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# Patents

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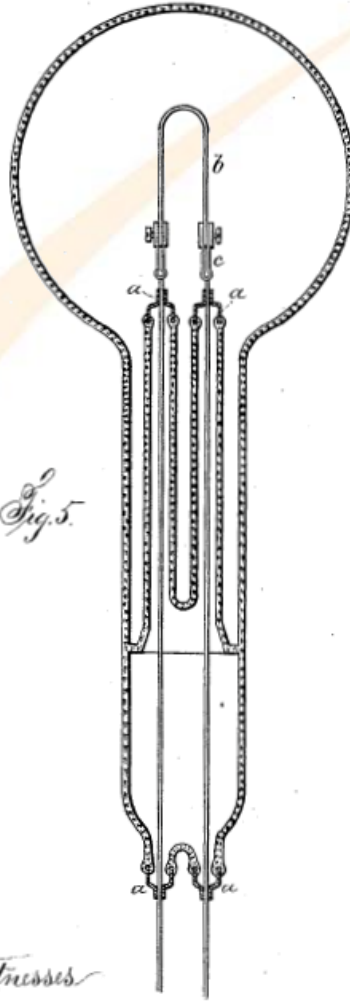


## Electric Lamp.

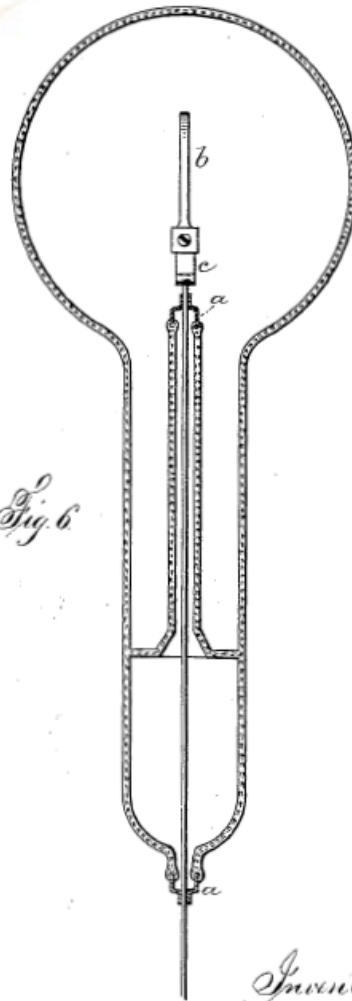
No. 233,445.

Patented Oct. 19, 1880.

# Patents



*Fig. 5.*



*Fig. 6.*

*Witnesses*  
*Harold Serrell*  
*Chas H Smith*

*Inventor*  
*Joseph Wilson Swan*  
*Lemuel W. Serrell*

### Note:

We discuss the Austrian patent law, which is very similar to the German/European law.

The US and Japan patent law is quite different!



# What is this, a "patent"?

- A patent is a right on an invention
- Inventions are ...
  - » Sorry! No official definition available!
  - Teaching for systematic acting by employing controllable forces of nature to achieve a causally predictable goal
  - Mental fabrication, resulting in a technical advance through predictable and controllable utilization of forces of nature
  - Repeatability, Goal-orientation, Forces of nature
- Characteristics:
  - Result of the mind, idea (implementation not required!)
  - Technical advance (not in the USA!)
  - Protection also against independent "second inventions"
    - » (Theoretically?) Important distinction to copyright!



# What you get from a patent ...

- Monopoly on the use/ownership of the invention
  - Maximum 20 years; yearly/periodic fees increase
    - » Duration according to filing, not priority!
  - Independent from the knowledge of the patent!
  - (Full) Right starts with the day of the publication of the grant
    - » Some protection also exists before!
  - Product patent: Producing "devices"
  - Process patent: How to produce something
    - » Exclusivity includes products created directly through procedure!
- Disclosure of the invention
  - "Return" of inventor to society for monopoly
- Compensation, information disclosure, destruction
  - On infringements!
- Claim on mentioning as inventor: Personal right!



## ... and what not!

- No right of usage
  - You can prohibit others from using it, but ...
  - this does not mean, that you may (immediately) use it!
    - Example: Drugs, dangerous devices, factories for building it etc.
    - » Approbation, governmental checks, general rules etc.
- No requirement to use
  - You can leave the patent just "on ice"
- No international right
  - Patents are exclusively national (=geographically limited)
  - This includes the EU-/International patents!
    - » "Joint" examination; Fees etc. must be paid for each country separately; validity separately in each country!
- Private usage and research is always allowed!
  - Usage as subject of research, but not as object used in research!



