How to Use Espacenet to Search for Patents

By André Duarte B. L. Ferreira

19th January 2017

Note & Disclaimer: some parts have been copy-pasted, so I don't claim to have written everything here. Moreover, since this is for personal learning purposes only, and to speed up the writing process I chose not to put references. More, I'm not a professional, so take this information with a grain of salt. Hopefully most of it is accurate, but this topic has A LOT to it.

Useful Links

Other Guides

How to Search for Patent Information

International Patent Classification | Version 2016 | Guide to the IPC

Other Patent Search Engines

At the time of writing this, Espacenet search engine had indexed > 90M worldwide patent documents. In comparison Google Patent had only >2M USA-only patent documents. There are also commercial patent search engines (you pay to get access to them) like Questel-Orbit's.

IPC = International Patent Classification

IPC is like the barcode of patents. There are other codes (ways) of identifying patents such as the Cooperative Patent Classification (CPC) provided by the European Patent Office (EPO) and US Patent Office (USPTO) that is based on the IPC but is more detailed. The IPC is the most used one.

Patent classification codes indicate the field(s) to which the patent application relates. The classification forms a hierarchical structure where each code (in different colors below) further specifies the patent.

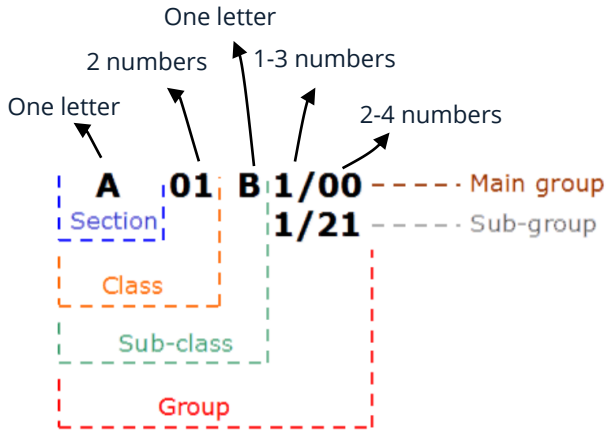


Fig. 1 *– Explanation of the IPC code.*

The IPC has a systematic and hierarchical structure. Classification becomes more detailed with every further (sub)division, as you can see in this example: Level	**Symbol**	**Decription**
Section	**A**	Human necessities
Class	**A21**	Baking; edible doughs
Subclass	**A21C**	Machines or equipment for processing doughs
Group	**A21C1**	Mixing or kneading machine for the preparation of dough
Subgroup	**A21C1/06**	With horizontally-mounted mixing or kneading tools

Fig. 2 *– Meaning of the structure of the IPC code.*

Subgroups are ordered as if the "/" was a comma (**Fig. 3**). Example of subgroups in the order they would appear:

3/00 (3,00)
3/005 (3,005)
3/01 (3,01)
3/011 (3,011)
3/012 (3,012)
3/02 (3,02)
~~3/1~~ (we can't use this one, there must be at least 2 numbers)
3/10 (3,10)
3/126 (3,126)

Subgroups further specify the innovation:

28. The hierarchical structure relating to the six-dot subgroup H01F 1/053 is shown in the following example:

Section:	H		ELECTRICITY
Class:	H01		BASIC ELECTRIC ELEMENTS
Subclass:	H01F		MAGNETS
Main group:	H01F	1/00	Magnets or magnetic bodies characterised by the magnetic materials therefor
One-dot subgroup:		1/01	• of inorganic materials
Two-dot subgroup:		1/03	• • characterised by their coercivity
Three-dot subgroup:		1/032	• • • of hard-magnetic materials
Four-dot subgroup:		1/04	• • • • Metals or alloys
Five-dot subgroup:		1/047	• • • • • Alloys characterised by their composition
Six-dot subgroup:		1/053	• • • • • • containing rare earth metals

Fig. 3 *– Hierarchical structure relating to the H01F 1/053.*

Group H01F 1/053 concerns “magnets of inorganic materials characterized by their coercivity, comprising hard magnetic alloys specifically containing rare earth metals”.

Example

We want to know the IPC of robotic palletizing grippers so that we can then limit our future searches to that IPC (so that irrevelant results don’t show up)

