Openness and Commercialisation - Patents at the interface of Open Science and commercialisation

Breakout CESAER Online Event

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3 December 2020
Openness AND Commercialisation

A contradiction?

promotion of ideas and methods
sharing Knowhow
cooperation
encourage others

Patent system allows to unify the opposites!

vs

protection of ideas & methods
disclosure of Knowhow
competition
hindering others
The Patent System Has Protective And Informatory functions

Disclosure for limited monopoly

patent applicant

reveal invention (disclosure)

get exclusivity (patent)

public interest
How Does Protection Work?

A patent is a legal title which grants the holder...

- The exclusive right to **prevent** others
  - from **making**, **using** or **offering for sale, selling or importing** a product that infringes his patent without his authorisation.
  - in **countries** for which the patent was granted.
  - for a **limited time** (up to 20 years).

- The right to assign, sell or license these rights.

**Exception:** non-commercial purposes (private use, academic research)!
## Requirements For Patentability

<table>
<thead>
<tr>
<th>Patents protect inventions which solve technical problems</th>
<th>The invention must be</th>
</tr>
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</table>
| • products  
• devices  
• systems | • **new** to the world  
• i.e. **not** part of the **state of the art**  
State of the art: everything made available to the public before the date of filing |
| • processes  
• methods  
• uses | • **inventive**  
• i.e. **not** an "obvious" solution)  
It shall not be obvious to a person skilled in the art in view of the state of the art. |
| • chemical substances  
• pharmaceuticals | • **susceptible of** industrial application |
These items can’t be patented:

- Rules of games.
- Business methods.
- Mere ideas.
- Software as such (not achieve technical results).
The Invention Must Be New

Avoid before applying for a patent

- **No publication** prior to filing, e.g. no article, press release, conference, research data, poster, proceedings or blog entry!

- **No lecture or presentation** prior to filing
  - except under a non-disclosure agreement (NDA)!

- **No sale** of products incorporating the invention prior to filing!
Patents Are Valid Only In The Country Where They’re Granted

The national route

- Separate procedures for each state; differ according to national law.
- See EIPO procedures.

The regional route: European Patent Convention

- One procedure.
- Applicant selects the desired states.
- One European patent for up to 42 states.
- Results in a bundle of national patents.

The regional route: European Patent Convention
Patent Cooperation Treaty (PCT)

- One single application for up to 148 countries*.
- Harmonisation of formal standards (language, patent agent, fees).
- Search report and opinion on patentability.
- After 30-31 months, decision by applicant on which countries to proceed in.
- * December 2013
The Grant Procedure Before The EPO

- **Application filed**
- **Search report**
- **Publication**
- **Examination**
- **Grant**
- **Opposition period expires**

1. **18 months**
2. **Approx. 4-5 years**
3. **9 months**

**Withdraw?**

**Invention becomes visible to the public!**

**Validation at national offices**
Employee Invention Act

- Came into force for Universities in Germany in 2002.
- Inventions of scientists belong to the University
  - only if an employment contract exists.
  - every invention, that has potential for exploitation must be reported!

Critical Issues:

- Handling students, who have no employment contract.
  - must be governed by contracts!
  - invention transfer intention and non-disclosure agreement (NDA).
- Danger of prior publication.
- Dealing with companies: never without signed NDA.
University (Technology transfer) examines and evaluates

- Is the reported invention job-related or free?

**job-related invention**
- transfer of IP rights to university.
- obligation of university to register IP-rights in Germany.

**Free Invention**
- free availability to the inventors.
- partial release for other countries.

**claim of invention**
- job/task invention
- experience-invention

**release of invention**
How Does Information Work?

Facts on patent information

• More than 120 million documents, free of copyright!

• Language-independent retrievable due to patent classifications.

• Unique information source.

→ Technical Information

→ Bibliographic information:
  • applicant and inventor
  • filing dates and countries
  • technological categories/classes
  • citations

→ Legal information
Structure Of Patent Documents

Date of publication: [Date]

Designated states: [List of states]

Applicant: [Name]

Title: Water Storage Apparatus

Abstract: A water treatment and storage vessel has a reservoir for untreated water and also a main vessel portion for receiving and storing treated water.

Description:

1. A portable water treatment and storage vessel comprising:
   - a reservoir for untreated water;
   - filter means in fluid communication with said reservoir; and
   - a main vessel portion for receiving and storing treated water;

   wherein said main vessel portion comprises electro-thermal cooling means for removing heat from the treated water therein, thereby cooling the water.

Claim(s):

Claim 1: A portable water treatment and storage vessel as claimed in claim 1, wherein the electro-thermal cooling means comprise a Peltier-effect device.

Claim 2: A portable water treatment and storage vessel as claimed in claim 1, wherein the reservoir is provided with a protrusion for easy grasping.

Drawing(s): [Diagram of water storage apparatus]
Patent Document: Content

5 important items

• Bibliographic information
  – inventor, proprietor, date of filing, technology class, etc.

• Abstract
  – around 150 words as a search aid for other patent applications.

• Description
  – summary of prior art (i.e. the technology known to exist).
  – the problem that the invention is supposed to solve.
  – an explanation and at least one way of carrying out the invention.

• Claims
  – define the technical scope of patent protection.

