Intellectual property rights

Tobias Kleimann
Patentanwalt

Nanoseminar TU Dresden am 11. Januar 2013
1. Intellectual property rights
2. Rights procurement
3. Employee inventions
4. Software and Patents
5. Rights enforcement
1

Intellectual property rights
Material property – intellectual property

Material property is protected against damage/theft by a dedicated law, e.g. the German criminal code (StGB):

Section 242 StGB – Theft

(1) Whoever takes moveable property not his own away from another with the intent of unlawfully appropriating the property for himself or a third person, shall be punished with imprisonment for not more than five years or a fine. [...]

[Excerpt from the German criminal code (StGB)]
Material property – intellectual property

**Ideas and concepts** as such are not palpable. However, it is desirable to reward their creator.

- Machines function according to a principle.
- Music can be listened to.
- Films can be watched.
- A design can be seen.

The state provides for a framework for the protection of intangible assets in terms of (registered) **intellectual property rights**.
# Patents – designs – copyright – trademarks

<table>
<thead>
<tr>
<th>Subject matter</th>
<th>IP right</th>
<th>Protection</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical innovation</td>
<td>Patent</td>
<td>Technical concept</td>
<td>20 years</td>
</tr>
<tr>
<td>Design</td>
<td>Design model</td>
<td>Aesthetical appearance</td>
<td>25 years</td>
</tr>
<tr>
<td>Literary or artistic work</td>
<td>Copyright</td>
<td>Work</td>
<td>75 years</td>
</tr>
<tr>
<td>Brand</td>
<td>Trademark</td>
<td>Danger of confusion</td>
<td>∞</td>
</tr>
</tbody>
</table>
Gerd Binnig/Heinrich Rohrer: Scanning tunneling microscope (Nobel Prize 1986)

Idea:

Industrial application:
Shuji Nakamura: Blue light emitting diode
(Millenium Technology Prize 2006)

Idea:

Patent:

Industrial application:
Peter Grünberg: Giant magnetoresistance (Nobel Prize 2007)

Idea:

Industrial application:
What is a patent?

- A patent is a **temporary monopoly** for the commercial exploitation of an invention.
- A patent grants an **exclusive right** to the patent owner.
- The exclusive right can be transferred (**license agreement**).
- A **patent (application)** comprises a description of the invention, figures and the patent claims.
- The **patent claims** are similar to a bill/law/decree.
- **Enforcement** of the patent right by the forces of law and order on private initiative patent in terms of infringement lawsuit.
German patent statistics 2011 (GPTO)

59997 German patent applications
26467 concluded patent applications
11891 granted patents
526255 patents in force

<table>
<thead>
<tr>
<th>Applicant</th>
<th>Applications field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Bosch</td>
<td>3602</td>
</tr>
<tr>
<td>Daimler AG</td>
<td>2014</td>
</tr>
<tr>
<td>Siemens AG</td>
<td>1910</td>
</tr>
<tr>
<td>Schaeffler Technologies GmbH &amp; Co. KG</td>
<td>1832</td>
</tr>
<tr>
<td>GM Global Tech. Op.</td>
<td>1566</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subject matter</th>
<th>Applications</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicles in general</td>
<td>5993</td>
<td>10,7</td>
</tr>
<tr>
<td>Engineering elements or units</td>
<td>4809</td>
<td>8,6</td>
</tr>
<tr>
<td>Basic electric elements</td>
<td>4101</td>
<td>7,3</td>
</tr>
<tr>
<td>Measuring, testing</td>
<td>3677</td>
<td>6,6</td>
</tr>
<tr>
<td>Medical science, hygiene</td>
<td>2485</td>
<td>4,4</td>
</tr>
</tbody>
</table>
What have patents to do with physics?

Research results may eventually yield industrial **applications**.

Physics/engineering describes phenomena in terms of a certain **language or code** (mathematics/diagrams).