Method 1) We look for the relevant classification search

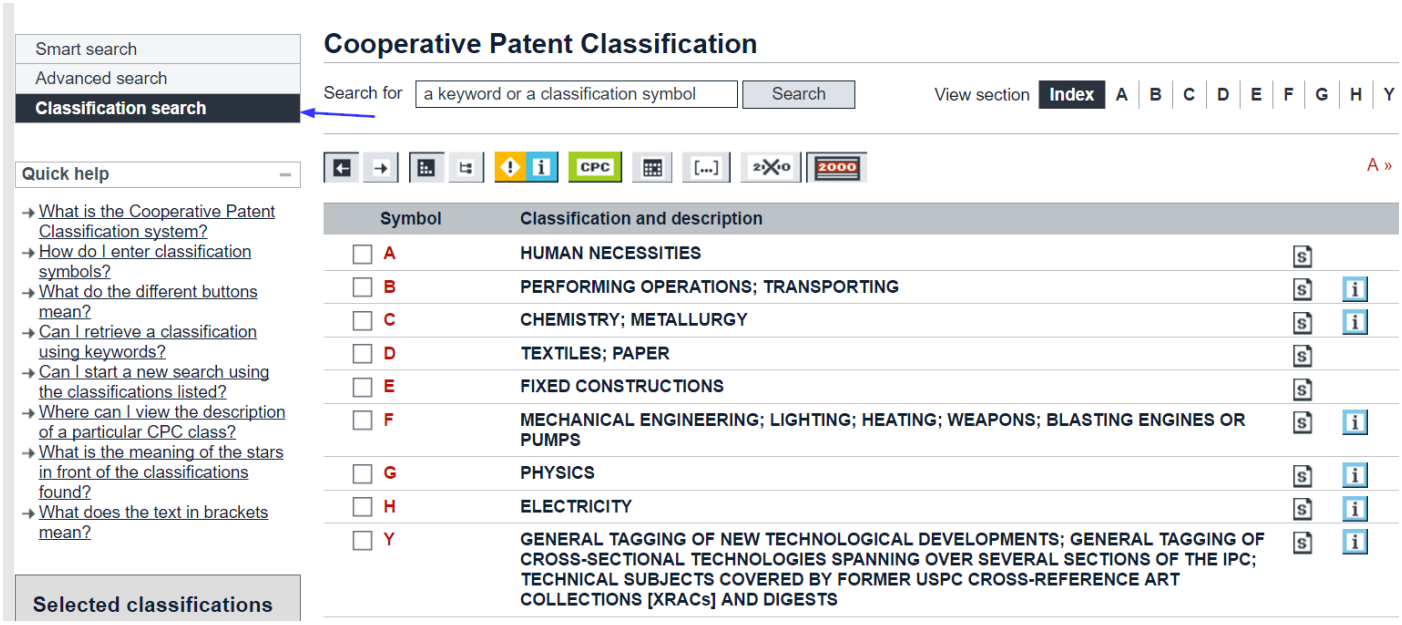


Fig. 4 *– Click on classification search will show a table with IPC classes.*

Then we click on the relevant letter, and so on, until we pin down one or more relevant IPC Codes. For this case the result would yield

B Performing Operations; **Transporting**

25 Hand Tools ; Portable power-driven tools; **Manipulators**.

J Manipulators; Chambers provided with manipulation devices.

9 Programme-controlled manipulators

15 Gripping Heads.

65 Conveying; **Packing**; **Storing**; Handling Thin or Filamentary Material

G Transport or Storage Devices; **Shop conveyor systems;** Pneumatic tube conveyors**.**

1 Storing; Storage Devices.

47 Article or material handling devices associated with conveyors; Methods employing such devices.

/**34 Devices for discharging articles or materials from conveyors**
/**74 Feeding, transfer, or discharging devices of particular kinds or types.**
/**90 Devices for picking-up and depositing articles or materials.**

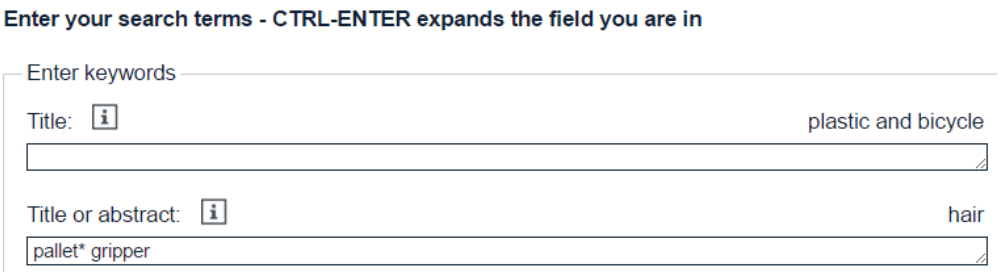
57 Stacking of articles

61 Use of pick-up or transfer devices or of manipulators for stacking or de-stacking articles not otherwise provided for.

So the IPCs to use are

B25J9
B25J15
B65G1
B65G47
B65G57
B65G61

Method 2)



1. INTELLIGENT ROBOT GRIPPER FOR PALLETIZING SYSTEM						
★	**Inventor:** ZHANG PING [CN]	**Applicant:** ZHANG PING [CN]	**CPC:**	**IPC:** B25J15/06 B25J9/00 B65G61/00	**Publication info:** WO2016206422 (A1) 2016-12-29	**Priority date:** 2015-06-26
2. Intelligent Robot gripper for palletizing system						
★	**Inventor:** ZHANG PING [CN]	**Applicant:** ZHANG PING [CN]	**CPC:**	**IPC:**	**Publication info:** LU93146 (A1) 2016-11-14	**Priority date:** 2016-03-24
3. Gripper for gripping, moving and depositing a pallet						
★	**Inventor:** SCHEER DANIEL	**Applicant:** LOHR ELECTROMECANIQUE	**CPC:** B60P1/02 B60P3/08	**IPC:** B60P1/02 B60P3/08 B61D3/18	**Publication info:** AU2015265669 (A1) 2016-11-24	**Priority date:** 2014-05-27
4. Control system for palletizing robot						
★	**Inventor:** LI YA'NAN	**Applicant:** SHIJIAZHUANG SENRUI MECH TECH CO LTD	**CPC:**	**IPC:** B25J9/16	**Publication info:** CN105773602 (A) 2016-07-20	**Priority date:** 2015-07-10
5. Polymer battery gripper						
★	**Inventor:** ZHOU LIPING XIE FANG	**Applicant:** HUNAN CHENWEI HI-TECH CO LTD	**CPC:**	**IPC:** G01R1/04 G01R31/36	**Publication info:** CN105738810 (A) 2016-07-06	**Priority date:** 2014-12-07
6. USE OF PRINTED CIRCUIT BOARD, ELECTRONIC COMPONENT, AND SEMI-CONDUCTOR ASSEMBLY EQUIPMENT FOR THE ASSEMBLY OF RAZORS AND COMPONENTS THEREOF						
★	**Inventor:** AVIZA GREGORY DAVID [US] JU YONGQING [US] (+1)	**Applicant:** GILLETTE CO [US]	**CPC:** B25J11/005 B26B21/4068 H05K13/0404	**IPC:** B25J11/00 B26B21/40	**Publication info:** US2016089801 (A1) 2016-03-31	**Priority date:** 2010-06-18

We now click on a few of those IPC Codes and see whether they're relevant or not. Or we click on a few of the results and see which IPC codes they have.

CPC = Cooperative Patent Classification

The CPC is based on the IPC and consists of:

- all IPC symbols
- a main trunk of CPC symbols
- a 2000 series of indexing codes for additional information

How to Search

Types of search

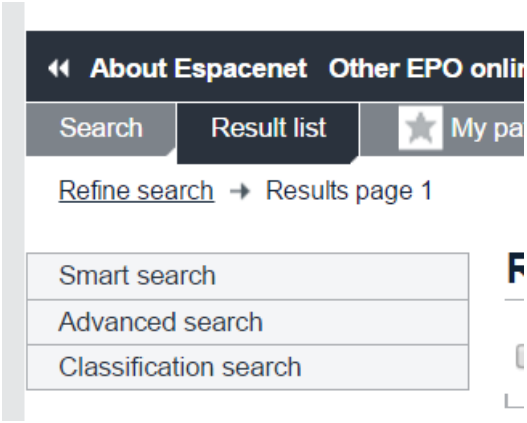


Fig. 5 *– The 3 search types available.*

Smart search is better if you know how to use it. It combines multiple functions in a single search field. Just type in your terms, and the search engine will try to "guess" what you mean. Smart search understands Contextual Query Language (CQL).

