



Search tools and the International Patent Classification

**Kigali
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Head, Innovation and Technology Support Section

Overview

- Elements of a patent application
- Boolean operators
- Proximity operators
- Phrases
- Nesting
- Wildcard operators
- Range operators

Bibliographic data

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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B65D 45/30 (2006.01)
- (21) **International Application Number:** PCT/BR2011/000464
- (22) **International Filing Date:** 7 December 2011 (07.12.2011)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:** P11005786-2 8 December 2010 (08.12.2010) BR
- (71) **Applicant (for all designated States except US):** BRASIL-ATA S/A EMBALAGENS METÁLICAS [BR/BR]; Rua Robert Bosch, 332, 01141-010 São Paulo-SP (BR).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** ÁLVARES, Antonio Carlos Teixeira [BR/BR]; Rua Robert Bosch, 332, 01141-010 São Paulo-SP (BR). DA CUNHA, Silvério Cândido [BR/BR]; Rua Francisco Oscar Karnal, 398 - Ap. 604, 959-000 Lajeado-RS (BR).
- (74) **Agents:** ARNAUD, Antonio M.P. et al.; Rua José Bonifácio, 93 - 9th floor, 01003-901 São Paulo-SP (BR).
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Designated states

Description (specification)

"CLOSURE DEVICE FOR METALLIC CONTAINERS"

Field of the Invention

The present invention refers to a closure device to be applied in metallic containers, such as pails, comprising a tubular body having a peripheral side wall which has a lower end portion to which is attached a bottom wall, and an upper end portion surrounding an opening, inside which is fitted and axially locked an also metallic lid with a peripheral upper skirt provided with at least one sealing element which cooperates with an upper end portion of the peripheral side wall of the tubular body of the container, to guarantee the tightness of the closure by the lid.

Prior Art

There are well known from the prior art the closure arrangements of the type mentioned above and which present one of the parts defined by the upper end portion of the tubular body of the container, or by the peripheral upper skirt of the lid provided with at least one circumferential rib which is fitted and axially retained into a respective and confronting circumferential groove provided on the other of said parts, in order to guarantee a reliable axial retention of the lid when fitted into the upper opening of the tubular body of the container. These closure arrangements are provided with at least one annular sealing element, usually an elastic sealing ring or a synthetic resin gasket, which is

- Describes how the invention works (addresses a particular technical problem)
- Provides background information on this problem
- Indicates other known solutions to the problem ("prior art")

Claims

CLAIMS

1. Closure device for metallic containers comprising: a tubular body (10) having an upper end portion (11) which incorporates an outer and upper finishing cord (13), and an outer and lower peripheral rib (14); and a lid (20) including a peripheral upper skirt (22) to be fitted inside said upper end portion and externally incorporating an outer curl, characterized in that said device comprises: a retention ring (40) seated around the tubular body (10) and axially locked between the finishing cord (13) and the peripheral rib

- Define the scope of protection sought by the applicant

Fields

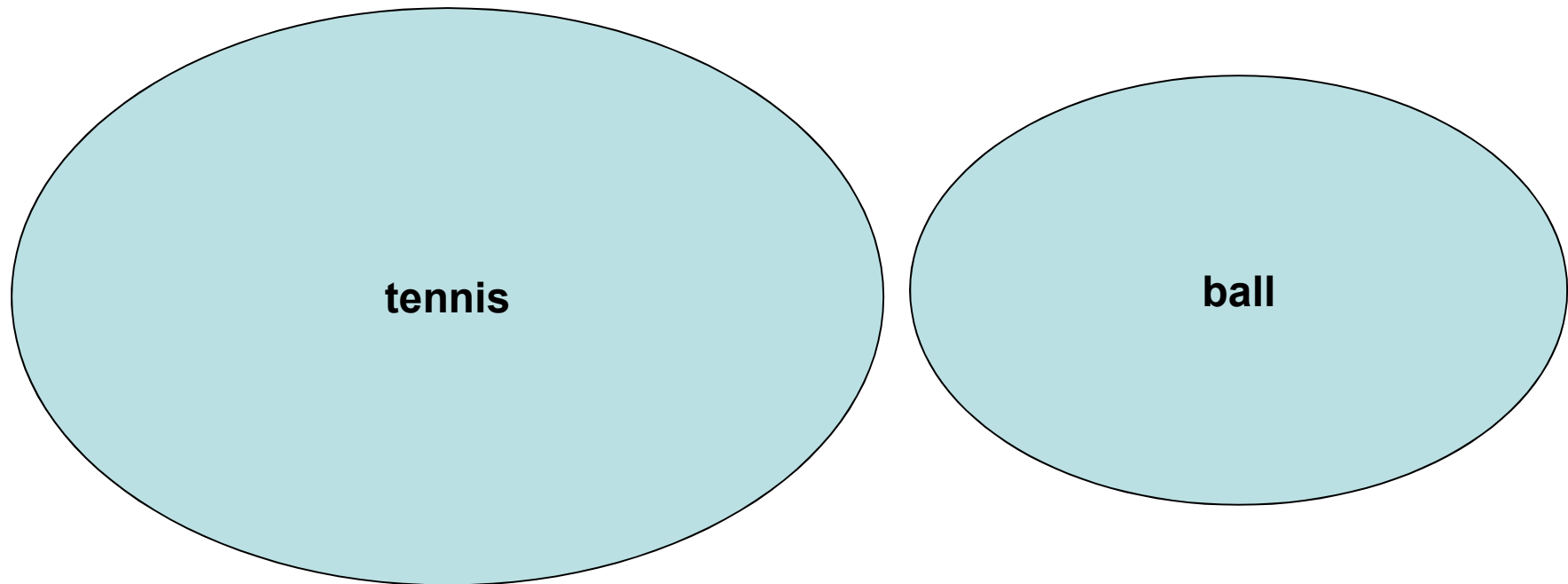
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Boolean operators

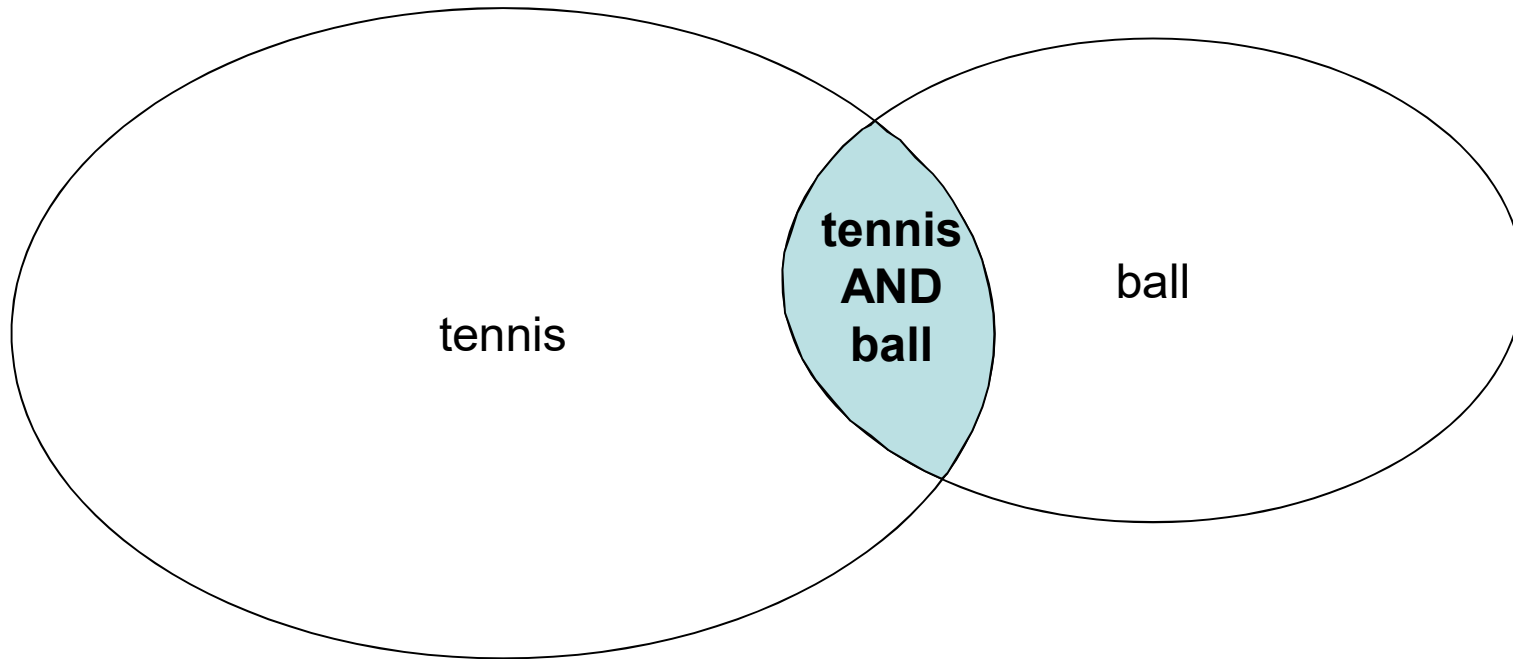
- Also known as "logical operators"
 - AND (or +)
 - OR
 - NOT (or ANDNOT or -)

