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DATE: November 8, 2000

WORLD INTELLECTUAL PROPERTY ORGANIZATION
GENEVA

SPECIAL UNION FOR THE INTERNATIONAL PATENT CLASSIFICATION (IPC UNION)

IPC REVISION WORKING GROUP

Fourth Session
Geneva, November 20 to December 1, 2000

ELABORATION OF CLASSIFICATION DEFINITIONS

Document prepared by the International Bureau

1. At its third session, held in June 2000, the IPC Revision Working Group noted that the ad hoc IPC Reform Working Group had agreed that a process of creation of classification definitions should be initiated in 2000. The IPC Revision Working Group decided that the definitions elaborated by the Definition Task Force should be reviewed at its fourth session, with a view towards incorporation of those definitions in the eighth edition of the IPC (see document IPC/WG/3/3, paragraph 10).

2. By means of Circular No. IPC 51, offices members and observers of the IPC Union were invited to submit comments on the definitions elaborated by the Definition Task Force.

3. Comments have been received from Canada, Cuba, the Czech Republic, Estonia, France, the Republic of Moldova, Romania, the Russian Federation, Sweden and the United States of America (see Annexes I to X to this document).

4. At its fourth session, held in October/November 2000, the ad hoc IPC Reform Working Group provisionally approved the definition format. Furthermore, the ad hoc IPC Reform Working Group agreed to recommend to the IPC Revision Working Group to create Task Forces (one for each technical field) for the elaboration of classification definitions in addition to example definitions already prepared, and indicated that the Task Forces should give priority, in creating definitions, to subclasses currently under revision. In the long term, definitions should be elaborated for all IPC subclasses and main groups, and for selected subgroups where necessary (see document IPC/REF/4/4, paragraphs 14 to 18 and Annex III, reproduced in Annex XI to this document).

[Annexes follow]

ANNEX I

The Canadian Intellectual Property Office

CIPO OPIC

L'Office de la propriété intellectuelle du Canada

24 Oct. 2000

C. IPC 51
02

Re: Elaboration of classification definitions for the IPC

CIPO welcomes the addition of definitions to the IPC. We are certain that this addition will improve the understanding and the consistent use of IPC by all users. In reply to the above mentioned circular, we would like to offer comments on the 7 proposed subclass definitions.

All definitions

We acknowledge the Rapporteur report of the Definitions Task Force (rec'd Oct. 2000) which recommends "a general statement of the particular type of classification place".. However, we would predict that this will seldom be possible with the variety of subject matter in most subclasses. For most subclasses, we suggest that the simple phrasing "this subclass provides for....."instead of "this is the general locus, etc.".

A44B - page 1

We find that the 4 references to the glossary in A44B take up too much of the page. In the subclass definition for B66B, an asterisk is used to indicate defined terms. Our preference over these 2 proposals would be the use of bold lettering to indicate the defined terms. In some instances, it may be possible to integrate the glossary with the subclass definition but we generally appreciate a separate glossary in a standardized location.

page 1, E. and last 2 paragraphs

There are 3 different expressions for the concept "n.o.p." in these 3 paragraphs. We would prefer to standardize on the phrase "not specifically provided for in any other subclass". The current wording "fully provided for" raises the question of whether IPC titles are really inclusive in the sense that USPC titles are inclusive. We wish to avoid such a question with our suggested wording.

page 2, Note 1

We wish to point out the typo “form” in line 3.

page 2, Note 2

We find this note to be rather lengthy and confusing. In particular, the term “level of subject matter” in the last sentence is not understood.

B66B, B81B, B81C, B82B

We would discourage the use of the words “innovations” and “novel” in these or any definitions since the initial classification of a patent application must be made before the assessment of novelty by the examiner.

B66B

While we understand the concept of “discrete load”, the term raises the question of what might be a “not discrete load” and where it might be classified.

B66B, page 3, re: A61G

We appreciate the humor.

B81B, page 2, Note 1

We suggest the wording “obligatory assignment” instead of “obligatorily assignment”. We also suggest “claimed disclosure” rather than “claim disclosure”.

page 3

We suggest the addition of informative notes to subclass G03F for photomechanical processing of semiconductor devices and H01L 27/00 for semiconductor or other solid state components formed on a common substrate.

B81C, Note 1

Again, we suggest the wording “obligatory assignment”.

page 2

We suggest adding subclass G03F for the photomechanical processing of semiconductor devices to the scope limiting notes.

B82B, page 2

We would like to point out the typo, “Nonocapsules”.

C07C, page 2

We suggest that references to subclass B01J and C25B be included in the line notes with other subclasses.

page 3

As a matter of style, we would suggest that all of the lines for the C08 subclasses be grouped into a class reference instead of the individual subclass references shown here.

F23B

We appreciate the layout of the definitions , shown here, grouping the various references along broad lines. This layout facilitates memorization and use of the definitions. We would encourage such grouping wherever possible but we realize that a straight alphanumeric list will be needed where the relationships are more numerous or complex.

Gerry Guzzo
Section Head

[Annex II follows]

ANNEX II

From: "Dpto. de Asuntos Jrídicos" <juridico@ocpi.cu>
To: <antonios.farassopoulos@wipo.int>
Date: 06/11/00 (Mon) 22:25
Subject: sobre clasificación internacional de patentes

Sr. Mikhail Makarov
Jefe de la Sección de Clasificación Internacional de Patentes

Estimado Sr. Makarov:

Ante todo reciba mis más cordiales saludos. Tengo a bien informarle que en relación con el documento C.IPC_ 51 no tenemos ninguna observación que hacer porque consideramos atinadas las modificaciones realizadas.

De igual forma le queremos expresar nuestras disculpas por el no envio de la información en la fecha establecida.

Al tanto de cualquier criterio.

Cordialmente,

Lic. Hortensia del C. Peón Naranjo
J´del Dpto de Asuntos Jurídicos y Relaciones Internacionales
Oficina Cubana de la Propiedad Industrial

[Annex III follows]

ANNEX III

From: Hana Bahulova <hbahulova@upv.cz>
To: <antonios.farassopoulos@wipo.int>
Date: 25/10/00 (Wed) 13:28
Subject: C. IPC 51/02

Re: Elaboration of classification definitions for the International Patent Classification

Dear Mr. Makarov,
In reply to your Circular Letter C.IPC 51/02 dated 04 October 2000 allow me to inform you that the Industrial Property Office of the Czech Republic has no comments on the proposals of classification definitions which have been submitted by the United States of America and Sweden for subclasses mentioned in your Circular.

Yours sincerely,

Hana Bahulova
Patent Information Dpt.

[Annex IV follows]

ANNEX IV

World Intellectual Property Organization

Mr Mikhail Makarov

Head of International Patent
Classification Section
34, chemin des Colombettes
CH-1211 Geneva 20
Switzerland

Your C. IPC 51 02 04.10.2000
Our 1-8/2239 20.10.2000

Re: Elaboration of classification definitions for the International Patent Classification (IPC).

Dear Mr Mikhail Makarov

Referring to Circular C.IPC 51, dated October 4, 2000, taking under consideration the proposed new clssification definitions have been submitted by the United States of America and Sweden, the Estonian Patent Office, in principle, has agreed with these proposals.

As regards the classification definition for subclass B 81 C/ (Process or apparatus specially adapted for the manufacture or treatment of micro-structural devices or micro-structural systems), we have proposal concerning Scope Limiting Notes and explanation for Section H (processes or apparatus for the manufacture or treatment of purely electrical or electronic devices).
E. g. group H01L 21/00 doesn't treat the devices having high voltage SiC-metal carbide semidonductors. We propose to create new subclass or subclasses to the part H01L 21/00 or H01L 29/00.

Sincerely yours,

Elle Mardo
Head of the Patent Department

[Annex V follows]

ANNEX V

FR _ 25/10/2000

Observations en réponse à la circulaire IPC 51

Définitions relatives au classement selon la CIB

Nous avons lu avec attention les propositions de définitions élaborées par la Suède et les États Unis d'Amérique que nous remercions vivement pour leur travail.

Dans le principe, de telles définitions seront une aide précieuse pour l'utilisateur et nous sommes favorables à l'introduction de ce type d'information dans la CIB.

Nous réalisons cependant que la partie "Définitions" de la nouvelle CIB sera très volumineuse si l'on extrapole les exemples qui ont été présentés.

C'est pourquoi nous demandons que seules les définitions indispensables soient introduites et que ces définitions se limitent à des informations qui ne se trouvent nulle part ailleurs (sans répéter les titres des classes ou sous-classes, par exemple), ceci afin de ne pas noyer l'utilisateur dans un système trop vaste.

Nous aimerions de plus avoir des clarifications concernant la place et le rôle de ces définitions : sont-elles destinées à remplacer les Notes de la CIB actuelle ou viendront-elles en plus de ces dernières ? Dans le premier cas, pourquoi certaines parties des Notes actuelles ont-elles été omises ? Et dans le second il y a redondance manifeste. Comme il est probable que certaines Notes vont rester avec les entrées correspondantes comme actuellement, une étude sur le rôle respectif de ces deux outils est à mener.

En tout état de cause, nous pensons que ces définitions devraient être élaborées dans le cadre du Groupe de travail sur la révision de la CIB en consultant les experts techniques des différents domaines concernés comme pour les projets de révision.

Par ailleurs, un effort devra être fait sur la localisation et la présentation de ces notes pour faciliter leur utilisation.