Advanced search is the best option if you want to search in the bibliographic data and the abstract (where available) and to combine various search terms. This is the one I would recommend.

Classification search is the right option if you are interested in finding all the patent publications in a particular technical area. Being a powerful tool used by professional patent searchers, it can take a while to get used to, but it is usually worth the effort.

You can enter a maximum of ten search terms per field and a maximum of 20 search terms plus 19 operators per form. Please enter your search terms separated by a space. You do not have to type in the default operators AND and OR. The system automatically uses the correct one: for the publication, application number and priority number fields, the default operator is OR; for all other fields, as well as the **Smart search**, the default operator is AND.

How to Use Contextual Query Language

You can use Contextual Query Language (CQL) to search smartly. CQL is a language constructed for representing queries to information retrieval systems such as search engines, bibliographic catalogs and museum collection information.

Simple

`dinosaur`	
`dino*`	This one looks for words that have any other characters after dino, like dinosaurs, dinosauric, dinobird, ...)
`din*aur*`	This is also possible
`"dinosauric birds"`	Looks for this exact phrase

Boolean logic

and, or, not:

```
dinosaur or bird
dinosaur and bird
dinosaur not reptile
```

```
dinosaur and bird or dinobird
(bird or dinosaur) and (feathers or scales)
"feathered dinosaur" and (yixian or jehol)
```

ACCESSING PUBLICATION INDEXES

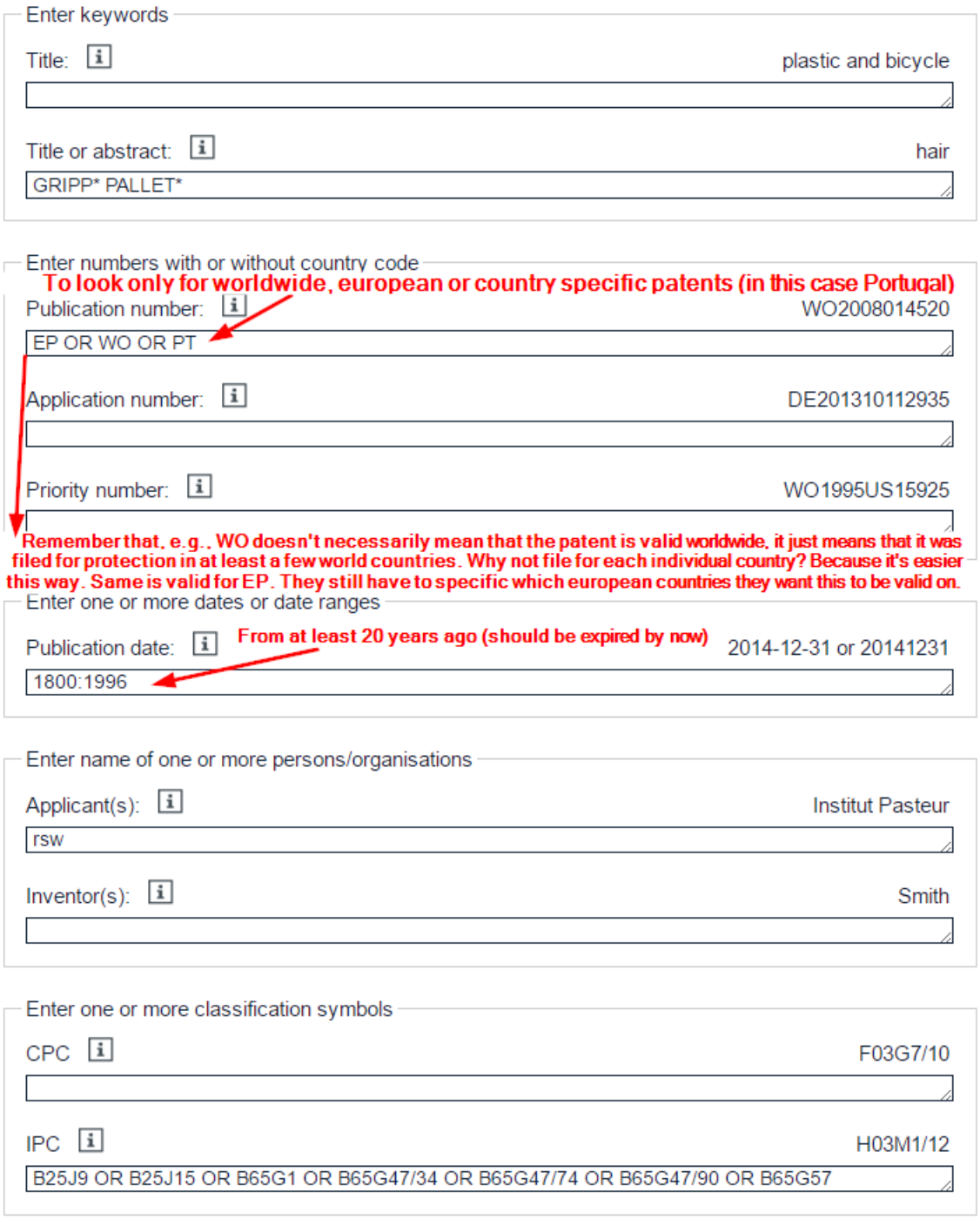
Smart Search	`pd within "1990 2001"`	Publication date between 1990 and 2001
	`pd <= 1997`	Publication date earlier than 1997 (expired patents)
Advanced Search in Pulibcation Date	`1990:2001`	
	`1800:1997`	

BASED ON THE PROXIMITY OF WORDS TO EACH OTHER

`dinosaur prox/distance<=5 bird`	Where the word "dinosaur" is at most 5 words apart from the word "bird"
`dinosaur prox/unit=sentence bird`	Where both words are in the same sentence.
`dinosaur prox/distance>0/unit=paragraph bird`	Where both words are in the same paragraph.

