentioned above, a theme for which an F-term list has been created is referred to as an “F-term theme.” One that includes any FIs that do not need analysis is referred to as a “partial F-term theme.”

Since the FI coverage of the partial F-term theme differs from the range of the FI for which the F-term is to be analyzed, caution must be exercised when conducting searches.

The Summary Table of F-term Theme Codes (List of Theme Codes) on the JPO’s website distinguishes between FI themes, partial F-term themes, and F-term themes using “types of analysis,” wherein:

- FI themes abbreviated as “FI,”
- Partial F-themes as “partial F,” and
- F-term themes (other than partial F-term themes) as “F.”

4.2.1.2. Range of Analysis for an F-term (Applicable Scope of FI to F-term Viewpoints)

An F-term has the applicable scope of the FI defined for each “viewpoint” thereof. More specifically, where an “analysis-needed” FI is assigned to a document, all F-terms within the theme, including that FI, may not necessarily be assigned to the document. The scope within which F-terms may be assigned to the document is defined, in principle, on the basis of a viewpoint according to the FI assigned to the document.

This principle of correspondence refers to the “relationship between FI keys and viewpoints” as described in the “Commentary on F-Terms” included in the current PMGS.

Example: Relationship between FI Keys and Viewpoints (2B005)

FI			Title	Viewpoint														
				AA	BA	DA	EA	FA	GA	HA	JA	KA	LA	LB	MA	MB	MC	NA
				Pets	Ruminants	Poultry	Other animals	Silkworms	Target fish and shellfish	Use	Form	Treatment	Animal-based feed	Vegetable feed	General additives	Specialty additives	Bonds	Baits/fish collecting agents
A23K1/18			. For certain animals (milk substituting article A23C11/00)															
		A	For pets	↕														
		B	For ruminants		↕													
		C	For small birds															
		D	For poultry			↕												
		Z	Other animals				↕											
	101		. . Feed for silkworms					↕										
	102		. . Feed for fish and shellfish						↕	↕	↕	↕	↕	↕	↕	↕	↕	
		A	For fish						↕	↕	↕	↕	↕	↕	↕	↕	↕	
		B	Aquatic animals other than fish															
		C	Baits for fish															↕
		Z	Others															↕

4.2.2. Analysis Range

“Analysis start year”

F-terms are analyzed in all prior art documents by checking against the latest version of the F-term list, as is the case with IPC and FI. In exceptional cases, however, such analysis using even

the latest F-term list is limited to a certain range of years in which the documents were published ("analysis range") because of the human labor and financial costs in re-analysis. This occurs, for example, if, when the F-term list is re-prepared to address technological advances, documents in certain themes are divided before and after a given year with the new version of F-terms re-assigned to documents published after that year, not to those published earlier. For such themes, the analysis start year is invariably set.

The setting of an analysis start year means that themes for which such a year is set are managed to ensure assignment of the latest version of F-terms to documents published after that year, with F-terms being analyzed in such documents. In such themes, caution must be exercised when conducting searches for documents published before the analysis start year, because it is often necessary to use the previous version of the F-term list.

In some themes for which an analysis start year is set, the latest version of F-terms may be used for searching documents published prior to that year. This occurs where the latest F-terms are assigned to such documents if mechanical data processing enables assignment of the latest F-terms. For such themes, use of a substantially later F-term list may sometimes enable all prior art documents to be searched.

"Analysis end year"

Under the current rule, if any F-term list is re-prepared, new theme codes will be assigned to the F-terms in the new list, and analysis under the theme code assigned to the old F-term will end at the time when analysis under the new theme code starts. It is the "analysis end year" that indicates such ending time.

In addition to re-preparation of the F-term list, an analysis end year occurs in cases where analysis of F-terms is deactivated and a theme is replaced by an FI theme. The analysis end year in each theme can be seen in the Summary Table of F-term Theme Codes (List of Theme Codes) on the JPO's website.