[Annex VI follows]

ANNEX VI

OFICIUL DE STAT PENTRU

Date : October 2000

INVENTII SI MARCI RO COMMENTS

Comments were invited on the Annexes of the Circular No. IPC 51.

Regarding the Annexes I, II, III, IV, V, VI and VII first we would like to appreciate the study made by the USPTO and the Swedish Office on terms and definitions used in A 44B, B66B, B81C, B82B, C07C and F 23B subclasses.

Nevertheless we have the following comments :

Annex I

When defining fasteners of the subclass A 44 B as mostly utilized with accoutrements, garments or haberdashery, we would like to have better defined the connection between the subject matter of the subclass and some other subclasses as for instance:

A 61B, B42F, B68G, E05C, F16B, F16L, G09F, H01R

Annex II

1. We would prefer to use the actual terms of escalators or moving walkways instead of conveying apparatus, as proposed by USPTO, because in our opinion the term “conveying” is used in connection with loading or unloading in general, see B65 G.

2. We agree with the addition of the references to the subclass A61G, A62B, A63G in the scope limiting notes, and with the informative notes to other subclasses proposed by USPO in the Annex II.

Annex III

1. In our opinion all inventions should be obligatorily classified upon the essential characteristic of the novel technical matter found in their claim disclosures and provided for within the scope of the title, definition and according the notes of the subclass.

2. It isn’t clear what will happen with the existing notes and definitions contained within, which in our opinion are very useful.

3. We agree with the proposal regarding the scope limiting notes and the informative notes.

Annex IV

1. We do not support Note 1.

2. We do not support the Note 2, as proposed by USPTO. We prefer to preserve the existing note from IPC 7.

3. Concerning the scope limiting notes, we agree with their introduction. It is necessary to eliminate the existing note from the subclass title.

Annex V

1. We do not support the Notes 1,2 and 3 proposed by USPTO. We prefer to preserve the existing IPC 7 Notes.

2. We support the addition of the scope limiting note regarding C section for chemical or biological structure..., e.g.in classes C08 or C12.

Annex VI

1. Subclass definition A is presented in our opinion in a manner which could

be confusing for the user. It should be reworded more concise as to be clearer. We don't agree with the use of the term "chalcogen" in the definition. Its use will require changes in the Note defining the group of chemical elements after the Section C title, in the reference preceding C07C 303/00 group, in C07D, C07F, C07H, etc and the introduction of the term in the Catchword Index.

2. For Note (2) we don't agree with the wording "Compounds proper...". this one could be replaced simply with : "The compounds and their...".

3. We are not content with the Line Notes With Other Classes. We don't understand why the listed references are provided for subject matter related to C07C subclass.

4. We don't see the need to introduce, in the Line Notes With Other Subclasses, references to C07D and C07H to C08L. In fact more useful could be references to Subclasses as A01N and A61K.

Annex VII

Taking into account the Swedish comments of Annex VII, regarding the matter covered by F23B, the relationship between F23B and detail and application subclasses of F 23, the relationship between F 23B and other application places and places for gasification or destructive distillation, we agree to the final proposal made by Sweden regarding the erms and expressions which would be used in F23 and F23B.

[Annex VII follows]

ANNEX VII

From: "Maria Cernobrovciuc" <maria@agepi.md>
To: <antonios.farassopoulos@wipo.int>
Date: 27/10/00 (Fri) 12:28
Subject: Classification definitions under IPC

Dear Mr.Farassopoulos,

As indicated by Mr. Makarov, I have the pleasure to reply to the letter of October 4, 2000, informing us on the proposals of classification definitions under IPC.

The examination of the proposals met with the approval of all patent experts of our agency, giving rise to no suggestions or recommendations.

Thank you for you cooperation in this matter.

With best regards,

Eugen Stashkov

Director General

[Annex VIII follows]

ANNEX VIII

FEDERAL INSTITUTE OF INDUSTRIAL PROPERTY

RU comments on WIPO Circular IPC 51/02	
Project:	**Date: 11.09.00 1:43 PM**
Class/subclass:	**Page 1 of 1**

Re: Elaboration of classification definitions for the IPC

We welcome classification definitions prepared by US and SE. Unfortunately it is difficult to estimate all of them now because for classifiers and examiners some information seems trivial and redundant. Although we understand that any information can be useful for other users of the IPC, subclass definitions should provide additional information in respect of classification entries and serve for their clarification.

We are happy with Glossaries of terms.

G. Nenakhov

[Annex IX follows]

ANNEX IX

Swedish Patent and Registration Office

Elaboration of classification definitions **October 11th, 2000**

COMMENTS
relating to Circular C. IPC 51

Comments were invited on proposals for classification definitions submitted by US and SE:

We think it is premature to comment on the proposals at this stage. There is a Reform Task Force working on the question, but no decisions have been taken on guidelines for definitions. The proposals will need to be adjusted to whatever guidelines that will be decided.

Furthermore, class F23B is still under revision.

Anders Bruun

[Annex X follows]

ANNEX X

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, DC 20231
www.uspto.gov

October 23, 2000

Mr. Mikhail Makarov
Head, International Patent Classification Section
Inter-Office Information Services Department
World Intellectual Property Organization
34, chemin des Colombettes
1211 Geneva 20
SWITZERLAND

Re: C. IPC 51 – Elaboration of Classification Definitions for the International Patent Classification (IPC)

Dear Mr. Makarov:

Attached is the USPTO response to the circular.

Sincerely,

Original signed by:

Robert W. Saifer
Director, International Liaison Staff

Comments on WIPO Circular Number C.IPC 51 Titled "Elaboration of Classification Definitions for the International Patent Classification (IPC)"

The USPTO supports inclusion of the suggested Subclass definitions into the Reform IPC. We found no significant errors regarding the proposed scope of any of these Subclass definitions.

Nonetheless, it is our opinion that it will expedite the process of their final approval to rearrange the statements within these definitions into the definition format that has already been approved by the Trilateral Offices. This definition format is found in Annex 1 of the "Rapporteur Report on the Results of the Definition Task Force of the IPC AD HOC Reform Working Group".

The six definitions that were written by the USPTO will have relatively minor formatting changes to make them compliant with this format since the format approved by the Trilateral Offices is similar to that used by USPTO. We will transmit these definitions to the WIPO in a separate document when completed. However, the definition written by SE requires more extensive rearrangement to put it into this format. We have therefore reformatted SE's definition of Subclass F 23 B and have attached it as an Annex to this paper with some proposed modifications. This will provide SE, and other IPOs that have much more experience with the subject matter of this technology, additional time to review our proposed changes and adjust them where necessary to improve their accuracy and clarity.

Except for minor editorial changes and repositioning of information, we make only the following list of significant modifications.

1. The defined term '**boiler**' was changed to '**heated-apparatus**' in our modified definition since it was closer to the intended meaning specified by SE. In general, the definition of a term may be narrower than its common meaning, but **not broader** in scope than any or all of its accepted meanings. In English the term 'boiler' would not include an 'air heater' as specified in SE's defining of it.
2. The defined terms specified for F23 and F23B were combined into a single set of defined terms under the Subclass definition.
3. The terminology used by SE to exclude 'solid fuel combustion' that is proper for other Subclasses in SE's definition was rewritten into more general terminology (see A-D) and the particular lines restated in detail in the "Lines with Other Subclasses" section.
4. Where possible to aid searchers, the references to other Subclasses were rewritten to specify at least one particular related group.

Annex

F23B

Combustion Apparatus Using Only Solid Fuel

SUBCLASS DEFINITION

This Subclass is the general function place providing for methods or apparatus for the ***combustion**** of solid ***fuels****.

The apparatus for combustion of solid fuels appropriate for this Subclass can be either (a) self-contained devices or (b) part of, or used in connection with, ***heated-apparatus**** (e.g., heating boilers) that are intended to utilize the heat generated by the combustion. The heated-apparatus appropriate within the scope of inventions proper for this Subclass are limited to those that are not specifically provided for in another Subclass or only broadly stated without significant detail.

This Subclass does **not** cover methods or apparatus for the combustion of solid fuels in the following special situations that are specifically covered by other Subclasses for combustion.

A. Both solid fuel and fluent fuel, simultaneously or alternatively, are burned.

B. The solid fuel burned is suspended within a stream of air (e.g., combustion in fluidized beds, combustion of pulverised fuel using burners) which transports the fuel into the combustion chamber.

C. The solid fuel burned is suspended within a liquid (e.g., combustion of coal-water slurry).

D. The fuel is solid at room temperatures but burned only after it is melted, or otherwise transformed, into a liquid or gaseous fuel (e.g., candle wax).

Additionally, this Subclass covers combustion apparatus or methods **not** limited to a particular type of fuel when the apparatus or method is not specifically provide for elsewhere in another Subclass.

Furthermore, this Subclass also provides for ancillary devices that are used exclusively with apparatus for the combustion of solid fuels when no explicit location exists for the device in another Subclass.

LINES WITH OTHER SUBCLASSES

Relationship with Subclasses F23H - F23Q

Subclasses **F23H - F23Q** are to be seen as detail places for specific components frequently used in conjunction with Subclass F23B type combustion apparatus. Classification is proper in Subclass F23B for the apparatus as a whole when it includes any of the specific components found in these Subclasses. Classification is also proper in Subclass F23B for any novel detail limited for use with a particular type of combustion apparatus covered within its scope and **not** specifically provided for in any of the Subclasses F23H - F23Q. If the invention is to **only** a specific novel detail used in conjunction with a broadly specified combustion apparatus provided for in Subclass F23B, classification is made in the one of these relevant Subclasses that specifically providing for its subject matter.