Filling Advanced Search Fields

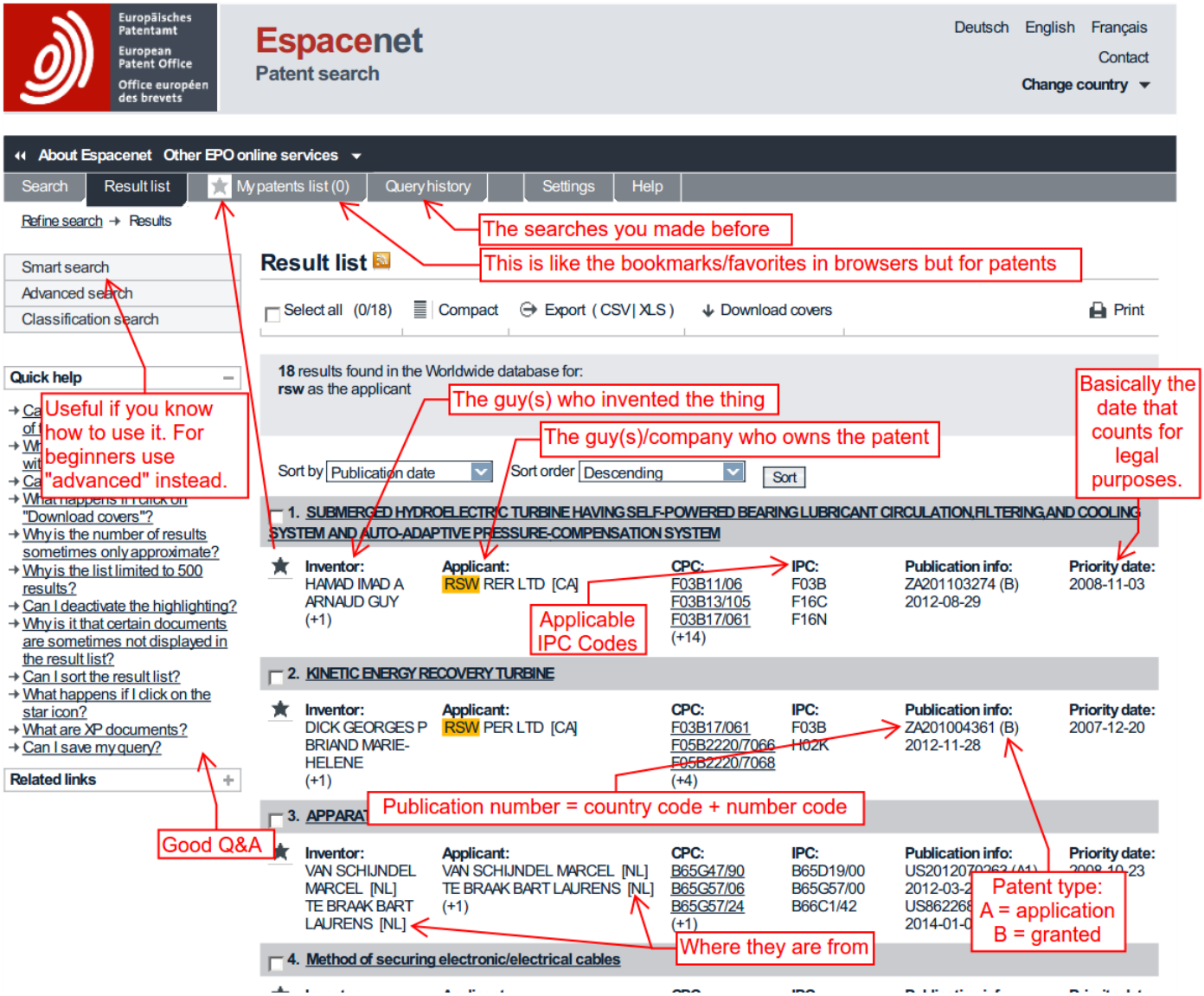
Example of a possible search



To find more possible keywords

- use a synonyms dictionary
- enter the keyword in Google and see more synonym/related keywords that pop up

Understanding Search Results



When you search, it may be useful for future reference, and if you're writing a report, to write down some

Search no. **1** (all IPC classifications)

More than **10,000** results found in the Worldwide database for:

B25J9 OR B25J15 OR B65G1 OR B65G47/34 OR B65G47/74 OR B65G47/90 OR B65G57 OR B65G61

Search no. **2** (adding "pallet*")

Approximately **8,438** results found in the Worldwide database for:

PALLET* in the title or abstract AND **B25J9 OR B25J15 OR B65G1 OR B65G47/34 OR B65G47/74 OR B65G47/90 OR B65G57 OR B65G61** as the IPC classification

Search no. **3** (adding "EP OR WO" as "publication number")

Approximately **975** results found in the Worldwide database for:

PALLET* in the title or abstract AND **EP OR WO** as the publication number AND **B25J9 OR B25J15 OR B65G1 OR B65G47/34 OR B65G47/74 OR B65G47/90 OR B65G57 OR B65G61** as the IPC classification

Search no. **4** (resctricting to those who also have robot* and stack*)

Approximately **331** results found in the Worldwide database for:

PALLET* AND (ROBOT* OR STACK*) in the title or abstract AND **EP OR WO** as the publication number AND **B25J9 OR B25J15 OR B65G1 OR B65G47/34 OR B65G47/74 OR B65G47/90 OR B65G57 OR B65G61** as the IPC classification

From this search we got patents DE102013003768 (B4) and EP2508452(A1).