In a patent application the invention must be described in terms of **written language** (patent claims).
Controlling the Charge State of Individual Gold Adatoms

Jascha Repp, Gerhard Meyer, Fredrik E. Olsson, Mats Persson

The nature and control of individual metal atoms on insulators are of great importance in emerging atomic-scale technologies. Individual gold atoms on an ultrathin insulating sodium chloride film supported by a copper surface exhibit two different charge states, which are stabilized by the large ionic polarizability of the film. The charge state and associated physical and chemical properties such as diffusion can be controlled by adding or removing a single electron to or from the adatom with a scanning tunneling microscope tip. The simple physical mechanism behind the charge bistability in this case suggests that this is a common phenomenon for adsorbates on polar insulating films.

Science vol. 324 12 June 2009
First patent claim:

1. A memory device (1, 101) comprising a molecule-atom complex (4, 5, 6) arranged on a first insulating layer (3), wherein a first memory state of the memory device (1, 101) corresponds to a first charge distribution state of the molecule-atom complex (4, 5, 6) and a second memory state of the memory device (1, 101) corresponds to a second charge distribution state of the molecule-atom complex (4, 5, 6), wherein the total charge of the molecule-atom complex (4, 5, 6) corresponding to the first memory state is equal to the total charge of the molecule-atom complex (4, 5, 6) corresponding to the second memory state, said first insulating layer (3) being formed on a first contact layer (2) and said molecule-atom complex (4, 5, 6) comprising at least a single atom (5) and at least a molecule (4) on said first insulating layer (3).
What has a physicist to do with IP rights?

**German patent and trademark attorney** prerequisites:

Degree in **engineering or natural sciences** (at least Master`s degree), one year practical experience, 26 months traineeship with experienced patent attorney, 8 months internship at patent office and federal patent court, 2 years law course on general law (distant learning), state examination (written and oral)

**European patent attorney** prerequisites:

Degree in **engineering or natural sciences** (at least Master`s degree), three years in the patent business, European qualifying examination (EQE) (4 written exams)
What is a patent attorney?

A patent attorney is a special legal counsel for IP issues:

- Procuring patents, trademarks, designs
- Representation before patent and trademark offices and courts.
- License agreements.
- R&D cooperation contracts.
- Enforcing IP rights against infringers
- Defending clients against (im)proper claims.

To patent it, I’d have to understand it. You may need a different lawyer.
2 Patent procurement
Patent laws

Patents are governed by national laws:

German Patent Act (PatG)

United States Patent Act

European Patent Convention (EPC) – European grant procedure

Patent Convention Treaty (PCT) – international application

Have common or very similar foundations and requirements for patent eligibility and patentability.
Claim categories:

**Apparatus**
- device
- system

**Product**
- substance
- composition

**Method**
- ... for controlling
- ... for manufacturing
- ... for assembling

**Use**
- ... as a medicament
- ... of a substance
- activity

*physical entity*
Article 52 EPC – patentable inventions

(1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. […]

Article 54 EPC – novelty

(1) An invention shall be considered to be new if it does not form part of the state of the art. […]

Article 56 EPC – inventive step

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art […]
Requirements for patentability – three hurdles

Patent eligibility
Not excluded from patentability?

Novelty
No prior disclosure?

Inventive step
Is it (non-)obvious?
Exclusions from patentability

Article 52 EPC – patentable inventions

(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:

(a) discoveries, scientific theories and mathematical methods;

(b) aesthetic creations;

(c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;

(d) presentations of information.
Article 53 EPC – exceptions from patentability

European patents shall not be granted in respect of:

(a) inventions the commercial exploitation of which would be contrary to "ordre public" or morality; such exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States;

(b) plant or animal varieties or essentially biological processes for the production of plants or animals; this provision shall not apply to microbiological processes or the products thereof;

(c) methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body; this provision shall not apply to products, in particular substances or compositions, for use in any of these methods.
Article 54 EPC – novelty

(2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.
Novelty - example

Claimed invention:
A device of the type T having the **features**
a) ...  
b) ...  
c) ...  
d) ...

Prior disclosure:
A device of the type T having the **features**
a) ...  
b) ...  
c) ...  

The claimed device is **new**, because feature d) is not disclosed by the prior art.
Novelty - example

Claimed invention:
A contact device comprising:
  a) a metallic base
  b) a Cu layer on said base
  c) a Cu-Sn alloy on said copper layer
  d) Sn particles immersed in said alloy and reaching the outer surface

Prior disclosure:
An electric coupler including:
  a) a Cu base
  b) said base being covered by a Cu-Sn alloy
  c) a Ag coating.