Relationship with Subclasses F23G & F23R

F23G is to be seen as an application place in relation to F23B. In cases of doubt when classifying novel subject matter, classification should be made (a) in both Subclasses or (b) in both F23G and a detail Subclass related to F23B.

For unambiguous situations, classification is made in only **F23B** when the following types of fuels are intended to be used by the methods or apparatus.

1. Methods or apparatus specially adapted for a “normal” commercial solid fuel, such as coal, firewood, wood chips, pellets, sawdust or straw.
2. Methods or apparatus not specially adapted for any particular solid fuel.

For unambiguous situations, classification is made in only **F23G** when the following types of fuels are intended to be used by methods or apparatus specially adapted for their combustion.

1) Methods or apparatus specially adapted for combustion of human or animal carcasses.
2) Methods or apparatus specially adapted for combustion of solid waste or other solid fuels presenting particularly hazardous fuel-related environmental problems (e.g., toxic material, explosives, radioactive material, corrosive material).
3) Methods or apparatus specially adapted for combustion of solid waste having a special physical form (e.g., packaged waste, rubber tyres, discarded cars).
4) Methods or apparatus specially adapted for combustion of low-grade fuels presenting particular problems of combustion (e.g., fuels containing high amounts of water, normally non-combustible substances).

F23R is also to be seen as an application place in relationship to F23B. Classification is made in F23R if the apparatus or method is specially adapted for generating combustion products of high pressure or high velocity.

Relationship with other application places outside of Class F23

Combustion of solid fuel is often used for specialize types of heating or performing different special operations. F23B is therefore related to several places providing for specific uses of heat. In many of these fields, the solid fuel combustion apparatus that is otherwise proper for F23B can be considered a detail of a bigger entity having another primary function beyond combustion. The following is a non-exhaustive list of examples of such Classes or Subclasses:

- A21B Baking ovens,
- A47J Cooking apparatus,
- F21 Lighting,
- F22B Generating steam,
- F24B Domestic stoves or ranges for local heating or cooking,
- F24H Heating of fluids, e.g. air or water, and
- F27 Apparatus for heat treatment of materials or articles.

For the above and similar types of places, classification should also be made in F23B if features relating to the combustion apparatus per se are novel apart from their special applications.

Relationship with places for gasification or destructive distillation

C10B covers destructive distillation of carbonaceous material for production of gas, coke, tar or similar matter. **C10J** covers production of combustible gases containing carbon monoxide from solid carbonaceous fuels. Classification is made in these places if the combustible substances produced, e.g. gases, are burned in an apparatus separate from the gasification or distillation apparatus. If complete combustion takes place in the same apparatus as the gasification, for example in different parts of the **same** combustion chamber or in an afterburner immediately connected to the a primary combustion chamber, classification is made in F23B.

REFERENCES TO OTHER SUBCLASSES

The references listed below indicate IPC classifications that provide for subject matter related to this Subclass.

A21B Bakers' Ovens; Machines or Equipment for Baking, particularly group 1/02 for ovens characterized by the heating arrangements.

A47J Kitchen Equipment; Coffee Mills; Spice Mills; Apparatus foe Making Beverages, group 37/00 for equipment for baking, roasting, grilling or frying having heating source.

C10B Destructive Distillation of Carbonaceous Materials for Production of Gas, Coke Tar, or Similar Materials, 1/00 to 11/00 for coke ovens, and group 23/00 for heating of coke ovens that includes using solid type fuel.

C10J Production of Producer Gas, Water-Gas, Synthesis Gas from Solid Carbonaceous Material, or Mixtures Containing these Gases; Carburetting Air or other Gases, group 3/00 for production of combustible gases containing carbon monoxide from solid carbonaceous fuels.

C11C Fatty Acids from Fats, Oils or Waxes; Candles; Fats, Oils or Fatty Acids by Chemical Modification of Fats, Oils, or Fatty Acids Obtained Therefrom, group 5/00 for candles.

F22B Methods of Steam Generation; Steam Boilers, group 7/00 for Steam boilers of furnace-tube type that use solid fuel combustion.

F23C Combustion Apparatus Using Fluent Fuel, group 1/00 for combustion of both solid fuel and fluent fuel, simultaneously or alternatively and group 10/00 for combustion of solid fuel suspended in air, e.g. combustion in fluidized beds or combustion of pulverised fuel using burners where the fuel is transported into the combustion chamber by an air stream.

F23D Burners, group 1/00 for combustion of solid fuel suspended in air, e.g. combustion in fluidized beds or combustion of pulverised fuel using burners where the fuel is transported into the combustion chamber by an air stream, group 3/00 for combustion of solid fuel suspended in a liquid, and group 17/00 for combustion of both solid fuel and fluent fuel, simultaneously or alternatively.

F23G Cremation Furnaces; Consuming Waste by Combustion, particularly group 1/00 for combustion of human or animal carcasses and group 7/00 for combustion of solid waste or other solid fuels presenting particularly hazardous fuel-related environmental problems.

F23R Generating Combustion Products of High Pressure or High Velocity, e.g. Gas-Turbine Combustion Chambers, group 5/00 for continuous combustion chambers using solid fuels.

F24B Domestic Stoves or Ranges for Solid Fuels; Implements for Use in Connection with Stoves or Ranges, particularly group 13/00 for details solely applicable to stoves or ranges burning solid fuels.

F24D Domestic- or Space-Heating Systems, e.g. Central Heating Systems; Domestic Hot-Water Supply Systems; Elements or Components Therefor, groups 1/00 to 9/00 for central heating systems.

F24H Fluid Heaters, e.g. Water or Air Heaters, Having Heat-Generating Means, in General, group 1/00 for water heaters having heat generating means and group 3/00 for air heaters having heat generating means.

F27B Furnaces, Kilns, Ovens, or Retorts in General; Open Sintering or Like Apparatus.

F27D Details or Accessories of Furnaces, Kilns, Ovens, or Retorts, in so far as They are of Kinds Occurring in More Than One Kind of Furnace, group 13/00 for apparatus for preheating charges; Arrangements for preheating charges.

GLOSSARY OF TERMS

To ensure consistency, repetitive terms that are used in the titles, definitions, or notes of this Subclass and its dependent groups in a special or limited sense are set forth below with the meaning each is to have.

Combustion – A process for converting fuel into light and heat by igniting the direct combination of oxygen gas (e.g., air) with fuel. Any other type of heat-producing process that relies on the combining and transforming chemically of substances (e.g. hydrogen peroxide and methane, iron oxide and aluminium) is excluded from the scope of the term 'combustion'. This type of conversion process is covered elsewhere by Subclasses that provide for chemical reactions (e.g., Subclasses in section C, Subclass F24J).

Fuel - Any burnable substance that is at least partially consumed after ignition during combustion.

Combustion chamber - A compartment into which fuel is introduced and burned to establish a self-supporting fire or flame that is at least partially enclosed or surrounded by the compartment.

Burner - A device within a combustion chamber into which fluent fuel is first introduced and then ignited to produce a self-supporting flame.

Air – Any mixture of gases containing free oxygen and able to promote or support combustion.

Primary air - Air supplied to the burning fuel in order to liberate combustible gases.

Secondary air - Air supplied to the combustible gases liberated by the primary air in order to further complete their combustion. The term "secondary air" is intended to cover all introductions of air subsequent to the initial liberation of the combustible gases (e.g., tertiary air).

Flue gases - Any gaseous products resulting from combustion.

Grate - A perforated surface, e.g. a grid, which supports or delimits a bed of burning fuel and serves to supply primary air.

Heated-apparatus – Any apparatus that uses the heat generated by combustion and has a primary function other than mere facilitation of the combustion process or its completion (e.g., air heaters, water heaters, boilers, heat exchangers).

Ash - Any solid residues, for example material remaining in the fuel bed or suspended in the flue gases, that are a by-product of combustion.

Combustion zone - The part of the apparatus where the reaction takes place between primary air and fuel.

Supplemental Comments on WIPO Circular Number C.IPC 51 Titled "Elaboration of Classification Definitions for the International Patent Classification (IPC)"

USPTO stated in its previous paper commenting on this topic that it would rearrange the statements within the proposed Subclass definitions into the definition format approved by the Trilateral Offices. In our first paper, we completed rearrangement of the definition for Subclass F23B. We have now completed similar modifications on the six definitions that were written by the USPTO. They are now compliant with the format approved by the Trilateral Offices and are attached to this paper as an Annex.

In the definition for subclass A44B, we have also made many of the modifications suggested by SE in its paper commenting on this definition. In particular, we deleted '(2) Note' and converted '(1) Note' into the "Lines with Other Subclasses" formatting.

In the definition for subclass B66B, we have broken the one-sentence paragraphs 'A' and 'B' each into two sentences for improved readability. We have also combined paragraph B's parts '1' and '5' together to clarify the full requirements of the 'underlying surface'. This hopefully clarifies the essential distinction between elevators and endless escalators.

In the definitions of Subclasses B81B, B81C, and B82B, we have also deleted their '(1) Note' since this information is (as SE pointed out for A44B) now covered by the 'what to obligatorily classify' agreement and the Trilateral Guidelines therefor.