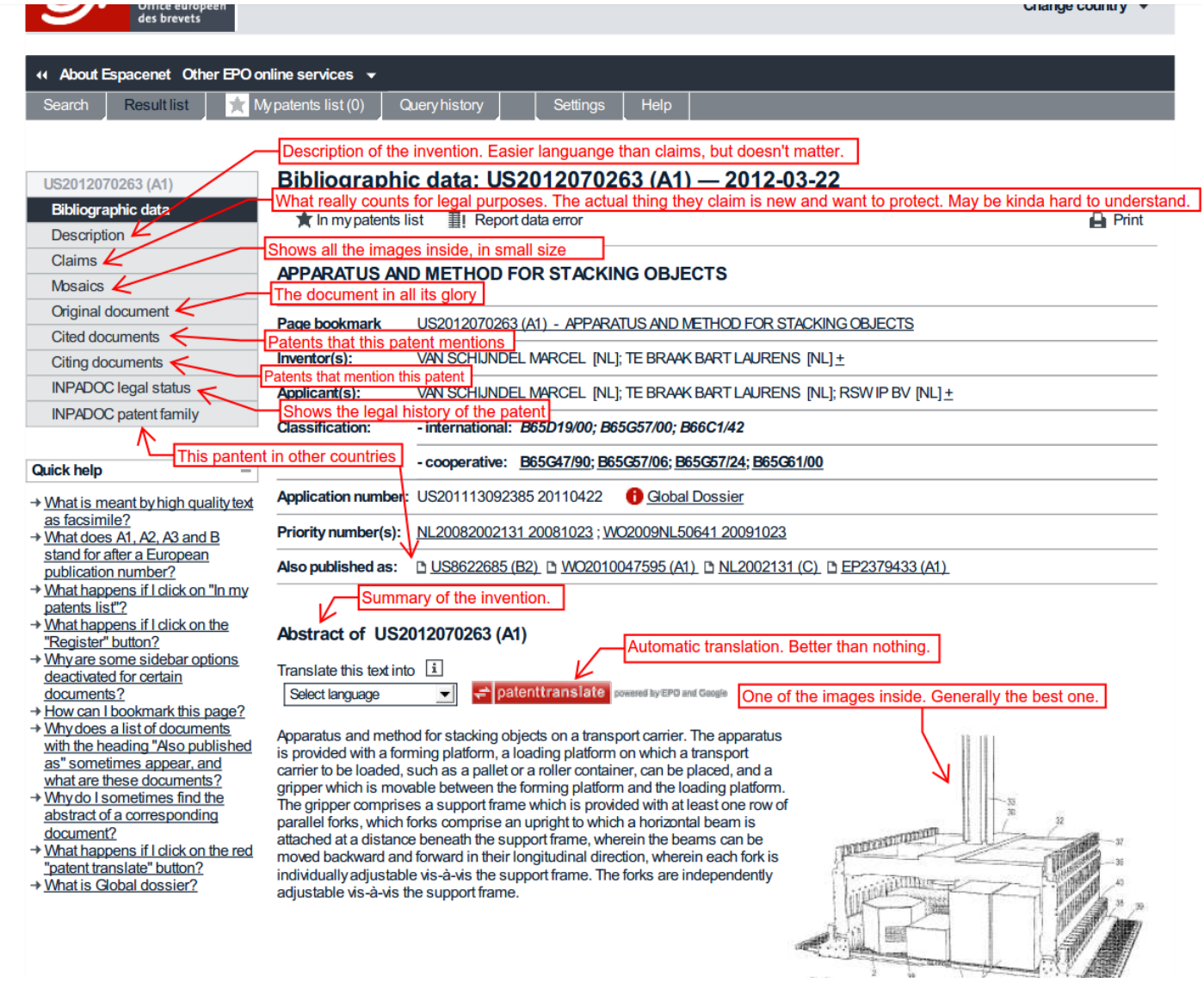
And so on...

After this you may complete them into a table

No.	Title	Publication No.	Publication Date	Summary
1	DEVICE FOR RECEIVING HORIZONTALLY MOUNTED PICKED GOODS IN PROCESS OF PALLETIZING OR DEPALLETIZING BY TWO-AXIS GRIPPER, HAS MAIN SUPPORT FRAME, WHICH IS FIXED ON PIVOT HEAD AND CARRIES RAILS FOR HORIZONTAL MOVEMENT OF CRANE FORK	DE102013003768 (B4)	2013-02-18	
2	PALLETIZING DEVICE AND METHOD	EP2508452(A1)	2012-10-10	
3	...	...	...	

And have a picture or two and a simple layman's explanation of what its claims.