The claimed device is **new**, because feature d) is not disclosed by the prior art.
Article 56 EPC – inventive step

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art. 

[...]

Indicators for inventive step:

- long known and unresolved problem.
- use of a known means in an unorthodox way.
- many alternative solutions to a problem ruling out the “inventive” concept.
- unexpected technical advantages, bonus effect.
- long felt need for a solution of a technical problem.
Inventive step - example obviousness

**Claimed invention:**

A device of the type T having the **features**

a) ...
b) ...
c) ...
d) ...

**Document D1:**

“A device of the type T with features a) b) c). It is desirable to implement a means that solves the problem P although there is currently no solution to the problem P.”

**Document D2:**

“A solution for solving the problem P comprises the feature d). The feature d) can be implemented, for example, with devices of the type T.”

D1 and D2 point to each other
Inventive step - example non-obviousness

Claimed invention:
A device of the type T having the features
a) ...  
b) ...  
c) ...  
d) ...

Document D3:
“A device of the type T with features a) b) c).”

D3 and D4 teach away from each other

Document D4:
“A solution for solving the problem P comprises the feature d). There are unresolved difficulties in implementing feature d) with T type devices.”
Patent grant procedure

1. Flash of genius/invention
2. Preparing patent application
3. State of the art search
4. Substantive examination
5. Publication of patent application
6. Amending and arguing with patent office
7. Grant/refusal
8. Filing application with patent office
9. Patent
Post grant procedure opposition

- Amending patent and/or arguing with opponent
- Opposition procedure
  - Oral proceedings
- Patent (partly) revoked or opposition dismissed
- Publication of patent
- Grant
- Arguing with patent owner
- Filing an opposition with patent office
- Third party
How much does it cost?

<table>
<thead>
<tr>
<th>Official Fee</th>
<th>EPO (EUR)</th>
<th>GPTO (EUR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online filing fee</td>
<td>115</td>
<td>40</td>
</tr>
<tr>
<td>Search fee</td>
<td>1165</td>
<td>250</td>
</tr>
<tr>
<td>Examination fee</td>
<td>1555</td>
<td>350</td>
</tr>
<tr>
<td>Designation fee</td>
<td>555</td>
<td>-</td>
</tr>
<tr>
<td>Excess claims fee for each claim exceeding to 15/10 claims</td>
<td>225</td>
<td>20</td>
</tr>
<tr>
<td>Grant fee</td>
<td>875</td>
<td>-</td>
</tr>
<tr>
<td>3rd year renewal fee</td>
<td>445</td>
<td>70</td>
</tr>
<tr>
<td>4th year</td>
<td>555</td>
<td>70</td>
</tr>
<tr>
<td>5th year</td>
<td>775</td>
<td>90</td>
</tr>
<tr>
<td>6th year</td>
<td>995</td>
<td>130</td>
</tr>
<tr>
<td>7th year</td>
<td>1105</td>
<td>180</td>
</tr>
<tr>
<td>8th year</td>
<td>1215</td>
<td>240</td>
</tr>
<tr>
<td>9th year</td>
<td>1325</td>
<td>290</td>
</tr>
<tr>
<td>10th and each subsequent year</td>
<td>1495</td>
<td>350</td>
</tr>
</tbody>
</table>

Attorney fees:
Drafting: EUR 2000+
Handling fees: EUR 1000+
Eventual petitions etc.: 1000+
Employee inventions
German law on employee inventions (ArbnErfG)

- Stimulation and encouragement of creativity and inventive activity
- Standardized regulations for all companies in Germany
- Standardized remuneration
- Promoting the utilization of inventions
- Strengthening the inventor’s rights versus the employer’s right

Note: about 90% of all economically promising inventions are made by employed inventors. Only 10% are single inventors.
Obligations of the employee:

- The employee has to submit an invention report.
- Has to support the employer and make necessary statements for the prosecution.