All references to only the section level of the IPC found in Subclasses B81B, B81C, and B82B have been moved to the new section "lines with other classifications". This seems to be a more appropriate area for these broad indications of lines that are not very useful to searching any particular patent document.

ANNEX

Suggested replacement for Annex I of C.IPC 51.

Subclass A44B

BUTTONS, PINS, BUCKLES, SLIDE FASTENERS, OR THE LIKE

SUBCLASS DEFINITION

This subclass is the general place for fasteners or their essential parts that are intended to be actuated or operated directly by hand and are most frequently utilized with accoutrements, garments, or haberdashery. Moreover, the fasteners of this subclass are readily reusable and their normal securing or releasing operation does not require any portion of them to be destroyed or damaged (e.g., undergo forces sufficient to cause plastic deformation of the material from which they are constructed). This subclass covers within its scope the following varieties of fasteners:

A. ***Buttons*** (defined in the Glossary of Terms).

B. ***Pins*** (defined in the Glossary of Terms) or their required components.

C. ***Buckles*** (defined in the Glossary of Terms).

D. ***Slide fasteners*** (defined in the Glossary of Terms) or their required components.

E. Fasteners that otherwise fit the above general limitations of this subclass (e.g., snap fasteners, safety belt buckles) are also covered if not otherwise specifically provided for.

Additionally, this subclass provides for any methods of making the fasteners of this subclass, particularly slide fasteners or touch-and-close fasteners (e.g., VELCRO ®, hook-and-loop, barb-and-pile fabrics), which are not fully provided for in another subclass.

Furthermore, this subclass also provides for accessories or ancillary devices for any of the above types of fasteners which are (1) used exclusively with one of the varieties of fasteners (e.g., button cards) or (2) have their operations either influencing or being influenced by the operation of the fastener (e.g., slide fastener pulling cords) when not otherwise specifically provided for.

Also included within the scope of this subclass are key rings and devices, not specifically provided for in another subclass, that merely look like fasteners or one of their essential parts but do not function as fasteners (e.g., ornamental buttons on coats, fake zippers on clothing).

LINES WITH OTHER SUBCLASSES

Relationship of Subclasses A44B – F16B

Fasteners per se that either (a) require a tool for completing their normal fastening e.g., screws, nails, stitches) or (b) are destroyed or destructively deformed to fasten or unfasten (e.g., staples, rivets) are ordinarily excluded form this subclass by its general limitations. Such devices **per se** are covered by subclass F16B. However, when the F23B types of fasteners are used to mount fasteners or fastener components appropriate for this subclass, and are attached to or cooperate with at least one of their components, they are properly classified within this subclass as a perfecting feature of the fastener with which they are utilized.

REFERENCES TO OTHER SUBCLASSES

The references listed below indicate IPC classifications that provide for subject matter related to this Subclass.

A41D Outerwear; Protective Garments; Accessories, for garments in general, group 13/04 for protective aprons having fastening devices and group 25/00 for neckties having fastening or holding devices associated with the knot or collar.

A41F Garment Fastenings; Suspenders, for fastening devices specially adapted for garments, group 1/02 for buttonholes or eyelets for buttonholes, group 1/04 for corset fasteners, group 1/06 for glove fasteners, group 1/08 for garter fasteners, and group 9/00 for belts, girdles, or waistbands for trousers or skirts.

A41H Appliances Or Methods For Making Clothes, e.g. For Dress-Making, For Tailoring, Not Otherwise Provided For, group 25/00 for appliances or methods for marking-out, perforating, or making buttonholes and group 37/00 for setting fasteners on garments.

A42B Hats; Head Coverings, group 1/00 for hats having fastening devices, and group 7/00 for head covering fastening means other than hat-pins.

A43C Fastenings or Attachments for Footwear; Laces In General, for footwear having fastening devices.

A43D Machines, Tools, Equipment or Methods for Manufacturing or Repairing Footwear, group 100/00 for setting fasteners on footwear.

A44C Jewelry; Bracelets; Other Personal Adornments; Coins, group 1/00 for brooches or clips in their ornamental aspect, and group 3/00 for medals or badges having pin fastening devices.

A45D Hairdressing or Shaving Equipment; Manicuring or Other Cosmetic Treatment, group 8/00 for hair-holding devices.

A61B Diagnosis; Surgery; Identification, group 17/56 for an orthopedic fastener.

B21D Working Or Processing Of Sheet Metal Or Metal Tubes, Rods Or Profiles Without Essentially Removing Material; Punching, group 53/46 for processing sheet metal, tubes or profiles to make haberdashery, particularly group 53/48 for making buttons and group 53/50 for making metal slide-fasteners parts.

B21F Working Or Processing Of Wire, group 45/16 for wire-working to produce devices for fastening (e.g., slide fastener elements, buttons).

B22D Casting Of Metals; Casting Of Other Substances By The Same Processes Or Devices, group 17/16 for pressure or injection die casting of slide fasteners and slide fastener parts.

B25B Tools Or Bench Devices Not Otherwise Provided For, For Fastening, Connecting, Disengaging, Or Holding, group 5/00 for clamps.

B29D Producing Particular Articles From Plastics Or From Substances In A Plastic State, group 5/00 for producing slide fastener elements from plastic and group 19/00 for producing buttons or semi-finished button parts from plastic.

B42F Sheets Temporarily Attached Together; Filing Appliances; File Cards; Indexing, group 1/02 for paper clips or like fasteners.

B43M Bureau Accessories Not Otherwise Provided For, group 15/00 for thumbtacks.

B68G Methods, Equipment, or Machines for Use in Upholstering; Upholstery Not Otherwise Provided For, group 7/12 for elements specially adapted for fastening, fixing, or finishing, in upholstery work.

D03D Woven Fabrics; Methods Of Weaving; Looms, for woven pile fabrics which may be used for touch-and-close fasteners.

D04B Knitting, for knitted pile fabrics which may be used for touch-and-close fasteners.

D04C Braiding Or Manufacture Of Lace, Including Bobbin-Net Or Carbonized Lace; Braiding Machines; Braid; Lace, for braided pile fabrics which may be used for touch-and-close fasteners.

D04H Making Textile Fabrics, e.g. From Fibres or Filamentary Material, for non-woven pile fabrics which may be used for touch-and-close fasteners.

D05B Sewing, group 3/00 for sewing apparatus or machines with mechanism for lateral movement of the needle or the work or both for making ornamental pattern seams, for sewing buttonholes, for reinforcing openings, or for fastening articles, e.g. buttons, by sewing and group 85/00 for sewing needles.

E05C Bolts or Fastening Devices for Wings, Specially for Doors or Windows, for hand operated latches or bolts for doors or windows.

F16B Devices For Fastening or Securing Constructional Elements or Machine Parts Together, e.g. Nails, Bolts, Circlips, Clamps, Clips, Wedges; Joints or Jointing, group 45/00 for hand-manipulated hooks or eyes (e.g., swivel hook for dog leash).

F16L Pipes; Joints or Fittings for Pipes; Supports for Pipes, Cables or Protective Tubing; Means for Thermal Insulation in General, group 37/00 for pipe couplings of the quick-acting type.

G09F Displaying; Advertising; Signs; Labels Or Name-Plates; Seals, group 3/08 for identification tags having fastening means.

H01R Electrically-Conductive Connections; Structural Associations of a Plurality of Mutually-Insulated Electrical Connecting Elements; Coupling Devices; Current Collectors, group 24/00 for two-part coupling devices, or either of their cooperating parts, characterized by their overall structure.

Glossary of Terms

To ensure consistency, repetitive terms that are used in the titles, definitions, or notes of this subclass and its dependent groups in a special or limited sense are set forth below with the meaning each is to have.

Buttons - Fasteners that include a rigid portion (i.e., button) which is attached (e.g., sewn) to the structure it is intended to fasten or secure (e.g., clothing) in a manner that allows its reorientation by either movement about its attachment or movement of the structure it secures. Buttons are intended to be used with complementary flaccid openings (e.g., buttonholes, looped cords) that form the second essential part of the fastener. To fasten, a button is (1) passed entirely through the opening when it is manipulated by hand to an angle or position that allows its unobstructed passage and (2) allowed to resume, or hand-manipulated to another angle or position to obstruct its passage and removal backwards through the opening.

Pins - Fasteners that include both (1) a portion specifically shaped (e.g., pointed) to facilitate impaling of and penetration into the structure fastened or secured and (2) a remaining portion (e.g., head) not intended to penetrate the structure fastened or secured.

Buckles - Fasteners that include engaging or holding means which guides during fastening, and can selectively hold at any one of several points along its length to fasten, a cooperating strap or belt that is either the structure secured (e.g., end of a dress belt) or a second portion of the fastener (e.g., securing strap of a backpack flap).

Slide fasteners - Fasteners that include (1) two, opposed, elongated, configured surfaces that are each attached by mounting means to a secured structure and are intended to directly contact and interlock with each other when fastened and (2) a sliding device that is much shorter in length than the surfaces and which travels along their length to forcibly shift them into or out of interlocking engagement (i.e., slide fasteners or zippers). Moreover, the direction of travel of the sliding device as it sequentially contacts and cams against each segment of the opposed surfaces is generally perpendicular to the motion of the interlocking surfaces of the slide fastener as they shift between the fastener's closed and open positions.

Suggested replacement for Annex II of C.IPC 51.