UNDERSTANDING A PATENT'S BIBLIOGRAPHIC DATA

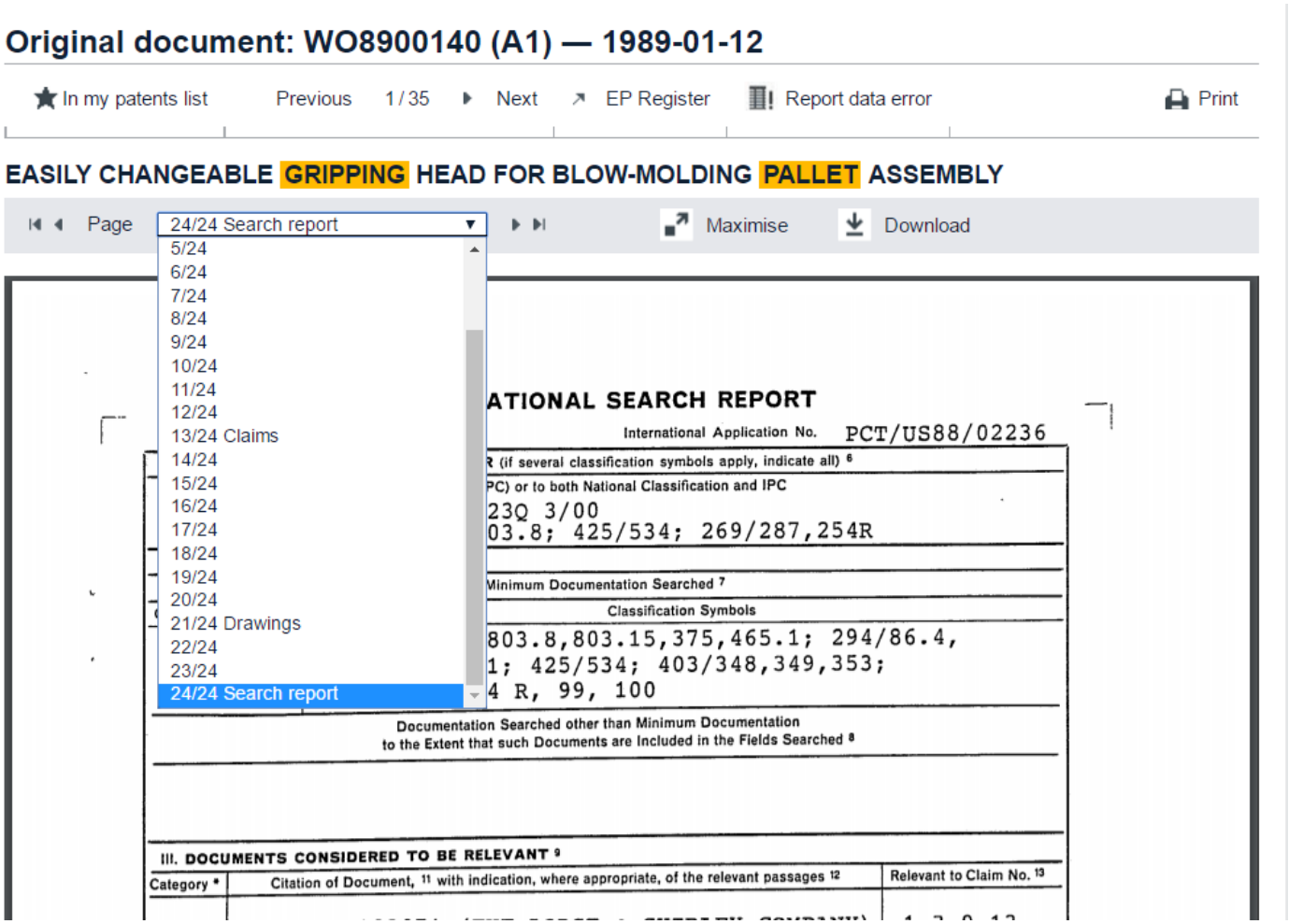


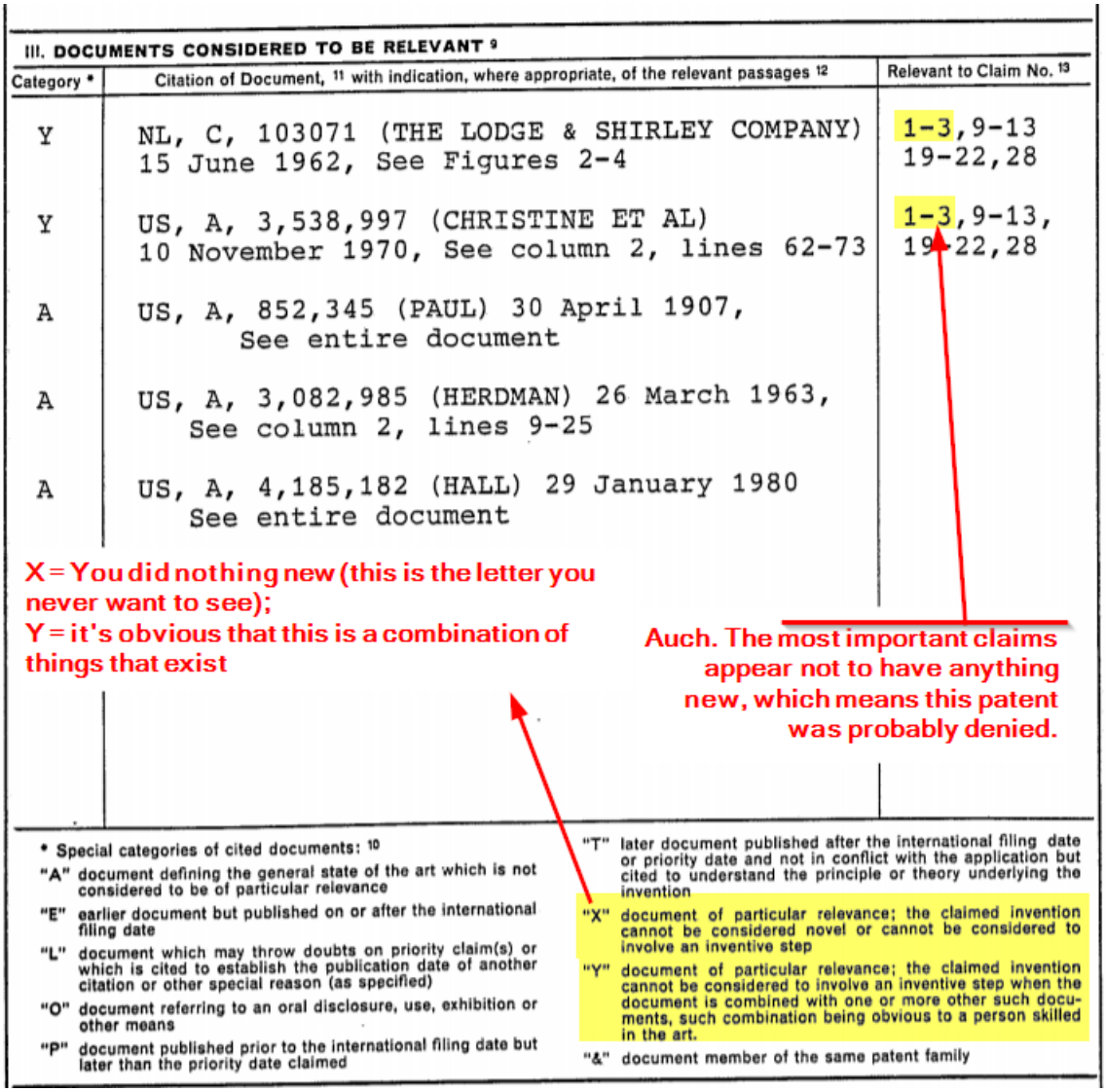
Note: The citing documents is a good way to find other relevant patents.

Simple Pantent Analysis

Suggested steps:

1) Read abstract;
2) See images (mosaic to get na ideia if the patent is something of interest then original document);
3) Read claims;
4) Go to original document, last page (generally), and “Search Report” (to see what the examiner found about it).





III. DOCUMENTS CONSIDERED TO BE RELEVANT [9]

Category *	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No. [13]
Y	NL, C, 103071 (THE LODGE & SHIRLEY COMPANY) 15 June 1962, See Figures 2-4	1-3,9-13 19-22,28
Y	US, A, 3,538,997 (CHRISTINE ET AL) 10 November 1970, See column 2, lines 62-73	1-3,9-13, 19-22,28
A	US, A, 852,345 (PAUL) 30 April 1907, See entire document	
A	US, A, 3,082,985 (HERDMAN) 26 March 1963, See column 2, lines 9-25	
A	US, A, 4,185,182 (HALL) 29 January 1980 See entire document	

X = You did nothing new (this is the letter you never want to see);
Y = it's obvious that this is a combination of things that exist

Auch. The most important claims appear not to have anything new, which means this patent was probably denied.