Boolean operators



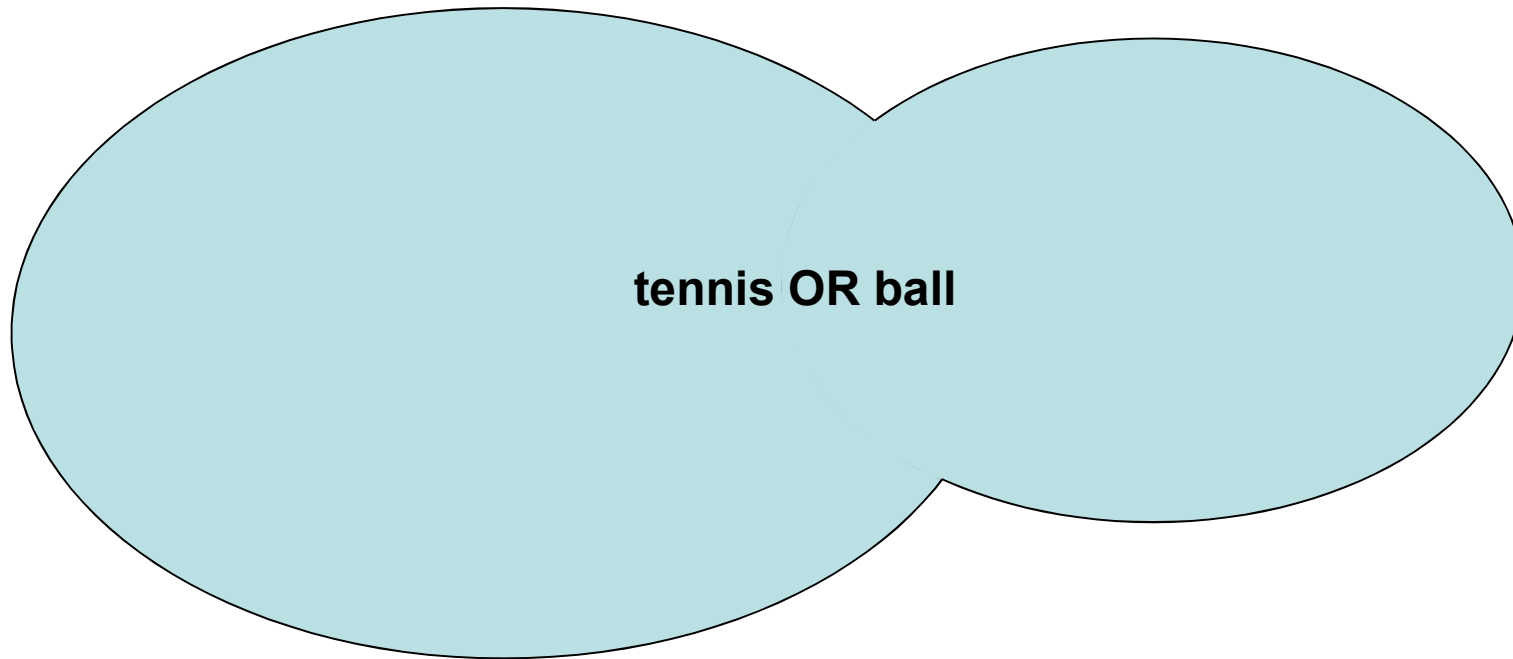
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 - **219** (tennis)
 - **2'829** (ball)
 - **3'048 total**

Boolean operators: AND



- Results in PCT collection (English titles)
 - **38** (tennis AND ball)

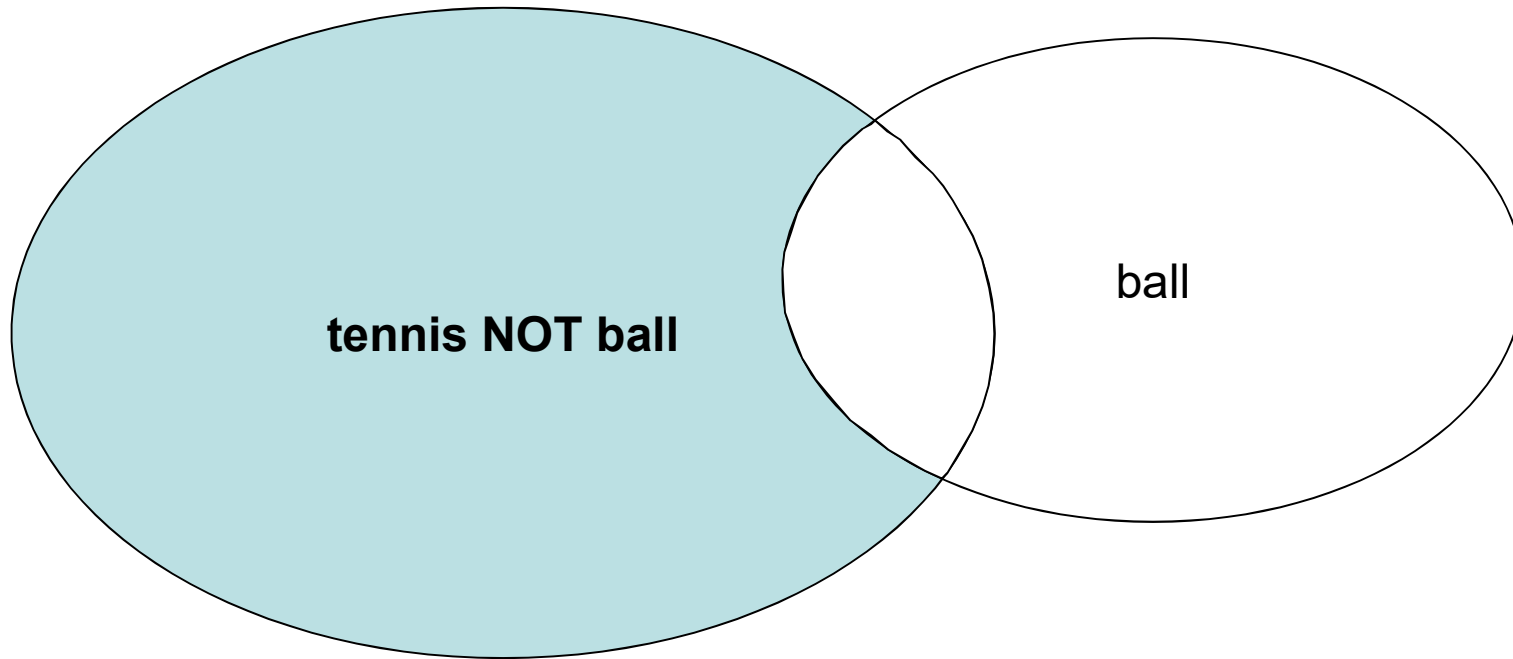
Boolean operators: OR



- Results in PCT collection (English titles)
 - **3'010** (tennis OR ball)