Subclass B66B

ELEVATORS; ESCALATORS OR MOVING WALKWAYS

SUBCLASS DEFINITION

This subclass covers innovations utilized in the transport of people or discrete loads specific to either:

A. Elevating apparatus (i.e., elevators or lifts) for shifting a discrete load (e.g., person, freight), in its entirety, from an entry level to a vertically spaced exit level along a fixed path. To be proper for this subclass, the elevating apparatus must include (1) a reciprocating, load-underlying, support surface (e.g., car) to which the load is confined during travel, (2) rigid or semirigid means for contacting and limiting the travel of the load support surface to the fixed vertically extending path that may also extend horizontally (e.g., be inclined), and (3) either (a) **drive means*** (e.g., fluid motors, manually operated linkage) for transmitting to the load support surface the force necessary to shift the load between the levels or (b) motion resisting means (e.g., counterweights) for slowing the travel of the load supporting surface when moving from a higher load entry level to a lower load exit level.

B. Conveying apparatus (i.e., an assemblage of elements for moving a load along a predetermined path) utilized to transport pedestrians from an entrance location to at least one horizontally spaced egress location (i.e., escalators or moving walkways). To be proper for this subclass, the conveying apparatus must include (1) an underlying surface, or a series of interlinked underlying surfaces, that supports and **normally** carries individuals to their egress location, but that is constructed in a manner allowing or facilitating its alternative traversal by the individuals normally carried thereon utilizing their standard mode of locomotion (i.e., stepping, walking, manually powering their wheelchair) whenever the underlying surface is idle or the pedestrian wishes to supplement their pace of travel over the underlying surface, (2) structure which specially adapts the conveying apparatus to the transporting of people, (3) rigid or semirigid means for limiting the travel of the supporting surface to a fixed horizontally extending path, that may also extend vertically, along which individuals are intended to be carried when traveling between the spaced locations, and (4) **drive means*** (e.g., endless chain) for transmitting to the underlying surface the force necessary to shift people between the horizontally spaced locations.

C. Components of either of the above types of elevating or conveying apparatus when (1) no specific place for the components exists in another subclass and (2) the components are limited to use with the above types of apparatus by a structural modification (e.g., escalator handrails or guards).

D. Ancillary devices (e.g., elevator call registration system) for either the elevating or conveying apparatus which are (1) used exclusively with and (2) have their operations either influencing or being influenced by the operation of the elevating or conveying apparatus if not otherwise specifically provided for.

Explanatory Notes and Graphics

(1) Note. Examples of structure particularizing escalators or moving walkways to the transport of people are moving steps, conveyors combined with handrails, conveyors having serrated foot engaging surfaces, entrance or exit comb plates, or passenger operated **drive control***.

(2) Note. Elevating apparatus otherwise proper within the definition of this subclass which is either (a) specially modified for use with or within another disparate apparatus (e.g., machine tool, furnace) or (b) in combination with structure for treating the discrete load in some manner (e.g., work cutting) is classified in other subclasses.

(3) Note. The load support surface of elevators or lifts proper for this subclass is intended to support the load only for a short period of time during handling. The surface is **not** intended for either (a) supporting an article in a nonuse storage location, (b) supporting a useable machine or tool, or (c) moving one portion of a machine or article relative to another portion thereof (e.g., an operator).

(4) Note. The discrete load transported by the elevating apparatus of this subclass may be either (a) an animal, (b) an article, (c) a unitized bulk material (e.g., cotton bail, ice block), (d) a human, or (e) a group or mix thereof that is moved as a unit between levels.

REFERENCES TO OTHER SUBCLASSES

The references listed below indicate IPC classifications which provide for subject matter related to this Subclass.

A47B	TABLES; DESKS; OFFICE FURNITURE; CABINETS; DRAWERS; GENERAL DETAILS OF FURNITURE - Group 63/00 for cabinets, racks, or shelf units with movable parts supported on chains or belts that are specially adapted for storing books, documents, forms, or the like.
A47F	SPECIAL FURNITURE, FITTINGS, OR ACCESSORIES FOR SHOPS, STOREHOUSES, BARS, RESTAURANTS, OR THE LIKE; PAYING COUNTERS - Group 3/06 for showcases or show cabinets with movable or removable shelves.
A61G	TRANSPORT OR ACCOMMODATION FOR PATIENTS; OPERATING TABLES OR CHAIRS; CHAIRS FOR DENTISTRY; FUNEREAL DEVICES – for lifting and lowering devices for moving patients and group 19/00 for hoisting or lowering devices for coffins that hopefully contain only dead people.

A62B	DEVICES, APPARATUS, OR METHODS FOR LIFE-SAVING - Group 1/02 for life-saving devices that lower persons from buildings or the like by making use of rescue cages, bags, or the like.
A63G	MERRY-GO-ROUNDS; SWINGS; ROCKING-HORSES; CHUTES; SWITCHBACKS; SIMILAR DEVICES FOR PUBLIC AMUSEMENT - For amusement rides (e.g., roundabouts, and Ferris wheels) that are structurally similar.
B61B	RAILWAY SYSTEMS; EQUIPMENT THEREFOR NOT OTHERWISE PROVIDED FOR - Group 9/00 for funicular rail-bound systems with rigid ground-supported tracks and cable traction (e.g., cliff railways) and group 11/00 for ski-lift, sleigh-lift or like trackless systems with guided towing cables only.
B63G	OFFENSIVE OR DEFENSIVE ARRANGEMENTS ON VESSELS; MINE-LAYING; MINE-SWEEPING; SUBMARINES; AIRCRAFT CARRIERS - Group 3/00 for arrangements of ammunition handlers in vessels.
B64D	EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF POWER PLANTS OR PROPULSION TRANSMISSIONS - Group 9/00 for equipment for handling freight or for facilitating passenger embarkation or the like to aircraft.
B65G	TRANSPORT OR STORAGE DEVICES, e.g. CONVEYERS FOR LOADING OR TIPPING; SHOP CONVEYER SYSTEMS; PNEUMATIC TUBE CONVEYERS - For hoists, lifts, or conveyers for loading or unloading in general.
B66D	CAPSTANS; WINCHES; TACKLES, e.g. PULLEY BLOCKS; HOISTS - For braking or detent devices controlling normal movements of winding drums or barrels.
E02C	SHIP-LIFTING DEVICES OR MECHANISMS - For lifting devices for ships that are structurally similar to elevators.
E04H	BUILDINGS OR LIKE STRUCTURES FOR PARTICULAR PURPOSES; SWIMMING OR SPLASH BATHS OR POOLS; MASTS; FENCING; TENTS OR CANOPIES, IN GENERAL - Group 6/12 for garages for numerous vehicles provided with mechanical means for lifting vehicles.

F41A FUNCTIONAL FEATURES OR DETAILS COMMON TO BOTH SMALL ARMS AND ORDNANCE, e.g. CANNONS; MOUNTINGS FOR SMALL ARMS OR ORDNANCE - Group 9/00 for hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms.

Glossary of Terms

To ensure consistency, repetitive terms that are used in the titles, definitions, or notes of this subclass and its dependent groups in a special or limited sense are set forth below with the meaning each is to have. For economy of space, an asterisk (*) following a word located in the definition or notes indicates that reference should be made to this Glossary for the specific meaning thereof. In addition, an asterisk (*) following a hyphenated phase (e.g., drive-means*) indicates that the entire hyphenated phase has been defined in this Glossary.

Cable - A flaccid, elongated, flexible element that can transmit force only when under tension (e.g., rope, wire, chain).

Control - Means for regulating the operation of a separate and distinct force generating, transmitting, or retarding device (e.g., motor, drive-means*, brake) which moves or stops the movement of a relatively movable component of apparatus proper for this subclass (e.g., elevator car, escalator step), and includes both (1) an information input component (e.g., sensor, information storage means, manual push button) and (2) a distinct component which effects the operation of the force generating, transmitting, or retarding device in a particular manner based on the input information.

Drive-means - Means for supplying motive force to an element to be moved which includes both force generating means (e.g., motor) and structural linkage (e.g., gears) needed to transmit the force from the generating means to the element.

Landing - An in situ floor within a structure (e.g., building) (1) that is located adjacent to an elevator shaft* or the entrance or egress points of the conveying apparatus' path and (2) to or from which a load (e.g., passenger, cargo, pedestrian) transfers during the charging or discharging of the load-underlying support surface of an elevator or conveying apparatus.

Shaft - A long, narrow, in situ passageway within a structure (e.g., building, ship, mine) which defines the fixed path between the vertically spaced load entrance and exit levels traveled by the load-underlying support surface of an elevator.

Suggested replacement for Annex III of C.IPC 51.