• Drawings
  – illustrate the claims and description.
Patent Classification IPC / CPC

Hierarchical organisation of technical matters

- Language independent document retrieval.
- Documents are classified by patent examiners.
- Division into 8 sections and 140,000 subdivisions.

<table>
<thead>
<tr>
<th>Classification symbol</th>
<th>Title and description</th>
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<tbody>
<tr>
<td>A</td>
<td>HUMAN NECESSITIES</td>
<td>S</td>
</tr>
<tr>
<td>B</td>
<td>PERFORMING OPERATIONS; TRANSPORTING</td>
<td>S</td>
</tr>
<tr>
<td>C</td>
<td>CHEMISTRY; METALLURGY</td>
<td>S</td>
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<tr>
<td>D</td>
<td>TEXTILES; PAPER</td>
<td>S</td>
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<tr>
<td>E</td>
<td>FIXED CONSTRUCTIONS</td>
<td>S</td>
</tr>
<tr>
<td>F</td>
<td>MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING</td>
<td>S</td>
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<tr>
<td>G</td>
<td>PHYSICS</td>
<td>S</td>
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<tr>
<td>H</td>
<td>ELECTRICITY</td>
<td>S</td>
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<td>Y</td>
<td>GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS</td>
<td>S</td>
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Free Access on copyright-free full texts

• Available in patent databases of the patent organisations.

• In-depth publication of R&D
  – part of it can only be found in patents.
  – detailed description.

• Patents are landmarks of technological development
  – being novel and inventive.
Benefit Of Patent Searches

Patent searches...

• ... make sure that the idea is new and avoid duplicated developments.

• ... protect against infringements and litigations.

• ... deliver added value information on players and technical developments etc.

• ... in science: applications for funding programs (e.g. Horizon 2020) require Prior art searches.

Mandatory search of patent documents for all R&D activities!
# Patent Databases

<table>
<thead>
<tr>
<th>Access</th>
<th>Patents</th>
<th>Trade Marks &amp; Registered Designs</th>
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<tbody>
<tr>
<td><strong>Free access</strong></td>
<td>Databases of the National Offices</td>
<td>Databases of the National Offices</td>
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| Online Open Access | DPMA: DepatisNet  
EPA: Espacenet  
WIPO: Patentscope … | DPMA: DPMARegister  
EUIPO: eSearch plus  
WIPO: Global Brand Database / Hague Express Database … |
| **Licences**    | ![Orbit.com](image), ![patsnap](image), ![serviva](image), PATselect 4.0  
![SMD Cedex](image) | ![SMD Cedex](image) |

**Commercial tools:**
- elaborate search
- complex topics
- detailed analyses
Espacenet: Free Access at www.epo.org

Espacenet: free access to over 120 million patent documents
# International Document Codes

- Standard for document codes is set by WIPO

<table>
<thead>
<tr>
<th>Country Code</th>
<th>Reference Number</th>
<th>Kind Code</th>
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</tr>
<tr>
<td></td>
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<td>A9:</td>
</tr>
</tbody>
</table>

- A1: European patent application published with European search report
- A2: European patent application published without European search report
- A3: separate publication of European search report
- A4: supplementary search report
- A8: corrected title page of A document, i.e. A1 or A2 document
- A9: complete reprint of A document, i.e. A1, A2 or A3 document

Pearl Growing

Added value from a single reference

Names: applicants & inventors & attorneys

Countries: geographic scope & language

Business: protect from infringement
Search For Names In Espacenet

Analysis of patent families

581 results found

IPC main groups | CPC main groups
---|---
G01N33 | A61B5
A61B5 | C12N9
C12Q1 | G01N33

RWTH Aachen University

DE
US
WO
EP
CN
JP
CA
KR

Inventors
GRIES THOMAS
PALKOVITS REGINA
LEITNER WALTER
Recap

Patent system bridges open science and commercialisation

• With copyright-free, valuable information.

• With protection of the inventions prior to disclosure.

• For both scenarios, patent search is crucial.

• Support with exploitation: University Technology Transfer.

• Support with patent information (consulting on IP-strategy and searches): Patent Information Centres (alias Patlib Centres).
Patent Information Centres (Patlib)

Germany & Europe

- PIZnet: 20 Patlib Centers.
- Organized in a registered, non-profit society.
- Service and IP support.

www.piznet.de

Patlib Network: 354 Centres

https://www.epo.org/searching-for-patents/helpful-resources/patlib.html

<table>
<thead>
<tr>
<th>PATLIBs in Germany (=PIZnet)</th>
<th>n°</th>
<th>%</th>
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<tbody>
<tr>
<td>total</td>
<td>20</td>
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<tr>
<td>university-based</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>Part of university library</td>
<td>6</td>
<td>30%</td>
</tr>
</tbody>
</table>
Services Of Patlib Centres On IP Strategy And Searches

- Idea
  - Prior Art
  - Statistical Analysis
  - Novelty Search

- Evaluation
- IPR Protection
- Further Development
- Market Maturation Enforcement
- Market entry Implementation

- IP-Audit
- IPR strategy

- Revenue
- Monitoring
- Trademark Search

- Product
Thank You!

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University Library, RWTH Aachen University
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