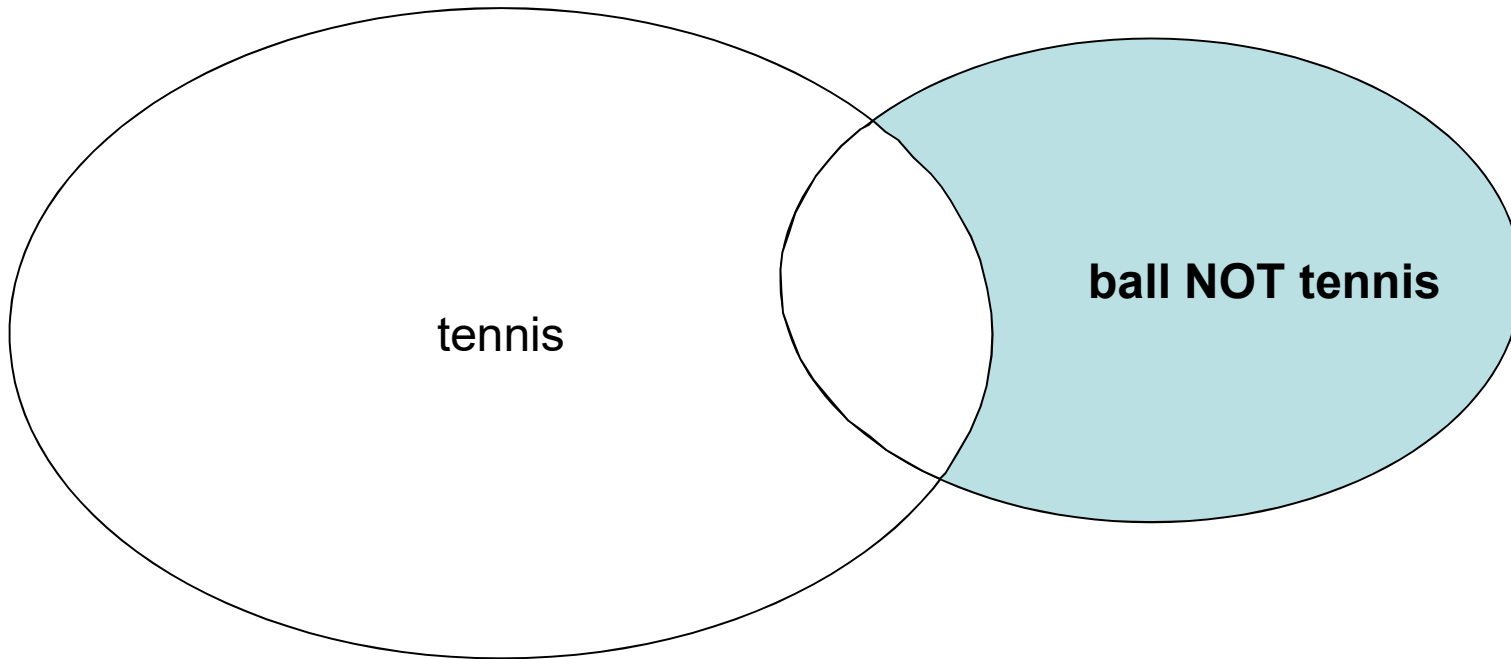
→ Avoids double counting tennis AND ball

Boolean operators: NOT



- Results in PCT collection (English titles)
 - **181** (tennis NOT ball)

Boolean operators: NOT



- Results in PCT collection (English titles)
 - **2'791** (ball NOT tennis)

→ Order of terms matters!

Boolean operators: Uses

- OR: synonyms or related concepts
 - corn OR maize → synonyms
 - corn OR plant → related concepts
- AND: additional concepts
 - corn AND fertilizer

Proximity operators

- Define the maximum "distance" (number of terms) between search terms
- Ensure that search terms are "in context" with each other

Proximity operators: Ordered

- Ordered: Search terms must be in given order (and within specified distance)

corn BEFORE5 fertilizer (in PATENTSCOPE)

A process is provided for the dry treatment of agricultural products such as corn and tobacco to remove fertilizer-derived nitrate. The process involves a short duration contact of the agricultural product with HCl gas under conditions which minimize generation of non-volatile chlorocarbons that could form by interaction of the agricultural product with the gaseous products of the reaction of the HCl with the nitrate.

Proximity operators: Unordered

- Unordered: Search terms can be in any order (and within specified distance)

corn NEAR5 fertilizer (in PATENTSCOPE)

A process is provided for the dry treatment of agricultural products such as corn and tobacco to remove fertilizer-derived nitrate. The process involves a short duration contact of the agricultural product with HCl gas under conditions which minimize generation of non-volatile chlorocarbons that could form by interaction of the agricultural product with the gaseous products of the reaction of the HCl with the nitrate.

The organic fertilizer comprises oilseed extract and/or corn steep liquor in combination with whey and/or other protein supplements, which provide a natural, nitrate free, nitrogen to the fertilizer. Additionally, a method of manufacturing an organic fertilizer comprising heating an oilseed extract, dissolving whey in the heated extract, and filtering the resultant mixture for use domestically and abroad.

Question

- How would you carry out a search for inventions related to blood pressure?



Photo source: Pia von Lützu

Boolean operator: AND

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
→ No context



Photo source: Pia von Lützu

Proximity operator

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
→ No context
- blood BEFORE1 pressure
→ Works, but not supported by all database systems



Photo source: Pia von Lützu

Phrases

- How would you carry out a search for inventions related to blood pressure?
- blood AND pressure
→ No context
- blood BEFORE1 pressure
→ Works, but not supported by all database systems
- **"blood pressure"**



Photo source: Pia von Lützau

Comparison: AND, proximity, phrases

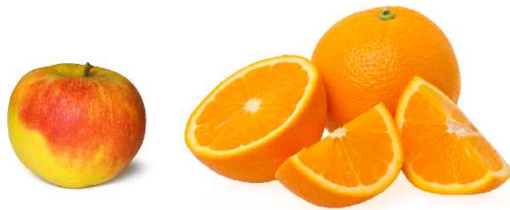
- AND: both terms required, no context required
→ Broadest search
- Proximity: both terms required, in context
→ Narrower search (depending on distance)
- Phrases: exact phrase required (e.g. compound words)
→ Narrowest search

Nesting: Rationale

- apples AND oranges OR bananas

Nesting: Rationale

- apples AND oranges OR bananas



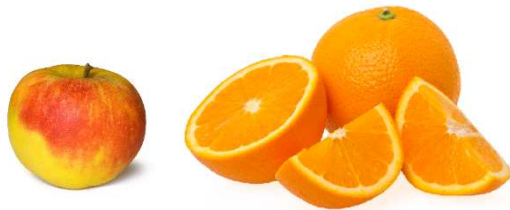
or



Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting: Rationale

- apples AND oranges OR bananas



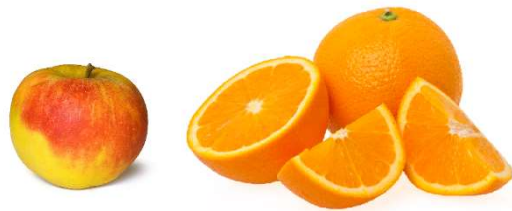
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Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting: Rationale

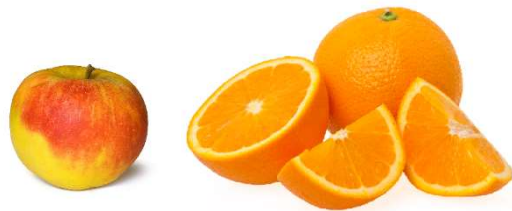
- apples AND oranges OR bananas



or



?



or

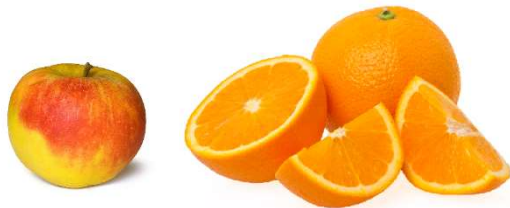


?

Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Nesting

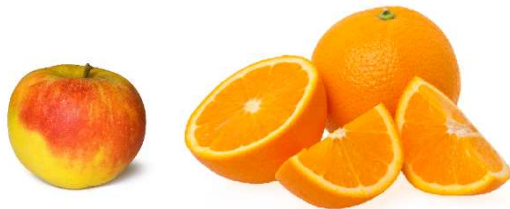
- (apples AND oranges) OR bananas



or



- apples AND (oranges OR bananas)



or

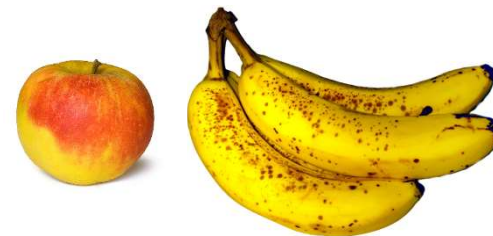


Photo source: Evan Amos, Zoofari, Amada44 (Wikimedia)

Question

- How would you carry out a search for all manner of inventions related to electricity?



Photo source: Dmitri G (Wikimedia)

Key concepts

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

Boolean operators: OR

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

→ electricity OR electrical OR electric OR electronic OR
electromagnetic ...

Wildcard operators

- electricity
- electrical
- electric
- electronic
- electromagnetic
- ...

Wildcard operators

- **electricity**
- **electrical**
- **electric**
- **electronic**
- **electromagnetic**
- ...

Wildcard operators

- **electricity**
- **electrical**
- **electric**
- **electronic**
- **electromagnetic**
- ...

→ electr*

(* represents a given number of characters)

Wildcard operators

- Any number of characters : *
electr* → **electric**, **electron**, **electronic** ...
- One character exactly (stackable) : ?
coll?sion → **collision**, **collusion** ...
foc?? → **focus**, **focal** ...
- Can be used at the end of a term or inside a term

Range operators

- Range including end points : [*term1* TO *term2*]
- Range excluding end points : {*term1* TO *term2*}

- ID number ranges
[WO1999012345 TO WO1999012350]
- Date ranges
[20100101 TO 20100601]
- Name ranges
PA:[m* TO n*]

Scenario

- A shipping company would like to improve its logistics management.
- You've been asked to perform a search for inventions related to radio frequency identification (RFID) tags used to track the movement of containers.