* Special categories of cited documents: [10]

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

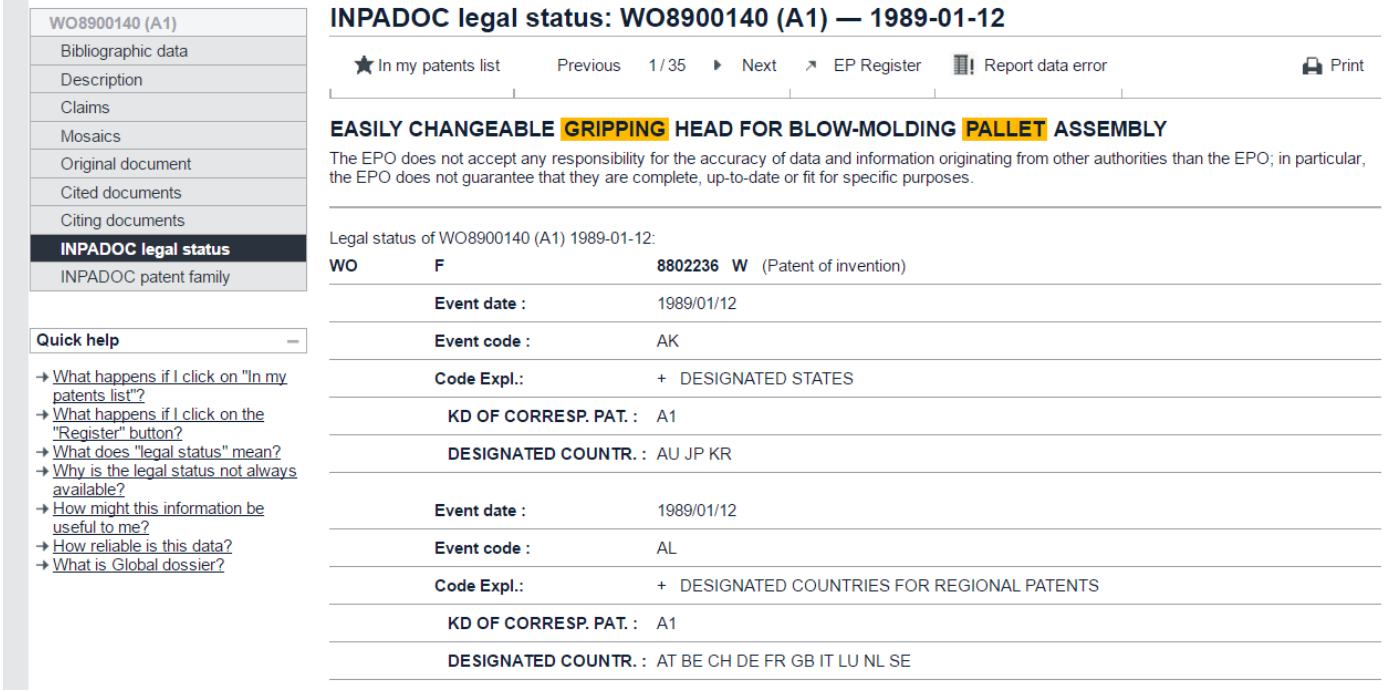
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Was this patent denied or what?



WO8900140 (A1)
Bibliographic data
Description
Claims
Mosaics
Original document
Cited documents
Citing documents
INPADOC legal status
INPADOC patent family

Quick help
- What happens if I click on "In my patents list"?
- What happens if I click on the "Register" button?
- What does "legal status" mean?
- Why is the legal status not always available?
- How might this information be useful to me?
- How reliable is this data?
- What is Global dossier?

INPADOC legal status: WO8900140 (A1) — 1989-01-12

In my patents list | Previous 1 / 35 | Next | EP Register | Report data error | Print