# Requirements for an invention: New (1)

- New = Comparison to the state of the art
  - » What is available to the public: written, orally, through using, ...
  - Practice: Written state of the art, i.e. journals and all "protection" rights (patents, utility patents, ...)
    - » Patent offices can find it during their search
  - Theory: Any public disclosure at all
    - » If everybody could have heard it, this is sufficient
      - Even if we can prove that nobody did hear it!
  - Closed group + Obligation of secrecy ≠ Public
    - » Public: Course, Conference presentation, press release, non-restricted theses, ...
    - » Private: Disclosure to selected single other scientists
      - Important: NDA (Non-Disclosure Agreement)
- Patents are national, but state of the art is international!
  - May occur anywhere on the world and in any language



# Requirements for an invention: New (2)

- Independent of who published it (not: USA!)
  - » Exemption: Special inventors events, obvious misuse to the detriment of the applicant
    - E.g. stealing confidential papers and publishing them
- Point in time: Date of filing
  - Actually: Priority, which might be earlier than the date of filing for this specific patent application
  - “Priority”: The date of the first filing for a patent
  - Other patents (=same content, different country/PCT/EPA) may be applied for within one year (=exactly!) after this priority date, but will be examined (SotA, ...) as if filed at the date of priority
    - » Note: Patent duration (20 years) is still calculated from filing!
    - » Otherwise a patent would have to be filed in all countries exactly on the same day all over the world





# Requirements for an invention: Usable in business

- Usable in business = Practicable and useful
  - "Business" ≠ Trade regulation laws; includes e.g. farming
  - Actual profit is not necessary, not even potentially!
    - » For instance when unlicensed usage cannot be proven
  - "Could be sold to someone"
- Examples which are not usable:
  - Perpetuum mobile
    - » Cannot actually be built, so not practicable
  - Device for decapitating flies
    - » Not useful (BGH decision!)
      - Note: If such a device would be necessary e.g. for developing drugs (like test), it might be useful and then patentable!
- This is very rarely a problem!





# Requirements for an invention: Inventive

- Inventive = For an expert not derivable easily from the SotA
  - Implicitly includes a "technical part"
  - "Normal" technological development is "free"
    - » "Trivial" development are not an invention
  - Expert = Average person/team from business
    - Approximately equivalent to "engineer"
    - » This is significantly less than the typical university scientist!
    - » Average abilities and complete knowledge of the single affected area (and in no others at all!)
  - Combination of known elements in a "new" way suffices
    - » But not the simple putting together (only additive)
      - The combination must be **more** than the **collection** of the parts!
- Practice: The level required is very low
  - This leads to the problem of "trivial patents"!



# Requirement for patentability: Disclosure

- Sufficient disclosure: Experts must be able to repeat it
  - Aim and reason for patents is the disclosure to the public; if it is missing/incomplete, the patent is invalid!
    - » The “expert” (→ Inventive) must be able to repeat it with his own knowledge (→ SotA) and the description within the patent alone
  - Generally the method must be described, not the aim
    - » Description how to do it, not the result!
- Practice: Cannot be really verified by patent offices
- USA: Additional “best mode” requirement
  - The best version the inventor knows of at the time of filing
  - Example: “add between 10% and 30% of chemical A”
    - » If he knows it works best at 25%, then this patent is invalid!
  - Practice: Very difficult to prove
  - Recent change: Still required, but no longer a basis for invalidating a patent!



# What cannot be patented

- Discoveries: Pre-existing things, e.g. laws of nature, species
  - Patents protect creativity (=what can be changed)
    - » What already exists and just nobody (→ natives?) has found is not new, it was just not **known** to exist, although it did!
- Scientific theories and mathematical methods
  - In their abstract form, i.e. "as such"
    - » Example: A method for faster calculation of matrix multiplications
  - Their concrete application is patentable!
    - »  $a^2+b^2=c^2$  is not patentable, but a triangle calculated through it might perhaps be patented (but: New? Inventive?)!
    - » Example: Fast matrix multiplication for picture analysis
      - Not "as such"; has technical aspect/effect ("picture" → "picture"!)
- Aesthetical creations: Design, art, ...
  - Design patent, copyright: These are protected, just differently
  - No "technical" influence, just "appearance" (**non-functional**)



# What cannot be patented

- Schemes, rules and methods for performing mental acts or playing games
  - "Thoughts are free"
  - Practical reason: Proving someone thought in a certain way could be quite difficult ...
  - Games:
    - » These are not really "business"; might be seen differently today!
    - » Refers to the "concept"/"rules" of the game, i.e. "ego-shooter"
      - But see copyright and design patents for all materials, rule texts, ...!
- Business methods
  - Would be too harmful for the economy as a whole
  - See also software patents!
  - Only "as such", i.e. devices to support them can be patented, just not the method itself
  - Attention: In the USA this is possible!