Key concepts

radio frequency identification

RFID

containers

Phrases

"radio frequency identification"

RFID

containers

→ Identify compound words

Boolean operators

"radio frequency identification" OR RFID AND containers

→ Indicate relationships between concepts (synonyms and additional concepts)

Nesting

("radio frequency identification" OR RFID) AND containers

→ Resolve ambiguous logic

Wildcard operators

("radio frequency identification" OR RFID) AND container*

→ Include variants (here: plural form)

Search



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Front Page

("radio frequency identification" OR RFID) AND container*



Office: All

Search

[New Chemical Structure Search functionality](#)

PCT Publication 39/2017 (2017/09/28) is now available. The next publication date is scheduled as follows: Gazette number 40/2017 (2017/10/05). [More](#)

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Front Page

↑↓ ("radio frequency identification" OR RFID) AND container*

Office: All

Search

[New Chemical Structure Search functionality](#)

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Search



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("radio frequency identification" OR RFID) AND container*



Office: All

Search

[New Chemical Structure Search functionality](#)

PCT Publication 39/2017 (2017/09/28) is now available. The next publication date is scheduled as follows: Gazette number 40/2017 (2017/10/05). [More](#)

Search: Results

Sort by: Pub Date Desc View All List Length 10							
No	Ctr	Title	PubDate	Int.Class	Appl.No	Applicant	Inventor
1.	WO	WO/2013/063415 - AVOIDING THE MISAPPLICATION OF CONTENTS IN ONE OR MORE CONTAINERS	02.05.2013	A01M 7/00	PCT/US2012/062154	PETERSON, John	PETERSON, John
<p>A method for avoiding the misapplication of contents in one or more containers, the method comprising: providing a first smart label (e.g. RFID tag), the first smart label comprising first information corresponding to a first recipe for a first composition to be applied by a machine to crops in a first portion of a field, the first recipe based on geofence information for the first portion of the field; and assigning by a processor the first smart label to a first container that stores the first composition and color coding said container.</p>							
2.	US	20130099901 - Systems and Methods for Secure Supply Chain Management and Inventory Control	25.04.2013	G06K 7/01	13710267	Mojix, Inc.	Jones Christopher R.
<p>Systems for encoding and reading RFID tags on a collection of items are shown. One embodiment of the invention includes a plurality of items, where each item possesses an item identifier string, and a plurality of RFID tags, where an RFID tag is affixed to each of the items and each RFID tag is encoded with a code word element generated using at least all of the item identifier strings. In many embodiments, the collection is a plurality of goods contained within a case, pallet, container or storage area.</p>							
3.	WO	WO/2013/059839 - CONTAINER SEAL SECURITY DEVICE	25.04.2013	G08B 13/14	PCT/ZA2012/000064	JOLLIFFE, Harry	JOLLIFFE, Harry
<p>ABSTRACT A tamper indicating device 10 for a seal for a container includes a locking unit comprising a holder 12 which spans a conventional locking bolt 22 and receives an insert 14 for securing the tag 20 of the locking bolt in position. The device has an RFID facility electronically linked with at least one identity code associated with the locking bolt 22 and/or the container number. The device 10 is for single - use and once locked in place is required to be broken to be removed.</p>							

Search: Results

Sort by: Pub Date Desc View All List Length 10							
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Patent Classification: Overview

- What are advantages and disadvantages of patent classification?
- How is the IPC structured?
- How can I find relevant IPC symbols?

Advantages of classification vs. keywords

- Terminology and jargon independent (including changes in terms used over time)
- Language independent
- Obfuscation

→ A more complete and precise search

Advantages of patent classification vs. keywords

- Applied in a standardized manner to patent documents
- Available for patent documents published (nearly) anywhere in the world
- Available for (old) patent documents for which little or no searchable text is available
- Specially adapted for patent documentation

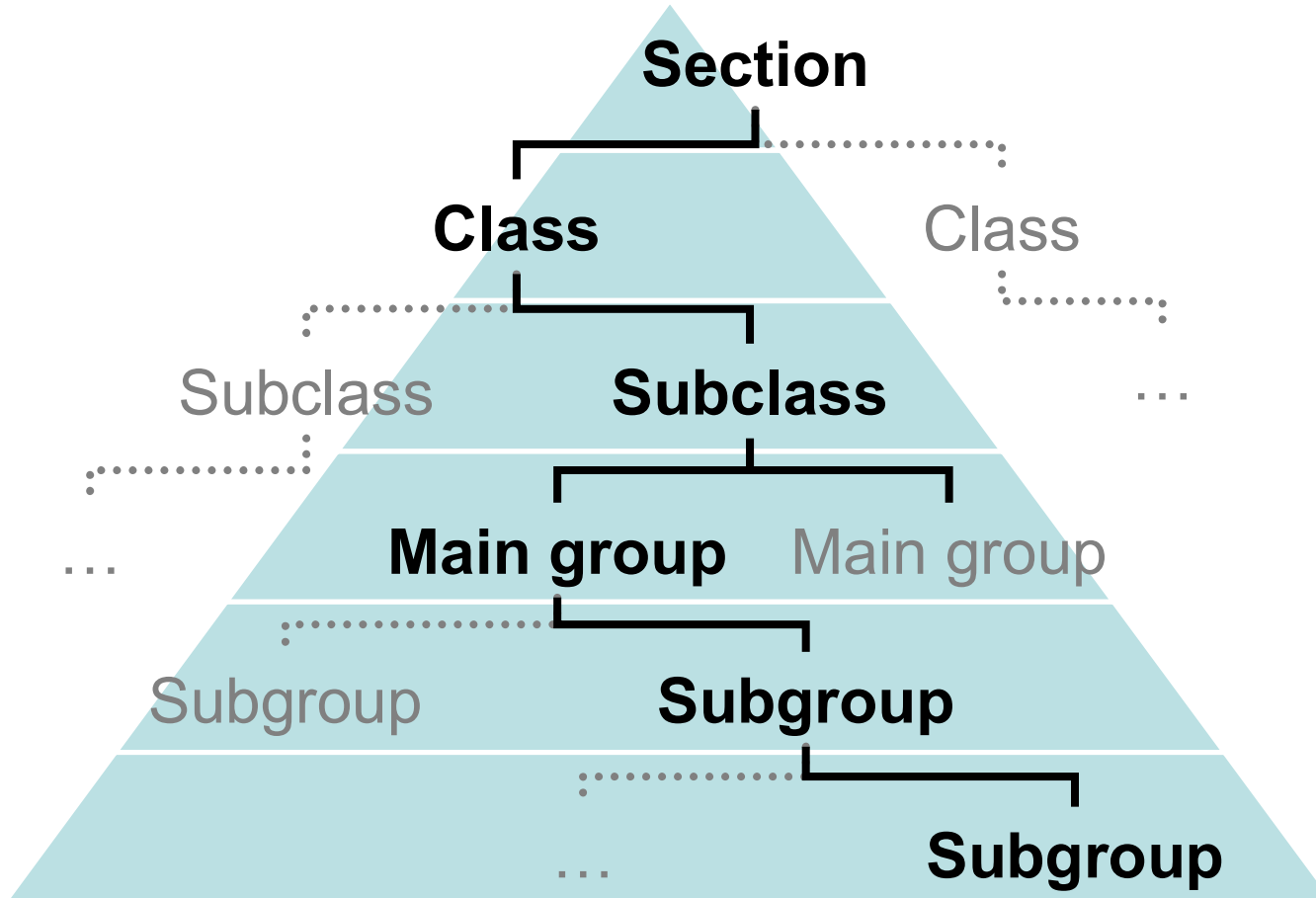
Disadvantages of patent classification vs. keywords

- May not be available for all areas of technology
- May not be specific enough for a particular search
- May not be available for all documents
- Potentially complex