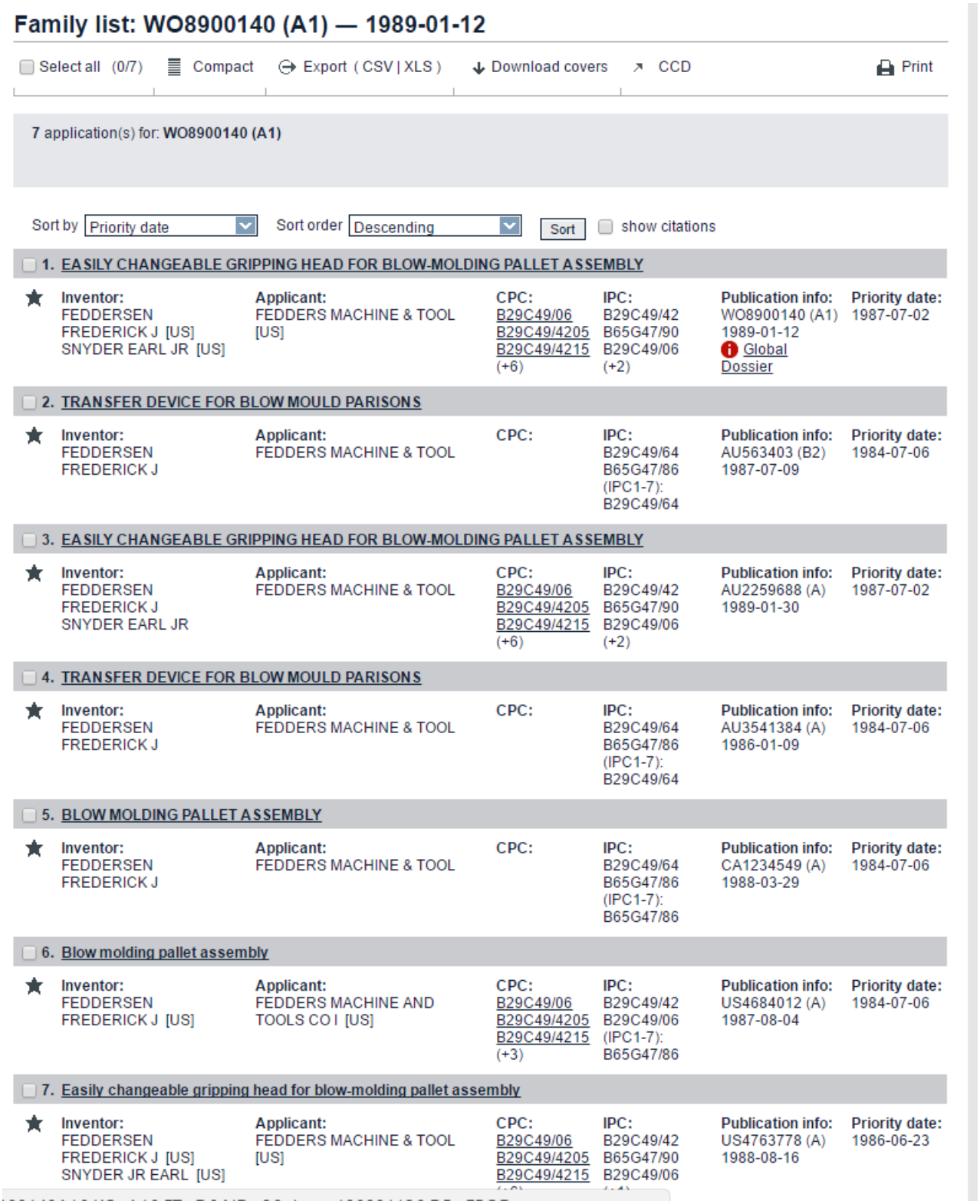
EASILY CHANGEABLE GRIPPING HEAD FOR BLOW-MOLDING PALLET ASSEMBLY

The EPO does not accept any responsibility for the accuracy of data and information originating from other authorities than the EPO; in particular, the EPO does not guarantee that they are complete, up-to-date or fit for specific purposes.

Legal status of WO8900140 (A1) 1989-01-12:

WO	F	8802236 W (Patent of invention)
	Event date :	1989/01/12
	Event code :	AK
	Code Expl.:	+ DESIGNATED STATES
	KD OF CORRESP. PAT. :	A1
	DESIGNATED COUNTR. :	AU JP KR
	Event date :	1989/01/12
	Event code :	AL
	Code Expl.:	+ DESIGNATED COUNTRIES FOR REGIONAL PATENTS
	KD OF CORRESP. PAT. :	A1
	DESIGNATED COUNTR. :	AT BE CH DE FR GB IT LU NL SE

Seems like it. Ends with A1 so it should mean it was never granted. But let's see its brothers and sisters.



Family list: WO8900140 (A1) — 1989-01-12

Select all (0/7) | Compact | Export (CSV | XLS) | Download covers | CCD | Print

7 application(s) for: **WO8900140 (A1)**

Sort by: Priority date | Sort order: Descending | Sort | show citations

	Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
1. EASILY CHANGEABLE GRIPPING HEAD FOR BLOW-MOLDING PALLET ASSEMBLY	FEDDERSEN FREDERICK J [US] SNYDER EARL JR [US]	FEDDERS MACHINE & TOOL [US]	B29C49/06 B29C49/4205 B29C49/4215 (+6)	B29C49/42 B65G47/90 B29C49/06 (+2)	WO8900140 (A1) 1989-01-12 Global Dossier	1987-07-02
2. TRANSFER DEVICE FOR BLOW MOULD PARISONS	FEDDERSEN FREDERICK J	FEDDERS MACHINE & TOOL		B29C49/64 B65G47/86 (IPC1-7): B29C49/64	AU563403 (B2) 1987-07-09	1984-07-06
3. EASILY CHANGEABLE GRIPPING HEAD FOR BLOW-MOLDING PALLET ASSEMBLY	FEDDERSEN FREDERICK J SNYDER EARL JR	FEDDERS MACHINE & TOOL	B29C49/06 B29C49/4205 B29C49/4215 (+6)	B29C49/42 B65G47/90 B29C49/06 (+2)	AU2259688 (A) 1989-01-30	1987-07-02
4. TRANSFER DEVICE FOR BLOW MOULD PARISONS	FEDDERSEN FREDERICK J	FEDDERS MACHINE & TOOL		B29C49/64 B65G47/86 (IPC1-7): B29C49/64	AU3541384 (A) 1986-01-09	1984-07-06
5. BLOW MOLDING PALLET ASSEMBLY	FEDDERSEN FREDERICK J	FEDDERS MACHINE & TOOL		B29C49/64 B65G47/86 (IPC1-7): B65G47/86	CA1234549 (A) 1988-03-29	1984-07-06
6. Blow molding pallet assembly	FEDDERSEN FREDERICK J [US]	FEDDERS MACHINE AND TOOLS CO I [US]	B29C49/06 B29C49/4205 B29C49/4215 (+3)	B29C49/42 B29C49/06 (IPC1-7): B65G47/86	US4684012 (A) 1987-08-04	1984-07-06
7. Easily changeable gripping head for blow-molding pallet assembly	FEDDERSEN FREDERICK J [US] SNYDER JR EARL [US]	FEDDERS MACHINE & TOOL [US]	B29C49/06 B29C49/4205 B29C49/4215	B29C49/42 B65G47/90 B29C49/06	US4763778 (A) 1988-08-16	1986-06-23

All of them are A's so it looks like this patent was never granted and the reason should be that when combined with another Y patent it had nothing new.

SOME TIPS FOR STARTERS:

- Some documents do not have translated titles or abstracts. For this reason, you will not find them using keywords, but have to use other search criteria such as classification.
- Enter your search terms in lower case. The search engine will find both upper- and lower-case occurrences of the terms.
- If you want to search for phrases, enclose them in quotation marks.
- In the worldwide database, keywords must be entered in English.
- Diacritical characters (umlauts (ä,ö) and accents (á,ò,ê)) are not supported when searching in the worldwide database, so please enter your search terms without them.
- Sometimes a patent may not have "cited documents" but another one of the family might.
- The date after which the patent stops being enforceable is 20 years after the oldest priority date.

Extremely simplified (and possibly incorrect in some regards but for learning purposes will for now):

We apply for a patent in a country. We then are allowed a deadline until which we must submit, if we want, the international, European or worldwide protection. In that case we must then specify all the countries that we want to have protection on. So if we file for an EP (European patent) we then need to specify the European countries where we want protection – PT, DK, SE, NO, UK, FR, … For each country a fee must be paid (~200€, though it varies depending on the country). On those countries it becomes forbidden to produce for selling, for those who you have not sold the rights to. But they can still make a single unit for personal purposes. The reason why we file for an EP and not for several patents for each of the countries we want protection is that it's cheaper. To book an official agent to read and analyze a patent that we want to submit, we must pay ~1000€;

Final Notes: Remember that Espacenet doesn't guarantee that all the information is up to date. To check the real legal status of a patent, it is strongly advised to consult national offices to get more accurate results. Legal databases are useful to check the non validity or withdrawal of patents. Contacts at http://www.innovaccess.eu

www.estudomec.info