Unlike the analysis start year, with division of documents published before and after that year, the analysis end year is set on the basis of the year when the analytical work ended, and therefore does not completely agree with the year when the document to which the theme code was assigned was actually published.

4.2.3. How to Establish Viewpoints

In searching with F-terms, it is important to understand the structure of viewpoints. The manner of establishing viewpoints varies depending on the technical field within which the viewpoints are to be established. The following are typical examples thereof.

4.2.3.1. Viewpoints from Simple Systematic Classification of Invention Features of Inventions According to Types (Type 1)

This manner of establishing viewpoints is employed in technical fields where the feature points of inventions can be systematically classified into an appropriate number of groups. More specifically, the following types of items primarily fall under this type of technical field: machinery, articles for daily use, and electrical components.

The F-term list in this type of technical field is created by systematically classifying the feature points of inventions according to their types, and integrating technical standpoints thus classified into F-terms and viewpoints.

For example, when there are feature points a1 to a5 grouped from viewpoint A and feature points b1 to b5 grouped from viewpoint B, an F-term b2 will be assigned if any feature point b2 is identified from viewpoint B in a document.

Although the logical product of an F-term multiplied by another F-term may be searched, single F-term searching is often conducted since each feature point is simply classified systematically according to the type.

As an F-term list constructed in this manner shows a tendency toward segmentalized technical fields, the applicable scope of FI often varies from viewpoint to viewpoint.

4.2.3.2. Viewpoints from Simple Systematic Classification of Invention Features of Inventions According to Combinations of Technical Elements (Type 2)

This manner of establishing viewpoints is employed in technical fields where the feature points of inventions can be expressed by a combination of multiple technical elements and in which a huge number of groups of feature points would result from the systematic classification thereof. More specifically, composites and controls most likely fall under this type of technical field.

In this type of technical field, feature points of inventions are expressed by a combination of multiple technical elements, and the F-term list in this type of technical field is therefore created by establishing viewpoints that reflect such a combination so that the feature points may be expressed by a combination of F-terms selected from the multiple viewpoints identified.

For example, F-terms a2, b1, c2, and d3 will be assigned if a feature point of inventions identified can be expressed as a combination of a2 x b1 x c2 x d3. In conducting searches, the logical product of multiple F-terms is usually searched, depending on the feature point of interest. Depending on the result, the search formula will be modified as appropriate to expand the scope of the searches.

An F-term list constructed in this manner makes the most use of the characteristics of a multi-viewpoint search index.

4.2.3.3. Viewpoints Occupying an Intermediate Position between Types 1 and 2 or Representing a Mixture of Both Types

The difficulty in clearly distinguishing between technical fields falling under Type 1 and those falling under Type 2 permits the existence of such technical fields that occupy an intermediate

position between Types 1 and 2, or represent a mixture of both types.

As with Type 1, the F-term list in such technical fields often varies from viewpoint to viewpoint in the applicable scope of FIs.

4.3. Maintenance of F-Terms

The F-term list may be subject to re-preparation and consolidation/division of themes, and a new F-term list may be created with respect to FI themes so that the accuracy and efficiency of retrieval can be maintained in response to technological advancement and increases in the number of documents accumulated. These efforts are referred to as “maintenance of F-terms.”

The current operational procedure requires that if any new F-term list is re-prepared, a new theme code be assigned to that F-term list. Search indexes to be used must therefore be carefully checked when conducting searches in themes that have undergone maintenance.

Preparation or re-preparation of a new F-term list often involves assigning or reassigning an F-term to patent gazettes published in the past. During the period of reanalysis, searching usually requires the use of both the new and old search indexes.

Information on the maintenance of F-terms can be seen in the Information on Changes of Themes and the Summary Table of F-term Theme Codes (List of Theme Codes) on the JPO’s website. The Information on Changes of Themes contains information on themes that have recently undergone (or are due to undergo) maintenance. The Summary Table of F-term Theme Codes (List of Theme Codes) contains information on themes under reanalysis, as well as information on past maintenance.