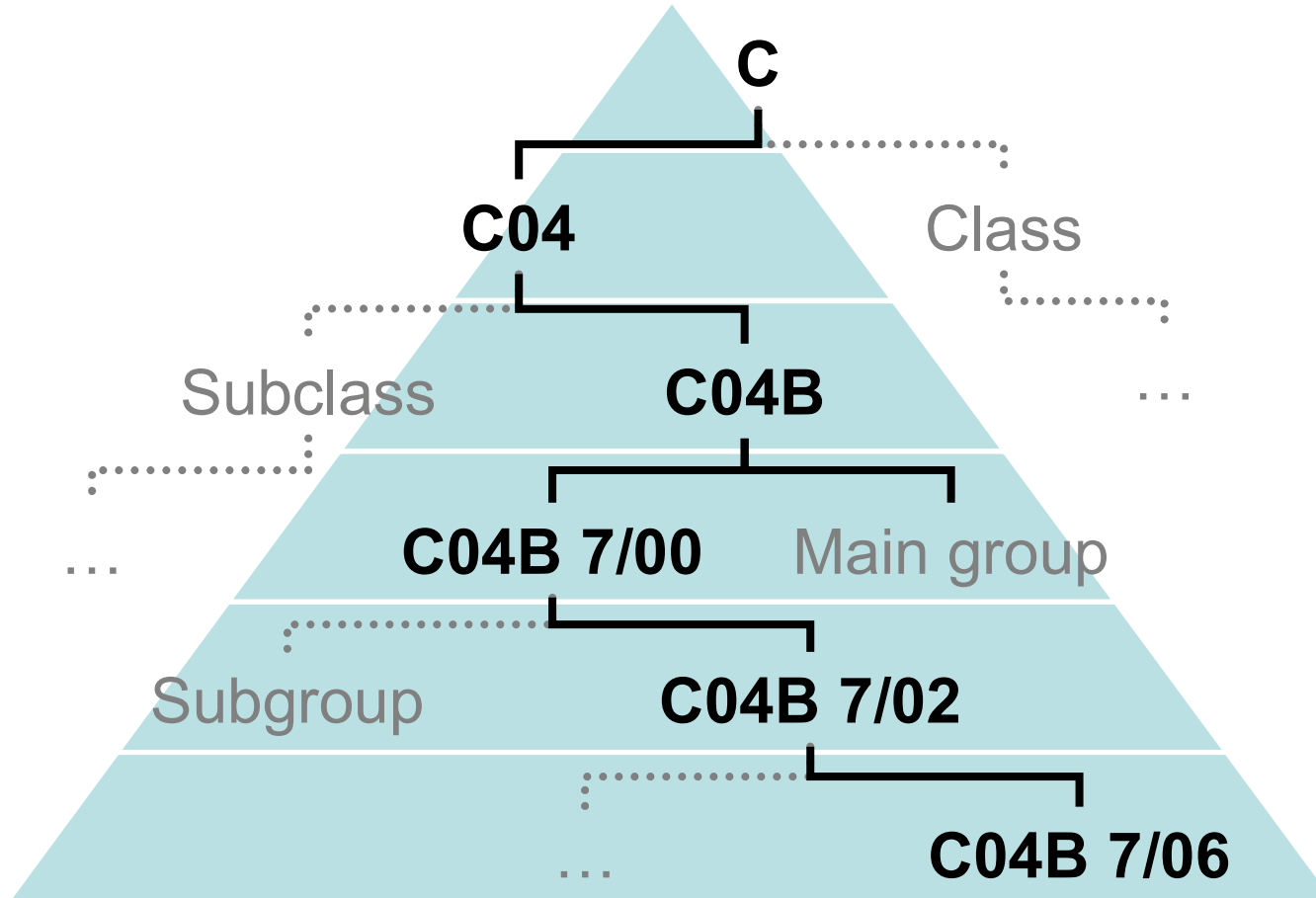
IPC: Structure

- Hierarchical
 - Section
 - Class
 - Subclass
 - Main group
 - Subgroup

IPC: Structure



IPC: Structure



IPC: Structure

- C → Chemistry
- C04 → Cements; concrete; artificial stone; ceramics; refractories
- C04B → Lime; magnesia; slag; cements; compositions thereof...; artificial stone; ceramics; refractories; treatment of natural stone
- C04B 7/00 → Hydraulic cements
- C04B 7/02 → Portland cement
- C04B 7/06 → using alkaline raw materials

IPC: Structure (subgroups)

C04B 7/00	Hydraulic cements
C04B 7/02	· Portland cement
C04B 7/04	·· using raw materials containing gypsum
C04B 7/06	·· using alkaline raw materials
C04B 7/12	· Natural pozzuolanas; Natural pozzuolana cements [4]
C04B 7/13	·· Mixtures thereof with inorganic cementitious materials, e.g. Portland cements [4]
C04B 7/14	· Cements containing slag
C04B 7/147	·· Metallurgical slag [4]
C04B 7/153	··· Mixtures thereof with other inorganic cementitious materials or other activators [4]
C04B 7/17	···· with calcium oxide containing activators [4]
C04B 7/19	····· Portland cements [4]
C04B 7/21	···· with calcium sulfate containing activators [4]
C04B 7/22	· Iron ore cements
C04B 7/24	· Cements from oil shales, residues or waste other than slag [4]
C04B 7/26	·· from raw materials containing flue dust
C04B 7/28	·· from combustion residues (C04B 7/26 takes precedence) [4]

→ More dots = lower hierarchical level

IPC: Structure (subgroups)

C04B 7/00	Hydraulic cements
C04B 7/02	· Portland cement
C04B 7/04	·· using raw materials containing gypsum
C04B 7/06	·· using alkaline raw materials
C04B 7/12	· Natural pozzuolanas; Natural pozzuolana cements [4]
C04B 7/13	·· Mixtures thereof with inorganic cementitious materials, e.g. Portland cements [4]
C04B 7/14	· Cements containing slag
C04B 7/147	·· Metallurgical slag [4]
C04B 7/153	··· Mixtures thereof with other inorganic cementitious materials or other activators [4]
C04B 7/17	···· with calcium oxide containing activators [4]
C04B 7/19	····· Portland cements [4]
C04B 7/21	···· with calcium sulfate containing activators [4]
C04B 7/22	· Iron ore cements
C04B 7/24	· Cements from oil shales, residues or waste other than slag [4]
C04B 7/26	·· from raw materials containing flue dust
C04B 7/28	·· from combustion residues (C04B 7/26 takes precedence) [4]



IPC: Structure (subgroups)

C04B 7/00	Hydraulic cements
C04B 7/02	· Portland cement
C04B 7/04	·· using raw materials containing gypsum
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C04B 7/13	·· Mixtures thereof with inorganic cementitious materials, e.g. Portland cements [4]
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C04B 7/153	··· Mixtures thereof with other inorganic cementitious materials or other activators [4]
C04B 7/17	···· with calcium oxide containing activators [4]
C04B 7/19	····· Portland cements [4]
C04B 7/21	···· with calcium sulfate containing activators [4]
C04B 7/22	· Iron ore cements
C04B 7/24	· Cements from oil shales, residues or waste other than slag [4]
C04B 7/26	·· from raw materials containing flue dust
C04B 7/28	·· from combustion residues (C04B 7/26 takes precedence) [4]



IPC: Structure (notes and references)

A23 **FOODS OR FOODSTUFFS; THEIR TREATMENT, NOT COVERED BY OTHER CLASSES**

Note(s)

Attention is drawn to the following places:

- C08B** Polysaccharides, derivatives thereof
- C11** Animal or vegetable oils, fats, fatty substances or waxes
- C12** Biochemistry, beer, spirits, wine, vinegar
- C13** Sugar industry.

A23B **PRESERVING, e.g. BY CANNING, MEAT, FISH, EGGS, FRUIT, VEGETABLES, EDIBLE SEEDS; CHEMICAL RIPENING OF FRUIT OR VEGETABLES; THE PRESERVED, RIPENED, OR CANNED PRODUCTS** (preserving foodstuffs in general **A23L 3/00**; applying food preservatives in packages **B65D 81/28**)

A23C **DAIRY PRODUCTS, e.g. MILK, BUTTER, CHEESE; MILK OR CHEESE SUBSTITUTES; MAKING THEREOF** (obtaining protein compositions for foodstuffs **A23J 1/00**; **preparation** of peptides, e.g. of proteins, in general **C07K 1/00**)

Note(s)

This subclass covers:

- the chemical **aspects** of making dairy **products** [3]
- the **apparatus** used for performing techniques provided for therein, e.g. for concentration, evaporation, drying, preservation, or sterilisation, unless such **apparatus** is specifically provided for in another subclass, e.g. **A01J** for **treatment** of milk or cream for manufacture of butter or cheese. [3]

→ Relevant symbols, definitions, versions

Scenario

- You have been requested to retrieve patent documents related to semiconductor lasers and have decided to use IPC classification for this purpose.

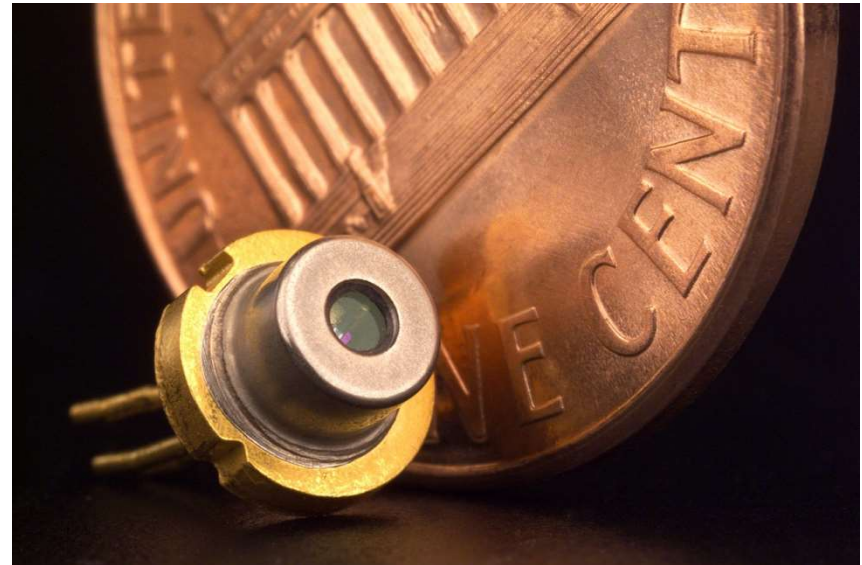


Photo source: NASA

IPC Official Publication

The screenshot shows the WIPO website interface for the International Patent Classification (IPC). The header includes the WIPO logo and the text "WORLD INTELLECTUAL PROPERTY ORGANIZATION" on the left, and a "Contact us" link on the right. A navigation bar contains links for "Home", "References", "International Classifications", "International Patent Classification", and "IPC Publication".