# What cannot be patented

- Presentation of information
  - Showing some data: Tables, forms etc.
    - » Might be protected by copyright, but often not (no creativity)
- Illegal or immoral inventions
  - » “Normal” legal prohibitions alone are insufficient!
  - Letter bombs, anti personnel mines (not in every country!)
  - Probably also: Viruses, trojans, bugs
  - Legal examples: Cloning humans, chimeras, ...
- Many "biological" aspects: plant/animal species, etc.
  - For these special laws exist; very similar to patents!
    - » E.g. additional “deposition” of seeds required for “disclosure”
      - Regrowing the plant/animal must be possible
      - Otherwise it would not be a "disclosure", as others couldn't repeat the "invention" at all!

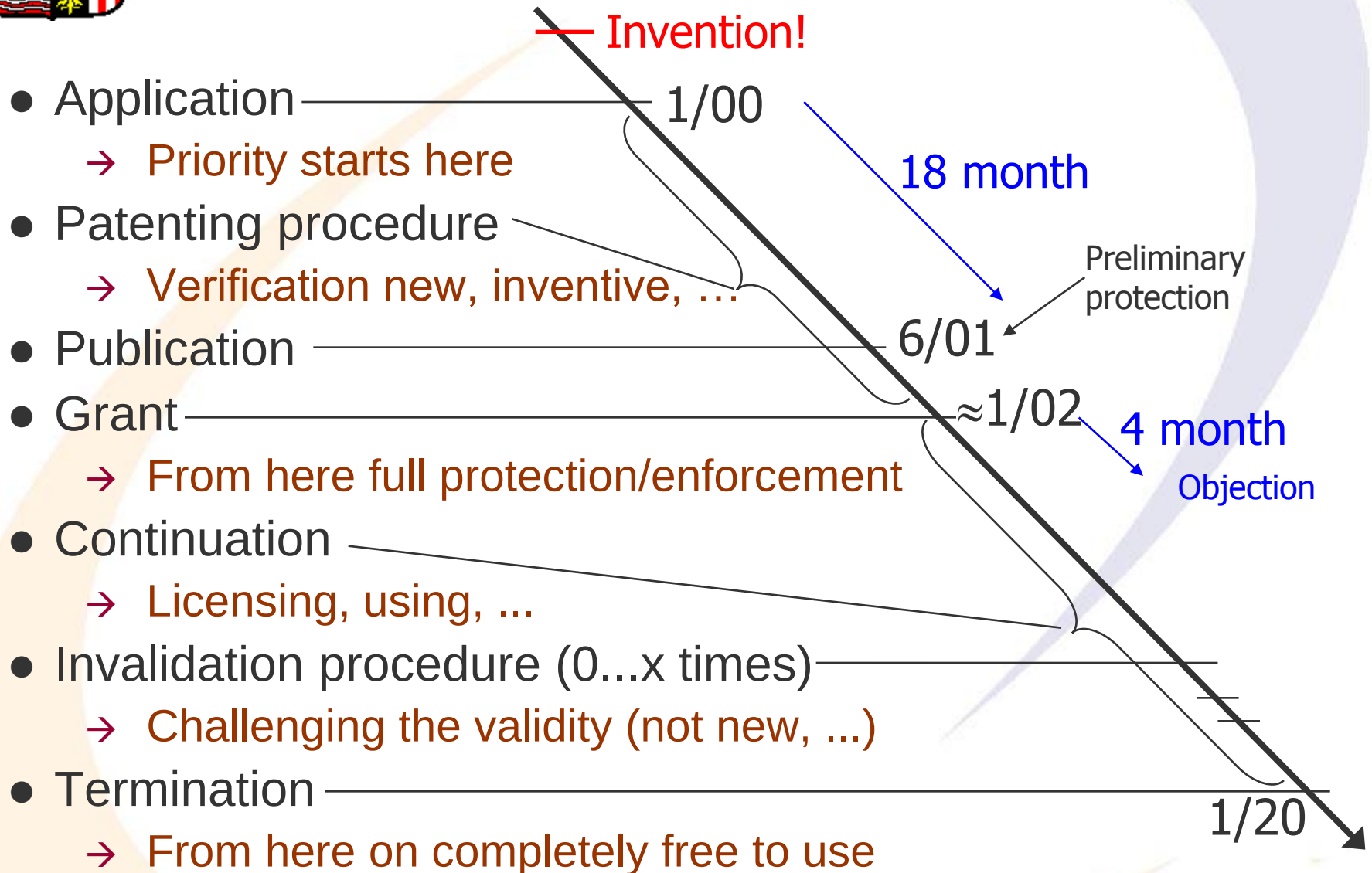


# What cannot be patented

- Methods for treatment of body by surgery or therapy and diagnostic methods
  - A kind of "immorality" to monopolize these
    - » Example: How to cut in surgery
  - Tools, drugs, ... all kinds of medical devices for this **are** patentable, just not the method of using them!
    - » Example: With what to cut in surgery
- Computer programs: See software patents!
  - Not patentable "as such"



# The lifecycle of a patent







# International patent law: EPA

- „Unified“ European patent
  - EPA = European Patent Agreement
  - Independent of the EU (originated from Council of Europe)!
    - » Note: Non-EU-members are also party to this, e.g. Turkey
- Single application, single checking, single procedure
  - Result: Separate nat. patents (fees, validity, ...)
  - Desired countries can be selected freely from the member countries
- Disadvantages: High initial costs, e.g. translation (D, E, F)
  - Has been reduced lately; still more expensive than national
- Advantage: Cheaper, often faster, and simpler than applying for the same patents nationally
  - Also, the EPO (European Patent Office) might be more generous in granting patents in some areas...



# International patent law: PCT

- Patents are valid nationally; but internat. procedures exist
  - PCT = Patent Cooperation Treaty
- Single application; Patents are then valid in arbitrarily selected countries
  - But these remain completely separate patents (part of procedure, fees, validity, ...)
- Application within one year of first (typ. "local") application
  - Priority (=“new”) of the application for the first patent!
- International examination (not binding for countries!)
  - But with a positive results the national examination is typically quite easy to pass
- Advantages: 30 month time for evaluation with little costs
  - Less costs, costs are shifted backwards
- Disadvantage: Long duration



# European patent with unitary effect

- “Community patent”, “COMPAT”: One patent for whole EU