Subclass B81B

MICRO-STRUCTURAL DEVICES OR MICRO-STRUCTURAL SYSTEMS, e.g. MEMS

SUBCLASS DEFINITION

This Subclass covers innovations specific to either:

A. Very small mechanisms (i.e., micro-mechanical devices) which include at least one essential operational component that (1)is not visible (i.e., its significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope (e.g., typically within the range of 10^{-4} to 10^{-7} meters) and (2) is movable, flexible, or deformable when in use.
B. Very small three dimensional structural formations (i.e., micro-structures) that (1) are not visible (i.e., their significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope, (2) have all portions of their formation immovable or unyielding (i.e., not movable, flexible, or deformable) with respect to the remainder thereof when in use, and (3) are designed to accomplish an essential and purely physical interaction with their local environment (e.g., a vane for changing surrounding fluid's flow path) that is structural in nature, as opposed to a chemical or electronic function, regardless of whether the formations are formed from a specific material or fabricated on a common supporting base (i.e., substrate) with separate micro-mechanical devices or micro-electronic devices.
C. Systems including a discrete micro-mechanical device or micro-structure and at least one other discrete micro-mechanical device, micro-electronic device, or micro-opto-device (e.g.. Micro-Electro-Mechanical Systems - MEMS) which (1) are fabricated on a common supporting base (i.e., substrate), (2) are interconnected to operate together as components of a system (e.g., pump and piping system, a micro-electronic device controlling, analyzing, or signaling the functioning of a micro-mechanical device), and (3) have separate functional utilities that are each intended to accomplish an independent aspect (i.e., neither type of micro-device is merely an essential operational component of the other type device) of at least one possible final end result of their system.
D. Components of micro-mechanical devices or micro-structures having specialized structural features limiting them to use with these devices or structures.

Explanatory Notes and Graphics

(1) Note. Devices or systems classified in this subclass are also obligatorily classified in other subclasses that would otherwise appropriately provide for their structural or functional features if they were produced in their standard larger scale, whenever their operation or practical utility is not inherently completely limited to the microscopic environment.

(2) Note. A plurality of identical micro-mechanical devices, micro-structures, or micro-structural systems that are merely produced on a common substrate that is an interim product and are not operationally interlinked are properly obligatorily classified in the group providing for the individual members.

LINES WITH OTHER CLASSIFICATIONS

Relationship of this Subclass with sections C and H

For a micro-structure to be proper for classification within this subclass, its sole purpose must be for some kind of physical interaction with its environment and it must be intentionally designed for specifically performing the task specified. The intent of the 'purely or sole purpose' requirement is to preclude the classification of unitary structures which have both a definite physical design and accomplish either an electrical, optical, or chemical function within this subclass (e.g., microprocessors, light guides, conductors). Subclasses under section H, "Electricity" provide for purely electrical or electronic devices per se (e.g., group H01L 41/00 for piezo-electric, electrostrictive or magnetostrictive elements per se). The intent of the 'design' requirements is to exclude mere chemically or biologically formed structures that do not undergo unique additional modifications required for accomplishing a specified task. Subclasses under section C, "Chemistry; Metallurgy", provide for chemical or biological structures per se.

REFERENCES TO OTHER CLASSES AND SUBCLASSES

The references listed below indicate IPC classifications which provide for subject matter related to this Subclass.

A61K	PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES - Group 9/50 for microcapsules for medicinal preparations.
B25J	MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION DEVICES - Group 7/00 for micromanipulators.
B32B	LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM - For essentially two-dimensional structures, e.g. layered products.
B82B	NANO-STRUCTURES; MANUFACTURE OR TREATMENT THEREOF - Group 1/00 for structures in atomic scale produced by manipulation of single atoms or molecules.
G02B	OPTICAL ELEMENTS, SYSTEMS, OR APPARATUS - Particularly group 21/32 for micromanipulators combined with microscopes.

G02F	DEVICES OR ARRANGEMENTS, THE OPTICAL OPERATION OF WHICH IS MODIFIED BY CHANGING THE OPTICAL PROPERTIES OF THE MEDIUM OF THE DEVICES OR ARRANGEMENTS FOR THE CONTROL OF THE INTENSITY, COLOUR, PHASE, POLARISATION OR DIRECTION OF LIGHT, e.g. SWITCHING, GATING, MODULATING OR DEMODULATING; TECHNIQUES OR PROCEDURES FOR THE OPERATION THEREOF; FREQUENCY-CHANGING; NON-LINEAR OPTICS; OPTICAL LOGIC ELEMENTS; OPTICAL ANALOGUE/DIGITAL CONVERTERS - For purely optical devices per se.
G11B	INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER - Group 5/127 for magnetic heads.
H01P	WAVEGUIDES; RESONATORS, LINES, OR OTHER DEVICES OF THE WAVEGUIDE TYPE - Group 3/08 for waveguide microstrips.

Suggested replacement for Annex IV of C.IPC 51.

Subclass B81C

PROCESSES OR APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OR TREATMENT OF MICRO-STRUCTURAL DEVICES OR MICRO-STRUCTURAL SYSTEMS

SUBCLASS DEFINITION

This Subclass covers innovations specific to either processes or apparatus for the manufacture or treatment of the following varieties of devices, structures, or systems whenever their manufacturing or treating creates a structural, as opposed to a purely chemical or electronic, feature thereof; and utilizes either (1) processes having one or more steps with specialized features directly related to the unusually small size of their final products or (2) apparatus adapted for performing at least one step in such processes:

A. Very small mechanisms (i.e., micro-mechanical devices) which include at least one essential operational component that (1) is not visible (i.e., its significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope (e.g., typically within the range of 10^{-4} to 10^{-7} meters) and (2) is movable, flexible, or deformable when in use.
B. Very small three dimensional structural formations (i.e., micro-structures) that (1) are not visible (i.e., their significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope, (2) have all portions of their formation immovable or unyielding (i.e., not movable, flexible, or deformable) with respect to the remainder thereof when in use, and (3) are designed to accomplish an essential and purely physical interaction with their local environment (e.g., a vane for changing surrounding fluid's flow path) that is structural in nature, as opposed to a chemical or electronic function, regardless of whether the formations are formed from specific material or fabricated on a common supporting base (i.e., substrate) with separate micro-mechanical devices or micro-electronic devices.
C. Systems including a discrete micro-mechanical device or micro-structure and at least one other discrete micro-mechanical device, micro-electronic device, or micro-opto-device (e.g.. Micro-Electro-Mechanical Systems - MEMS) which (1) are fabricated on a common supporting base (i.e., substrate), (2) are interconnected to operate together as components of a system (e.g., pump and piping system, a micro-electronic device controlling, analyzing, or signaling the functioning of a micro-mechanical device), and (3) have separate functional utilities that are each intended to accomplish an independent aspect (i.e., neither type of micro-device is merely an essential operational component of the other type device) of at least one possible final end result of their system.
D. Components of micro-mechanical devices or micro-structures having specialized structural features limiting them to use with these devices or structures.

Explanatory Notes and Graphics

(1) Note. In this subclass, regardless of whether a chemical, electrical, or mechanical process or apparatus is utilized, the term 'manufacture' encompasses both the physical act of, and means for, any of the following: assembling, associating, bonding, casting, coating, constructing, creating, cutting, distorting, electric photographing, etching, fabricating, fastening, finishing, joining, juxtaposing, machining, molding, positioning, shaping, or working of a device, structure, or system proper for this subclass.

LINES WITH OTHER CLASSIFICATIONS

Relationship of this Subclass with sections C and H

For the manufacture of a micro-structure to be proper for classification within this subclass, the structures sole purpose must be for some kind of physical interaction with its environment and it must be intentionally designed for specifically performing the task specified. The intent of the 'purely or sole purpose' requirement is to preclude the classification of unitary structures which have both a definite physical design and accomplish either an electrical, optical, or chemical function within this subclass (e.g., microprocessors, light guides, conductors). The subclasses under section C, "Chemistry; Metallurgy", specifically provide for specially adapted processes or apparatus for the manufacture or treatment of chemical or biological structures per se (e.g., in classes C08, C12). Subclasses under section H, "Electricity", provide for processes or apparatus for the manufacture or treatment of purely electrical or electronic devices (e.g., group H01L 21/00).

REFERENCES TO OTHER CLASSES AND SUBCLASSES

The references listed below indicate IPC classifications which provide for subject matter related to this Subclass.

B01J	CHEMICAL OR PHYSICAL PROCESSES, e.g. CATALYSIS, COLLOID CHEMISTRY; THEIR RELEVANT APPARATUS - Group 13/02 for making microcapsules or microballoons.
B32B	LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM - For specially adapted processes or apparatus essentially restricted to the manufacture or treatment of essentially two-dimensional structures, e.g. layered products.
B82B	NANO-STRUCTURES; MANUFACTURE OR TREATMENT THEREOF - Group 3/00 for processes or apparatus involving the manipulation of single atoms or molecules.
H01L	SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR - Group 41/22 for processes or apparatus peculiar to the manufacture or treatment of piezo-electric, electrostrictive or magnetostrictive elements per se.

Suggested replacement for Annex V of C.IPC 51.

Subclass B82B

NANO-STRUCTURES; PROCESSES OR APPARATUS FOR MANUFACTURE OR TREATMENT THEREOF

SUBCLASS DEFINITION

This Subclass covers and is the locus for collecting innovations specific to either the following (1) type of atomically precise arrangements of matter or (2) specially adapted processes or apparatus for their manufacture or treatment:

A. Infinitesimally minute arrangements of matter having particularly shaped configurations (i.e., nano-structural assemblages), that are distinctive from both naturally occurring and chemically produced chemical or biological arrangements composed of similar matter, and include at least one essential integral element that (1) consist solely of an atom, a molecule, or an atomically precise limited collection of either atoms or molecules (i.e., the collection in its entirety would be undetectable by any optical microscope) and (2) is formed by having its atoms, molecules, or limited collections individually manipulated as discrete units during the manufacture of its arrangement.
B. An essential integral element per se of nano-structural assemblages when they have specialized structural features limiting them to use with these assemblages.
C. The manufacture or treatment of the above nano-structural assemblages when the manufacturing or treating creates a structural feature thereof and utilizes either (1) processes having one or more steps with specialized features directly related to the infinitesimal minuteness of their final products or (2) apparatus specially adapted for performing at least one step in such processes.