The main content area features a search bar with the text "semiconductor laser". Below the search bar is an "IPC Symbol Keypad" section with a "Search" button and a "Reset" button. There are also icons for "Results" and a "Version" dropdown menu set to "2017.01". Below this, there are buttons for "Index" and "PDF", and radio buttons for language selection: "English version" (selected), "French version", "English/French", and "Path view".

The central part of the page displays the "Scheme" tab, which lists the main IPC classes (A through H) with their corresponding titles. Each class has a navigation icon (a right arrow and a plus sign) to its left. The titles are:

- A HUMAN NECESSITIES**
- B PERFORMING OPERATIONS; TRANSPORTING**
- C CHEMISTRY; METALLURGY**
- D TEXTILES; PAPER**
- E FIXED CONSTRUCTIONS**
- F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING**
- G PHYSICS**
- H ELECTRICITY**

<http://www.wipo.int/ipcpub>

Search

- Catchwords
- Definitions
- Scheme
- STATS

IPC Official Publication

The screenshot shows the WIPO IPC Official Publication website. The search bar contains the text "semiconductor laser", which is highlighted with a red box. Below the search bar, there are buttons for "Search" and "Reset", and a "Results" section with a magnifying glass icon. The version is set to "2017.01". There are also buttons for "Index" and "PDF", and radio buttons for "English version", "French version", "English/French", and "Path view".

The main content area displays a list of IPC classes under the "Scheme" tab. The classes are listed as follows:

Class	Description
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
G	PHYSICS
H	ELECTRICITY

<http://www.wipo.int/ipcpub>

IPC Official Publication

The screenshot displays the WIPO IPC Official Publication interface. The search term 'semiconductor laser' is entered in the search bar. The search results are displayed in a list format, showing the IPC class and the corresponding class name. The class 'A' is highlighted, and its name 'HUMAN NECESSITIES' is displayed. The search results are displayed in a list format, showing the IPC class and the corresponding class name. The class 'A' is highlighted, and its name 'HUMAN NECESSITIES' is displayed.

IPC Class	Class Name
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
G	PHYSICS
H	ELECTRICITY

<http://www.wipo.int/ipcpub>

IPC Search

The screenshot shows the WIPO IPC Search interface. At the top, the WIPO logo and 'WORLD INTELLECTUAL PROPERTY ORGANIZATION' are displayed. A navigation bar includes 'Home', 'References', 'International Classifications', 'International Patent Classification', and 'IPC Publication'. The search input field contains 'semiconductor laser'. Below the search bar, there are buttons for 'Search' and 'Reset', and a 'Results' section with a search icon and a gear icon. A red box highlights the 'Advanced Search' checkbox. The 'Terms search' section includes 'Stemming' (checked), 'Limit to' (A01N A01H), 'Exclude' (A01N A01H), and 'Path' (checked). The main content area shows a list of IPC classes from A to H, each with a navigation icon and a description:

Class	Description
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
G	PHYSICS
H	ELECTRICITY

IPC Advanced Search

Search Reset

Results

Advanced Search

T [X] [Pie Chart] [Star]

Terms search:

- Stemming
- Limit to
- Exclude
- Path
- Scheme titles
- Scheme references
- Catchwords
- Definitions

IPCPUB v7.0 - 05.05.2017
CPC 02.2017, FI 16.11.2015

→ +	A	HUMAN NECESSITIES
→ +	B	PERFORMING OPERATIONS; TRANSPORTING
→ +	C	CHEMISTRY; METALLURGY
→ +	D	TEXTILES; PAPER
→ +	E	FIXED CONSTRUCTIONS
→ +	F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
→ +	G	PHYSICS
→ +	H	ELECTRICITY

IPC Advanced Search

The screenshot displays the IPC Advanced Search interface. On the left, there is a sidebar with search controls. At the top, there are 'Search' and 'Reset' buttons. Below them are icons for a search scope and a gear icon labeled 'Results'. A checkbox for 'Advanced Search' is checked. There are icons for text search (T), search (magnifying glass), pie chart, and star. Under 'Terms search:', there are checkboxes for 'Stemming' (checked), 'Limit to' (input field with 'A01N,A01I'), and 'Exclude' (input field with 'A01N,A01I'). The 'Path' checkbox is checked and highlighted with a red box, with a warning icon to its right. Other checkboxes include 'Scheme titles' (checked), 'Scheme references' (unchecked), 'Catchwords' (checked), and 'Definitions' (checked). At the bottom of the sidebar, it says 'IPCPUB v7.0 - 05.05.2017' and 'CPC 02.2017, FI 16.11.2015'.

On the right, there is a list of IPC classes with expand/collapse arrows and plus signs:

- A HUMAN NECESSITIES
- B PERFORMING OPERATIONS; TRANSPORTING
- C CHEMISTRY; METALLURGY
- D TEXTILES; PAPER
- E FIXED CONSTRUCTIONS
- F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
- G PHYSICS
- H ELECTRICITY

IPC Advanced Search

The screenshot displays the IPC Advanced Search interface. On the left side, there is a search control panel with a 'Search' button (highlighted with a red box) and a 'Reset' button. Below these are icons for search options and a 'Results' section. The 'Advanced Search' checkbox is checked. There are icons for text search (T), search (magnifying glass), refresh, and favorite (star). Under 'Terms search:', there are checkboxes for 'Stemming' (checked), 'Limit to' (with input 'A01N,A01I'), and 'Exclude' (with input 'A01N,A01I'). Other options include 'Path' (unchecked), 'Scheme titles' (checked), 'Scheme references' (unchecked), 'Catchwords' (checked), and 'Definitions' (checked). At the bottom left, it says 'IPCPUB v7.0 - 05.05.2017' and 'CPC 02.2017, FI 16.11.2015'.

On the right side, there is a list of IPC classes with expand/collapse icons (left arrow and plus sign) and their corresponding titles:

- A HUMAN NECESSITIES
- B PERFORMING OPERATIONS; TRANSPORTING
- C CHEMISTRY; METALLURGY
- D TEXTILES; PAPER
- E FIXED CONSTRUCTIONS
- F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
- G PHYSICS
- H ELECTRICITY

IPC Search Results

The screenshot displays the IPC Search Results interface. On the left, there are three panels: 'Scheme terms' containing F21Y 115/30, H01S 3/0941, H01S 5/40, H01S, H01S 5/00, and F21K 9/00; 'Catchword terms' (highlighted with a red box) containing SEMICONDUCTOR(S) and LIGHT; and 'Definition terms' containing G11B 7/127, G11B 7/126, and H01S. The main area shows a list of classification terms from A to H, each with a right arrow and a plus sign icon, and a corresponding definition in red text.

Classification Term	Definition
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
G	PHYSICS
H	ELECTRICITY

IPC Search Results (Catchwords)

The screenshot displays the IPC Search Results (Catchwords) interface. The sidebar on the left contains three sections: 'Scheme terms' (F21Y 115/30, H01S 3/0941, H01S 5/40, H01S, H01S 5/00, F21K 9/00), 'Catchword terms' (SEMICONDUCTOR(S) highlighted with a red box, LIGHT), and 'Definition terms' (G11B 7/127, G11B 7/126, H01S). The main area shows a list of catchwords from A to H, with 'SEMICONDUCTOR(S)' corresponding to 'ELECTRICITY'.