  - Often tried (start 1970; failed all the time)
  - Typical problem: Languages
    - » Reason why Spain & Italy are **NOT** part of this “EU-wide” patent!
- Idea: Single application, single procedure, **single patent**
  - Pay fees once for whole EU & valid for all of EU (except ...!)
  - Unified patent court has not yet been agreed upon, as this is not possible within the EU but is rather an international treaty
    - » Planned for 2013
- Entry into force: Not before 2014 (earliest!)
- Court would be located in Paris, thematic branches in London (chemistry and human necessities) and Munich (mechanical engineering); each approx. 1/3 of cases



# European patent with unitary effect

- Basic idea of the patent with unitary effect
  - You apply for a “normal” European patent
  - This patent is granted and published
  - If the claims are the same for all countries, an application for unitary effect is possible
  - Result: European patent + national patents “die” retroactively and the patent with unitary effect exists from the time of publication (of the European patent!) on
- Unitary effect:
  - Uniform protection and equal effect in all member states
  - It may only be limited, transferred, revoked or lapse in respect of all member states
  - Licensing is possible in territorial subsets as well
  - License offer may added to the registry



# European patent with unitary effect

- Advantages:

- Translation requirements reduced: German, English, French
- Single court for all of EU (and with EU-wide effect!) for infringement and revocation; court of first instance / appeal
  - » But: No path to the European Court of Justice!
- Cost reduction: Estimate € 6.500 (EU+Spain+Italy) instead of approx. € 32.000 currently
- Little separate “offices&workers”: Most work will be outsourced to the EPO

- Disadvantages:

- Spain & Italy
- Unclear on subject of patents: Software, ...?
  - » Especially as processed by the EPO
- Unclear how unified court will decide



- Cooperation with companies: Do not forget the university!
  - At least secure rights for use in research and teaching
  - Better: Fair division of rights of exploitation
    - » Example: Non-exclusive license for cooperation partner
- Patents: Do not forget them on any practical result
  - On new and innovative products → Contact the inventors assistant whether a patent is possible
    - » No costs to the institute!
    - » Important for the university and advantageous for the inventors!
- Any questions regarding patents, IPRs, exploitation, ...

**Your patent advisor is always there for you!**



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# Questions?

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**Thank you for your attention!**

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