Explanatory Notes and Graphics

(1) Note. In this subclass, regardless of whether a chemical, electrical, or mechanical process or apparatus is utilized, the term manufacture encompasses both the physical act of and means for any of the following: assembling, associating, bonding, constructing, creating, cutting, distorting, electric photographing, etching, fabricating, fastening, finishing, joining, juxtaposing, positioning, shaping, or working of an assemblage proper for this subclass.

(2) Note. Nano-structures having specialized features directly related to their size that are obligatorily classified in this subclass are also obligatorily classified in other subclasses that would otherwise appropriately provide for their structural or functional features whenever their operation or practical utility is not inherently completely limited to the microscopic environment and such features are of interest.

LINES WITH OTHER CLASSIFICATIONS

Relationship of this Subclass with section C

The terminology "**particularly shaped** configurations that are distinctive from both **naturally occurring and chemically produced** chemical or biological arrangements composed of similar matter" that is found in this subclass' definition is intended to exclude other types of chemical or biological structures. The subclasses under section C, "Chemistry; Metallurgy", specifically provide for these excluded chemical or biological structures per se, or specially adapted processes or apparatus for the manufacture or treatment thereof (e.g., in classes C08, C12).

REFERENCES TO OTHER CLASSES AND SUBCLASSES

The references listed below indicate IPC classifications which provide for subject matter related to this Subclass.

A61K	PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES - Group 9/51 for Nonocapsules for medicinal preparations.
G01N	INVESTIGATING OR ANALYSING MATERIALS BY DETERMINING THEIR CHEMICAL OR PHYSICAL PROPERTIES - Group 13/10 for investigating or analyzing surface structures in atomic ranges using scanning-probe techniques.
G12B	DETAILS OF INSTRUMENTS, OR COMPARABLE DETAILS OF OTHER APPARATUS, NOT OTHERWISE PROVIDED FOR - Group 21/00 for details of apparatus using scanning-probe techniques.

Suggested replacement for Annex VI of C.IPC 51.

Subclass C07C

ACYCLIC OR CARBOCYCLIC COMPOUNDS

SUBCLASS DEFINITION

This subclass covers:

A. Acyclic or carbocyclic organic carbon compounds which (1) may contain carbon, hydrogen, halogen, nitrogen, or chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and (2) are characterized by having (a) at least two carbon atoms bonded together; or (b) one carbon atom bonded to at least one atom of hydrogen or halogen or (c) one atom of carbon bonded to at least one atom of nitrogen by one or more bonds. Compounds containing both carbocyclic rings and an acyclic carbon or carbons are included herein.

B. The preparation of compounds under the subclass definition by chemical means, by physical means, or by both chemical and physical means, unless provided for elsewhere, as specified below.

C. The treatment and modification of compounds under the subclass definition by chemical means, by physical means, or by both chemical and physical means, provided that (1) the treatment is not provided for elsewhere and (2) the resultant product is a compound under the subclass definition

Explanatory Notes and Graphics

(1) Note. In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place. *(See the Class C07, 2 note, for an elaboration of how the "Last Place Rule" is applied herein)*

(2) Note. Compounds proper for this subclass and their preparation are classified in the groups for the type of compound prepared. The processes of preparation are also classified in the groups for the types of reaction employed, if of interest. General processes for the preparation of a class of compounds falling into more than one main group are classified in the groups for the processes employed, when such groups exist. The compounds are also classified for the types of compounds prepared, if of interest.

(3) Note. Salts of a compound, unless specifically provided for, are classified as that compound. *(See Class C07, 5 note)*

(4) Note. The therapeutic activity of compounds classified herein may be further classified in Subclass A61P.

(5) Note. Some compounds which would be considered organic under the definition set forth in A., supra, are exceptions which are considered as inorganic and are classified in Class C01. Such are hydrogen cyanide, cyanic and thiocyanic acid, isocyanic and isothiocyanic acid , carbamic acid, cyanogen, cyanamide, cyanogen halide, carbides and phosgene.

REFERENCES TO OTHER CLASSES AND SUBCLASSES

The references listed below indicate IPC classifications which provide for subject matter related to this Subclass.

C01 INORGANIC CHEMISTRY, for inorganic compounds.

C07B GENERAL METHODS OF ORGANIC CHEMISTRY; APPARATUS THEREFOR, for some generic methods and apparatus therefor used in organic chemistry, such as oxidation, reduction, addition, substitution, purification, separation, stabilization, etc.

C07D HETEROCYCLIC COMPOUNDS, for heterocyclic compounds.

C07F ACYCLIC, CARBOCYCLIC, OR HETEROCYCLIC COMPOUNDS CONTAINING ELEMENTS OTHER THAN CARBON, HYDROGEN, HALOGEN, OXYGEN, NITROGEN, SULFUR, SELENIUM, OR TELLURIUM, for acyclic or carbocyclic organic compounds containing elements other than carbon, hydrogen , halogen, oxygen nitrogen, sulfur, selenium or tellurium.

C07H SUGARS; DERIVATIVES THEREOF, NUCLEOSIDES; NUCLEOTIDES, NUCLEIC ACIDS, for sugars and derivatives thereof; nucleosides; nucleotides; nucleic acids.

C07J STEROIDS**,** for compounds containing a cyclopentanohydrophenanthrene skeleton, e.g., steroids, and derivatives thereof.

C07K PEPTIDES, for peptides.

C08B POLYSACCHARIDES; DERIVATIVES THEREOF**,** for polysaccharides and derivatives thereof.

C08C TREATMENT OR CHEMICAL MODIFICATION OF RUBBERS, for the treatment and modification of rubbers.

C08F MACROMOLECULAR COMPOUNDS OBTAINED BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATED BONDS for macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds.

C08G MACROMOLECULAR COMPOUNDS OBTAINED OTHERWISE THAN BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATION for macromolecular compounds obtained otherwise than by reactions only involving carbon-to carbon unsaturated bonds.

C08H DERIVATIVES OF NATURAL MACROMOLECULAR COMPOUNDS for derivatives of natural macromolecular compounds.

C08J WORKING-UP; GENERAL PROCESSES OF COMPOUNDING; AFTER-TREATMENT NOT COVERED BY SUBCLASSES C08B, C, F, G, for working up and general processes of compounding; after-treatment of macromolecular compounds and compositions.

C08K USE OF INORGANIC OR NON-MACROMOLECULAR ORGANIC SUBSTANCES AS COMPOUNDING INGREDIENTS, for the use of inorganic or macromolecular organic substances as compounding ingredients.

C08L COMPOSITIONS OF MACROMOLECULAR COMPOUNDS, for compositions of macromolecular compounds.

C09 DYES; PAINTS; POLISHES; NATURAL RESINS; ADHESIVES; MISCELLANEOUS COMPOSITIONS; MISCELLANEOUS APPLICATIONS OF MATERIALS, for dyes; paints; polishes; natural resins; adhesives, and miscellaneous compositions containing acyclic or carbocyclic compounds.

C11 ANIMAL OR VEGETABLE OILS, FATS, FATTY SUBSTANCES OR WAXES; FATTY ACIDS THEREFROM; DETERGENTS; CANDLES, for fatty acids from animal or vegetable oils.

C12P FERMENTATION OR ENZYME–USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROMA RACEMIC MIXTURE, for the preparation of acyclic or carbocylic organic compounds using enzymes or fermentation processes.

Glossary of Terms

Acyclic denotes the absence of a cyclic nucleus.

Carbocyclic denotes the presence of a ring, all of whose ring members are carbons.

Bridged denotes the presence of two rings that share at least three ring members.

Condensed denotes two rings that share at least one ring member, i.e., spiro and bridged are considered as condensed.

Condensed ring system is a ring system in which all rings are condensed among themselves.

[Annex XI follows]

ANNEX XI

EXCERPT FROM DOCUMENT IPC/REF/4/4, PARAGRAPHS 14 TO 18

INTRODUCTION OF ELECTRONIC DATA ILLUSTRATING THE CONTENTS OF IPC ENTRIES (DEFINITIONS)

14. Discussions were based on the recommendations by the Definition Task Force contained in its Summary of discussions distributed at the session and on the modified definition format paper submitted by the United States of America (see Annex 32 to project file IPC/R 3/99).

15. The definition format was provisionally approved with some amendments and appears as Annex III to this report. Members of the Working Group were requested to submit comments on the format by January 15, 2001, and to propose editorial changes that would bring it more in line with the IPC terminology.

16. The Working Group recalled that the Committee of Experts had instructed the Definition Task Force to study "the difference between informative and defining references" (see document IPC/CE/29/11, paragraph 43). In this respect, the Delegation of Sweden volunteered to prepare, by January 15, 2001, such a study and to submit it for comments by the other members of the Definition Task Force.

17. The Working Group agreed that defining references should be retained in the titles of subclasses or groups of the IPC, but should not be repeated in the "Subclass title" or "Group title" part of classification definitions. With regard to explanatory-type information currently contained in notes in the IPC, it was agreed that notes defining subject matter not covered by a subclass or group should be retained in the IPC, but other explanatory-type information should be transferred to classification definitions.