Letter	Catchword
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
G	PHYSICS
H	ELECTRICITY

IPC Catchword Index

Catchword terms

SEMICONDUCTOR(S)
LIGHT

Definition terms

G11B 7/127
G11B 7/126
H01S
G02F 2/00
H01L 31/0463
F21K 9/00
F21V
F21L
H04B 10/00
G01J

1/2

Scheme RCL Compilation Catchwords

SEMICARBAZONES C07C 281/08*

SEMICONDUCTOR(S)

cutting or working SEMICONDUCTOR(S) material B28D 5/00
manufacture or treatment of SEMICONDUCTOR(S) devices H01L 21/00
materials for SEMICONDUCTOR(S) C30B
resistors formed from SEMICONDUCTOR(S) material H01C
selection of magnetic SEMICONDUCTOR(S) material H01F 1/40
SEMICONDUCTOR(S) devices having at least one potential barrier H01L
SEMICONDUCTOR(S) devices using field-effect H01L 29/76
SEMICONDUCTOR(S) DRAM devices H01L 27/108
SEMICONDUCTOR(S) integrated circuits H01L 27/00
SEMICONDUCTOR(S) lasers H01S 5/00
SEMICONDUCTOR(S) materials used in thermoelectric devices H01L
SEMICONDUCTOR(S) ROM devices H01L 27/112
SEMICONDUCTOR(S) SRAM devices H01L 27/11
testing SEMICONDUCTOR(S) devices G01R 31/26

SENSING

IPC Scheme

The screenshot displays the IPC Scheme interface with the following components:

- Catchword terms:** SEMICONDUCTOR(S) LIGHT
- Definition terms:** G11B 7/127, G11B 7/126, H01S, G02F 2/00, H01L 31/0463, F21K 9/00, F21V, F21L, H04B 10/00, G01J
- Navigation:** Back, Previous, Next, Forward buttons and a page indicator '1/2'.
- Scheme Tab:** Contains a list of classification terms with expand/collapse icons.

Code	Description
H01S 4/00	Devices using stimulated emission of wave energy other than those covered by groups H01S 1/00, H01S 3/00 or H01S 5/00, e.g. phonon maser, gamma maser [2006.01]
H01S 5/00	Semiconductor lasers [2006.01] Note(s) [2006.01] Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. In this group, the Periodic System used is the 8 group system indicated by Roman numerals in the Periodic Table thereunder.
H01S 5/02	• Structural details or components not essential to laser action [2006.01]
H01S 5/022	•• Mountings; Housings [2006.01]
H01S 5/024	•• Cooling arrangements [2006.01]
H01S 5/026	•• Monolithically integrated components, e.g. waveguides, monitoring photo-detectors or drivers (stabilisation of output H01S 5/06) [2006.01]
H01S 5/028	•• Coatings [2006.01]
H01S 5/04	• Processes or apparatus for excitation, e.g. pumping (H01S 5/06 takes precedence) [2006.01]
H01S 5/042	•• Electrical excitation [2006.01]

IPC Search Results (Definitions)

The screenshot displays the IPC search interface. On the left, a sidebar contains 'Catchword terms' (SEMICONDUCTOR(S) LIGHT) and 'Definition terms' (G11B 7/127, G11B 7/126, H01S, G02F 2/00, H01L 31/0463, F21K 9/00, F21V, F21L, H04B 10/00, G01J). The main area shows search results for 'SEMICONDUCTOR(S) LIGHT' under the 'Scheme' tab. The results are organized into a table with columns for navigation, IPC class, and description.

	Scheme	RCL	Compilation	Catchwords	
→					H01S 4/00 Devices using stimulated emission of wave energy other than those covered by groups H01S 1/00, H01S 3/00 or H01S 5/00, e.g. phonon maser, gamma maser [2006.01]
→	−				H01S 5/00 Semiconductor lasers [2006.01] Note(s) [2010.01] Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. In this group, the Periodic System used is the 8 group system indicated by Roman numerals in the Periodic Table thereunder.
→	−				H01S 5/02 • Structural details or components not essential to laser action [2006.01]
→					H01S 5/022 • • Mountings; Housings [2006.01]
→					H01S 5/024 • • Cooling arrangements [2006.01]
→					H01S 5/026 • • Monolithically integrated components, e.g. waveguides, monitoring photo-detectors or drivers (stabilisation of output H01S 5/06) [2006.01]
→					H01S 5/028 • • Coatings [2006.01]
→	−				H01S 5/04 • Processes or apparatus for excitation, e.g. pumping (H01S 5/06 takes precedence) [2006.01]
→					H01S 5/042 • • Electrical excitation [2006.01]

IPC Search Results (Definitions)

Catchword terms

SEMICONDUCTOR(S)
LIGHT

Definition terms

G11B 7/127

G11B 7/126
H01S
G02F 2/00
H01L 31/0463
F21K 9/00
F21V
F21L
H04B 10/00
G01J

1/2

Scheme RCL Compilation Catchwords

→	H01S 4/00	Devices using stimulated emission of wave energy other than those covered by groups H01S 1/00, H01S 3/00 or H01S 5/00, e.g. phonon maser, gamma maser [2006.01]	
→	−	H01S 5/00	Semiconductor lasers [2006.01] Note(s) [2010.01] Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers. In this group, the Periodic System used is the 8 group system indicated by Roman numerals in the Periodic Table thereunder.
→	−	H01S 5/02	• Structural details or components not essential to laser action [2006.01]
→		H01S 5/022	•• Mountings; Housings [2006.01]
→		H01S 5/024	•• Cooling arrangements [2006.01]
→		H01S 5/026	•• Monolithically integrated components, e.g. waveguides, monitoring photo-detectors or drivers (stabilisation of output H01S 5/06) [2006.01]
→		H01S 5/028	•• Coatings [2006.01]
→	−	H01S 5/04	• Processes or apparatus for excitation, e.g. pumping (H01S 5/06 takes precedence) [2006.01]
→		H01S 5/042	•• Electrical excitation [2006.01]

IPC Scheme

The screenshot displays the IPC Scheme interface. On the left, there are two panels: 'Catchword terms' containing 'SEMICONDUCTOR(S) LIGHT' and 'Definition terms' containing a list of IPC codes such as G11B 7/127, G11B 7/126, H01S, G02F 2/00, H01L 31/0463, F21K 9/00, F21V, F21L, H04B 10/00, and G01J. Below these panels are navigation arrows and a page indicator '1/2'. The main area shows a list of terms under the 'Scheme' tab. The term 'G11B 7/127' is highlighted with a red box. Below the list, there are sections for 'Definitions' and 'References'. The 'References' section includes 'Informative references' and a note: 'Attention is drawn to the following places, which may be of interest for search:'. A table below this note lists 'Lasers; semiconductor lasers' and 'H01S 3/00, H01S 5/00'. The list of terms includes: G11B 7/1263 (Power control during transducing, e.g. by monitoring [2012.01]), G11B 7/1267 (Power calibration [2012.01]), G11B 7/127 (Lasers; Multiple laser arrays [2012.01]), G11B 7/1275 (Two or more lasers having different wavelengths [2012.01]), G11B 7/128 (Modulators (G11B 7/1245 takes precedence) [2012.01]), G11B 7/13 (Optical detectors therefor [2012.01]), and G11B 7/131 (Arrangement of detectors in a multiple array [2012.01]).

Term	Description
G11B 7/1263	Power control during transducing, e.g. by monitoring [2012.01]
G11B 7/1267	Power calibration [2012.01]
G11B 7/127	Lasers; Multiple laser arrays [2012.01]
G11B 7/1275	Two or more lasers having different wavelengths [2012.01]
G11B 7/128	Modulators (G11B 7/1245 takes precedence) [2012.01]
G11B 7/13	Optical detectors therefor [2012.01]
G11B 7/131	Arrangement of detectors in a multiple array [2012.01]

IPC Scheme (Definitions)

The screenshot displays the IPC Scheme (Definitions) interface. On the left, there are two panels: 'Catchword terms' containing 'SEMICONDUCTOR(S) LIGHT' and 'Definition terms' containing a list of IPC codes such as G11B 7/127, H01S, G02F 2/00, H01L 31/0463, F21K 9/00, F21V, F21L, H04B 10/00, and G01J. Below the definition terms is a navigation bar with arrows and '1/2'. The main area shows a list of terms with their definitions. The term 'G11B 7/127' is highlighted in green. Below it, the 'Definitions' and 'References' sections are visible. The 'References' section is highlighted with a red box and contains the text 'Informative references' and 'Attention is drawn to the following places, which may be of interest for search:'. Below this, there are two boxes: 'Lasers; semiconductor lasers' and 'H01S 3/00, H01S 5/00'. The list of terms continues with G11B 7/125, G11B 7/128, G11B 7/13, and G11B 7/131.