Employee’s rights:

- Is declared as inventor.
- Obtains a reasonable compensation.
Obligations of the employer

• Has to file a patent application.
• Has to inform the inventor about the patent (application).
• Has to offer the invention/patent (application) to the employee if there is no further interest.

Employer’s rights

• May claim the invention according to invention report.
• May request a free license if patent is taken over by employee.
4

Software and patents
Patents on software?

Article 52 EPC – patentable inventions

(2) The following in particular **shall not be regarded as inventions** within the meaning of paragraph 1:

(c) schemes, rules and methods for performing mental acts, playing games or doing business, and **programs for computers** [...]

(3) Paragraph 2 **shall exclude** the patentability of the subject-matter or activities referred to therein **only** to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.
Questions of the president of the EPO to the Enlarged Board of Appeal in 10/2008:

1. Can a computer program only be excluded from patentability if it is explicitly claimed as a computer program?
2. Can a claim avoid exclusion from patentability by mentioning the use of a storage medium or computer?
3. Must a claimed feature cause a technical effect on a physical entity in the real world to be considered a technical feature?
4. Does programming a computer involve technical considerations?

2010: Enlarged Board of Appeal refuses referral by the president of the EPO G3/08 as inadmissable but answers questions.
Present standards:

- Computer programs can be patented under the EPC
- EPO requires claimed technical aspects for “Software Patents”.
- Technology can be a business - but (pure) business is not technological.
- Developed case Law and consistent examination guidelines exist.
- G03/08 referral did not change legal situation.
Rights enforcement
Section 9 PatG - rights conferred by the patent

A patent shall have the effect that the patentee alone shall be authorized to use the patented invention. A person not having the consent of the patentee shall be prohibited

1) from **making, offering, putting on the market or using** a product which is the subject matter of the patent or stocking the product for such purposes;

2) from using a process which is the subject matter of the patent or, when he knows or it is obvious from the circumstances that the use of the process which is the subject matter of the patent;

3) from offering, putting on the market, using or importing or stocking for such purposes the product obtained directly by a process which is the subject of the patent.
Section 11 PatG – limitation of the patent rights

The effects of a patent shall not extend to

1. Acts done privately and for non-commercial purposes

2. Acts done for experimental purpose relating to the subject matter of the patented invention;

[...]
Patent litigation in Europe/Germany?

- The patent litigation courts handling the most cases in Europe are\(^1\):
  1. Düsseldorf (Germany)
  2. Paris (France)
  3. Munich (Germany)
  4. Mannheim (Germany)

- Prosecution and litigation in Germany is relatively affordable

- A judgment from a German court carries considerable weight in other jurisdictions

\(^1\): Source: VPP-Rundbrief 1/2009
In Germany different Courts deal with patent validity and with infringement.

- Patentee
  - Infringement suit
  - Nullity suit (optional)

- Infringer

- Specialized District Court (Landgericht)

- Federal Patent Court (Bundespatentgericht)
Infringement and nullity courts in Germany

Patent infringement suits:

There are 12 specialized patent infringement courts in Germany. The most important ones of these are located in Düsseldorf, Mannheim and Munich.

Patent nullity suits:

To invalidate a patent, a nullity suit must be filed with the Federal Patent Court in Munich.
Thank you for your attention!

Optimist: 

„The glass is half full!“
Thank you for your attention!

Optimist: „The glas is half full!“

Pessimist: „The glas is half empty!“
Thank you for your attention!

Optimist: „The glas is half full!“

Pessimist: „The glas is half empty!“

Patent attorney: „A liquid bisects an open cylindrical vessel at a predetermined height ...“
Any questions?

Please contact us:

Horn Kleimann Waitzhofer Patentanwälte
Elsenheimerstr. 65
80687 Munich
Germany

Tel.: +49 89 5794929-0
Fax: +49 89 5794929-29
mail@hkw-ip.eu
www.hkw-ip.eu
Your person to contact

Dr. Tobias Kleimann
European Patent Attorney • European Trade Mark and Design Attorney

Tobias Kleimann studied physics and specialises in complex applications in the field of fundamental physics research.

He also has relevant experiences in patent and trademark disputes.

Languages: German, English, Italian, Swedish