18. The Working Group agreed to recommend to the IPC Revision Working Group to create Task Forces (one for each technical field) for the elaboration of classification definitions in addition to example definitions already prepared, and indicated that the Task Forces should give priority, in creating definitions, to subclasses currently under revision. In the long term, definitions should be elaborated for all IPC subclasses and main groups, and for selected subgroups where necessary.

EXCERPT FROM ANNEX III TO DOCUMENT IPC/REF/4/4

IPC SUBCLASS DEFINITION FORMAT	
SUBCLASS DEFINITION FORMAT	DESCRIPTION
Subclass Title	To help ensure coextensive scope between a Subclass title and its definition, Subclass titles are included within the definition format, or otherwise made viewable to the user, with the remaining definition sections. A subclass title consists of a concise and complete phrase that describes the intended scope of the subject matter appropriate for the Subclass. Citation information should **not** be included with the 'viewable title' whenever it is specified in more detail in the other portions of the format. This restriction is not meant to preclude the display of important citation information (i.e., precedence notes) in other formats that use the subclass title (e.g., classification schedules).
Subclass Definition	A detailed description of the subject matter specifically provided for within the scope of the Subclass (e.g., the scope of subject matter covered by the titles within its scheme) and broadly specified in the Subclass title. The Subclass definition should be as structurally simple as possible and, if feasible, should avoid numerous indents and numbered subsections. Explanatory headers are encouraged. If numbered subsections are created, the convention will be that of a standard outline, i.e., capital letter; Arabic numeral; lower case letter; lower case Roman numeral (A., 1., a., i.). No classification symbol type citations to other Subclasses should be included in this section of the format. When a general statement of the particular category of classification place is appropriately includable in this section, it should precede the detailed definitive information associated with it. This should be done for **all** of the particular categories of classification places (e.g., general, method) covered within the scope of the Subclass title. While a Subclass definition may in part 'negatively' define the scope of the Subclass (this Subclass does not provide for), it must always **positively state** what subject matter it does provide for. Whenever citation information is needed to completely explain appropriate locations for subject matter restricted out by a negative definitive statement, it should be clearly specified in the "Distinctions and Prioritized Relationship with Other Subclasses" section or reference section. A reference(s) in one of these sections **must** clearly and positively state the classification(s) where any 'negatively defined' subject matter excluded from a Subclass is provided for.
Explanatory Notes & Graphics	This section may not be needed for many Subclasses. Explanatory notes should **only** be used when it is necessary to clarify or address special situations related to its definition. Normally these are complex issues that cannot be covered entirely within the definitive information of the Subclass definition without potentially misdirecting or confusing users. When necessary, explanatory notes should consist of informational statements that further limit, clarify the intent of, or otherwise elucidate particular terms or concepts found in the definition of the Subclass. Any useful graphic representations may also be included in this section, except when it is already explicitly specified in the text of the Subclass definition or title (e.g., chemical formula). Graphic representations that are included must clarify, limit, or represent typical structure of a complex concept within the definition. When this section is used, it should come before all references to other Subclasses so users can understand the exact intent of any 'elucidated' statements with the definition since clear understanding of all of the definition's statements are essential when determining relationships with other classifications.

IPC SUBCLASS DEFINITION FORMAT

SUBCLASS DEFINITION FORMAT	DESCRIPTION
Distinctions and Prioritized Relationships With Other Subclasses	This section may not be needed for many Subclasses. However, its inclusion is essential whenever a clear understanding of the scope of its Subclass involves specifying interfacing relationships between several related Subclasses. When necessary, this section should exhaustively specify all essential explanations of relationships between the defined Subclass and any Subclasses significantly impacting its scope. It should point out (1) the distinctions or similarities between them (i.e., Subclass "lines") and/or (2) the prioritized relationship between them when there is an overlapping of possible scope. Situations where matter would normally be covered by the title and definition of the subclass, but should be classified in another subclass, should be indicated here. Such cases are indicated by limiting references or precedence references in the scheme itself.
References to Other Subclasses	This section is essential since all references cited herein are stated in their **most** complete manner. Nevertheless, classifiers should still broadly specify this information in Subclass titles within their schemes. This should be done in a manner that clearly indicates to users what references are associated with the title. Any reference indications presented within the scheme should, by necessity, be less complete and viewable in a less intrusive manner (e.g., a truncated representation, removable from screen display if preferred) than in their complete presentation versions. The set of references appropriate for this section must specify pertinent Subclasses, including particular groups or group ranges, having a relationship with the art of the Subclass being defined. Inclusion of the classification symbols of the Subclass or groups involved is required. The explanation portion of the reference should always specify what subject matter is appropriate for the cited classification and may include a short statement explaining the differences between the defined Subclass and referenced classification. References in this section should not have as primary purpose to limit the scope of the subclass, but to provide general guidance to the user. In Subclasses where extensive references are enumerated, it may be helpful to users to subdivide them into special categories in an appropriate manner (e.g., where fasteners are manufactured, other types of fasteners). The references of this section should not be included in the scheme itself.
Glossary of Terms	This section consists of definitions for one or more significant terms or phrases found in the Subclass title or definitions, or the titles or definitions of its groups, that are required to be used in a more precise or restricted manner than their general common definition would allow. The defined terms or phrases must be of particular importance to the subject matter within the scope of the Subclass and clearly indicated in the definition's text as being defined (highlighted).

IPC DEFINITION FORMAT FOR GROUPS

GROUP DEFINITION FORMAT	DESCRIPTION
Group Title	To help ensure coextensive scope between a group title and its definition, group titles are included within the definition format, or otherwise made viewable to the user, with the remaining definition sections. A group title consists of a concise and complete phrase that describes the intended scope of the subject matter appropriate for the group within the context of its Subclass title and any group titles from which it depends. If possible, group titles should define the coverage in a positive manner by stating the intended scope, and not by mentioning symbols of other groups that cover matter that is not covered by the present group.
Group Definition	A detailed description of the subject matter specifically provided for within the scope of the group and broadly specified in the group's title. The group definition should be as structurally simple as possible and include a preamble portion specifying either (a) its Subclass when it is a main group or (b) the group it directly hierarchically depends upon in the scheme. If numbered subsections are created, the convention will be that of a standard outline, i.e., capital letter; Arabic numeral; lower case letter; lower case Roman numeral (A., 1., a., i.). No classification symbol type citations to other Subclasses or groups should be included in the text of the definition other than in the preamble. While a group definition may in part 'negatively' define the scope of the group (this group does not provide for), it must always **positively state** what subject matter the group and its dependent groups are clearly intended to provide for. Whenever citation information is needed to completely explain appropriate locations for subject matter restricted out by a negative statement in the definition, it should be clearly specified in the reference section of the format. A reference(s) in this section **must** clearly and positively state the classification(s) where any 'negatively defined' subject matter excluded from a group is provided for.
Explanatory Notes and Graphics	This section may not be needed for most groups. Explanatory notes should **only** be used when it is necessary to clarify or address special situations related to a group's definition. Normally these are complex issues that cannot be covered entirely within the definitive information of the definition without potentially misdirecting or confusing users. When necessary, explanatory notes should consist of informational statements that further limit, clarify the intent of, or otherwise elucidate particular terms or concepts found in the definition of the group. Any useful graphic representations may also be provided in this section, except when it is already explicitly specified in the text of the group definition or title (e.g., chemical formula). Graphic representations of typical structure or formula that are included should clarify, limit, or represent a complex concept within the definition. When this section is used, it should come before all references to other classifications so users can understand the exact intent of any 'elucidated' statement within the definition since clear understanding of the statement may be essential when determining relationships with other classifications.

IPC DEFINITION FORMAT FOR GROUPS

GROUP DEFINITION FORMAT	DESCRIPTION
Distinctions and Prioritized Relationships With Other Groups	The inclusion of this section is essential whenever a clear understanding of the scope of a group involves specifying interfacing relationships between several related groups. This section will probably be needed for many of the groups that are not arranged in an order of precedence. When necessary, this section should exhaustively specify all essential explanations of relationships between the defined group and any groups significantly impacting its scope. It should point out (1) the distinctions or similarities between them and/or (2) the prioritized relationship between them when there is an overlapping of possible scope. Situations where matter would normally be covered by the title and definition of the group, but should be classified in another group, should be indicated here. Such cases are indicated by limiting references or precedence references in the scheme itself.
References to Other Groups	This section is essential since all references cited herein are stated in their **most** complete manner. Nevertheless, classifiers should still broadly specify this information in group titles within their schemes. This should be done in a manner that clearly indicates to users what references are associated with the title. Any reference indications presented within the scheme should, by necessity, be less complete and viewable in a less intrusive manner (e.g., a truncated representation, removable from screen display if preferred) than in their complete presentation versions. The set of references appropriate for this section must specify pertinent groups, having a relationship with the art of the group being defined. Inclusion of the classification symbols of the Subclass or groups involved is required. The explanation portion of the reference should always specify what subject matter is appropriate for the cited classification and may include a short statement explaining the differences between the defined group and referenced classification. References in this section should not have as primary purpose to limit the scope of the group, but to provide general guidance to the user. In groups where extensive references are enumerated, it may be helpful to users to subdivide them into special categories in an appropriate manner (e.g., where fasteners are manufactured, other types of fasteners). The references of this section should not be included in the scheme itself.

[End of Annex XI and of document]