IPC Code	Definition
G11B 7/1263 Power control during transducing, e.g. by monitoring [2012.01]
G11B 7/1267 Power calibration [2012.01]
G11B 7/127	... Lasers; Multiple laser arrays [2012.01]
Definitions	
References	
Informative references	
Attention is drawn to the following places, which may be of interest for search:	
Lasers; semiconductor lasers	H01S 3/00, H01S 5/00
G11B 7/1275 Two or more lasers having different wavelengths [2012.01]
G11B 7/128	... Modulators (G11B 7/1245 takes precedence) [2012.01]
G11B 7/13	.. Optical detectors therefor [2012.01]
G11B 7/131	... Arrangement of detectors in a multiple array [2012.01]

IPC Scheme (Definitions)

The screenshot displays the IPC Scheme (Definitions) interface. On the left, there are two panels: 'Catchword terms' containing 'SEMICONDUCTOR(S) LIGHT' and 'Definition terms' containing a list of IPC codes such as G11B 7/127, H01S, G02F 2/00, H01L 31/0463, F21K 9/00, F21V, F21L, H04B 10/00, and G01J. The main area shows a list of terms with their definitions. The term 'Lasers; semiconductor lasers' is highlighted in a red box. Below this term, there is a section for 'References' with the text 'Attention is drawn to the following places, which may be of interest for search:' and a table listing 'Lasers; semiconductor lasers' and 'H01S 3/00, H01S 5/00'.

IPC Code	Definition
G11B 7/1263 Power control during transducing, e.g. by monitoring [2012.01]
G11B 7/1267 Power calibration [2012.01]
G11B 7/127	... Lasers; Multiple laser arrays [2012.01]
Definitions	
References	
<i>Informative references</i>	
<i>Attention is drawn to the following places, which may be of interest for search:</i>	
Lasers; semiconductor lasers	H01S 3/00, H01S 5/00
G11B 7/1275 Two or more lasers having different wavelengths [2012.01]
G11B 7/128	... Modulators (G11B 7/1245 takes precedence) [2012.01]
G11B 7/13	.. Optical detectors therefor [2012.01]
G11B 7/131	... Arrangement of detectors in a multiple array [2012.01]

IPC Scheme (Definitions)

Catchword terms

SEMICONDUCTOR(S)
LIGHT

Definition terms

G11B 7/127
G11B 7/126
H01S
G02F 2/00
H01L 31/0463
F21K 9/00
F21V
F21L
H04B 10/00
G01J

1/2

Scheme RCL Compilation Catchwords

→	D	G11B 7/1263 Power control during transducing, e.g. by monitoring [2012.01]
→		G11B 7/1267 Power calibration [2012.01]
→ -	D	G11B 7/127	... Lasers; Multiple laser arrays [2012.01]
-			Definitions
-			References
			<i>Informative references</i>
			Attention is drawn to the following places, which may be of interest for search:
		Lasers; semiconductor lasers	H01S 3/00 H01S 5/00
→		G11B 7/1275 Two or more lasers having different wavelengths [2012.01]
→		G11B 7/128	... Modulators (G11B 7/1245 takes precedence) [2012.01]
	D		
→ -		G11B 7/13	.. Optical detectors therefor [2012.01]
	D		
→		G11B 7/131	... Arrangement of detectors in a multiple array [2012.01]

IPC Search Results (STATS)

The screenshot displays the IPC search results interface. On the left, a sidebar titled 'STATS' is highlighted with a red rounded rectangle. It shows a 'Results' section with a pie chart icon and a list of classification codes and their counts: 29 H01L, 24 H01S, 14 G02B, 8 G01N, 6 G02F, 5 G11B, 5 H04B, 5 A61B, 4 G03F, and 4 B23K. Each entry has a '+' icon to its right. Above the sidebar are navigation buttons (back, forward, search) and a '1/2' indicator.

The main content area is divided into sections: 'Definitions' and 'References'. The 'References' section is highlighted with a green bar and contains the text 'Informative references' and 'Attention is drawn to the following places, which may be of interest for search:'. Below this, a table lists search results with classification codes and their corresponding definitions:

Classification Code	Definition
G11B 7/1275	•••• Two or more lasers having different wavelengths [2012.01]
G11B 7/128	••• Modulators (G11B 7/1245 takes precedence) [2012.01]
G11B 7/13	•• Optical detectors therefor [2012.01]
G11B 7/131	••• Arrangement of detectors in a multiple array [2012.01]
G11B 7/133	••• Shape of individual detector elements [2012.01]
G11B 7/135	•• Means for guiding the beam from the source to the record carrier or from the record carrier to the detector [2012.01]
G11B 7/1353	••• Diffractive elements, e.g. holograms or gratings [2012.01]

IPC Search Results (STATS)

The screenshot displays the IPC Search Results (STATS) interface. On the left, a sidebar shows a list of results with the following categories and counts:

Count	Category
24	H01S
14	G02B
8	G01N
6	G02F
5	G11B
5	H04B
5	A61B
4	G03F
4	B23K

The '24 H01S' entry is highlighted with a red box. The main content area shows detailed information for G11B 7/135, including a definition and references. The 'References' section is highlighted in green and contains the following text:

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

Lasers; semiconductor lasers	H01S 3/00, H01S 5/00
------------------------------	----------------------

The detailed definition for G11B 7/135 is as follows:

- Two or more lasers having different wavelengths [2012.01]
- Modulators (G11B 7/1245 takes precedence) [2012.01]
- Optical detectors therefor [2012.01]
- Arrangement of detectors in a multiple array [2012.01]
- Shape of individual detector elements [2012.01]
- Means for guiding the beam from the source to the record carrier or from the record carrier to the detector [2012.01]
- Diffractive elements, e.g. holograms or gratings [2012.01]

IPC Search Results (STATS)

1/2

STATS

Results

29	H01L	+
24	H01S	+
14	G02B	+
8	G01N	+
6	G02F	+
5	G11B	+
5	H04B	+
5	A61B	+
4	G03F	+
4	B23K	+

Definitions

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lasers; semiconductor lasers	H01S 3/00, H01S 5/00
------------------------------	----------------------

G11B 7/1275 •••• Two or more lasers having different wavelengths [2012.01]

G11B 7/128 ••• Modulators (G11B 7/1245 takes precedence) [2012.01]

D

G11B 7/13 •• Optical detectors therefor [2012.01]

D

G11B 7/131 ••• Arrangement of detectors in a multiple array [2012.01]

G11B 7/133 ••• Shape of individual detector elements [2012.01]

G11B 7/135 •• Means for guiding the beam from the source to the record carrier or from the record carrier to the detector [2012.01]

G11B 7/1353 ••• Diffractive elements, e.g. holograms or gratings [2012.01]

IPC Search Results (STATS)

The screenshot displays the IPC Search Results (STATS) interface. On the left, a 'STATS' sidebar shows a list of results with counts and expand/collapse icons. A red box highlights the top five results: 25 H01S 5/183, 21 H01S 5/14, 20 H01S 5/40, 20 H01S 5/022, and 18 H01S 5/10. The main area shows a detailed view of G11B 7/1359, including its definition and references. The 'References' section is highlighted in green and contains the text: 'Informative references' and 'Attention is drawn to the following places, which may be of interest for search:'. Below this, a table lists 'Lasers; semiconductor lasers' and 'H01S 3/00, H01S 5/00'. The detailed view for G11B 7/1359 includes a definition: '... Double or multiple prisms, i.e. having two or more prisms in cooperation [2012.01]'.

STATS

Results

- 29 H01L
- 24 H01S
- 25 H01S 5/183
- 21 H01S 5/14
- 20 H01S 5/40
- 20 H01S 5/022
- 18 H01S 5/10
- 14 G02B
- 8 G01N
- 6 G02F
- 5 G11B
- 5 H04B
- 5 A61B
- 4 G03F
- 4 B23K

Definitions

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lasers; semiconductor lasers	H01S 3/00, H01S 5/00
------------------------------	----------------------

G11B 7/1359

... Double or multiple prisms, i.e. having two or more prisms in cooperation [2012.01]

IPC Search Results (STATS)

H01S 5/183
H01S 5/14
H01S 5/40

STATS	
Results	
29 H01L	+
24 H01S	-
25 H01S 5/183	
21 H01S 5/14	
20 H01S 5/40	
20 H01S 5/022	
18 H01S 5/10	
14 G02B	+
8 G01N	+
6 G02F	+
5 G11B	+
5 H04B	+
5 A61B	+
4 G03F	+
4 B23K	+

→	G11B 7/1275
→	G11B 7/128
D	
→ -	G11B 7/13
D	
→	G11B 7/131
→	G11B 7/133
→ -	G11B 7/135
→	G11B 7/1353
D	
→	G11B 7/1356
→	G11B 7/1359

IPC Search Results (STATS)

H01S 5/00

STATS	
Results	
29 H01L	+
24 H01S	-
25 H01S 5/183	
21 H01S 5/14	
20 H01S 5/40	
20 H01S 5/022	
18 H01S 5/10	
14 G02B	+
8 G01N	+
6 G02F	+
5 G11B	+
5 H04B	+
5 A61B	+
4 G03F	+
4 B23K	+

→	G11B 7/1275
→	G11B 7/128
D	
→ -	G11B 7/13
D	
→	G11B 7/131
→	G11B 7/133
→ -	G11B 7/135
→	G11B 7/1353
D	
→	G11B 7/1356
→	G11B 7/1359

Classification

- Structure
 - Arrangement
 - Composition
- Function

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