HØIBERG Patent School
TOPICS

Software Patents

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Practical information

- **The webinar is recorded**
  - Available on our webpage within the next couple of days
  - All participants are kept anonymous in the recording

- **Please ask any questions in the “Q&A”- box**
  - Questions will be answered at the end of the webinar unless a specific question requires “immediate attention”

- **15-20 second time lag**
  - Questions are received in real-time but answers/comments will come with a delay

Your speaker

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Agenda

Patentability recap

Basics of software patenting

Pros and cons

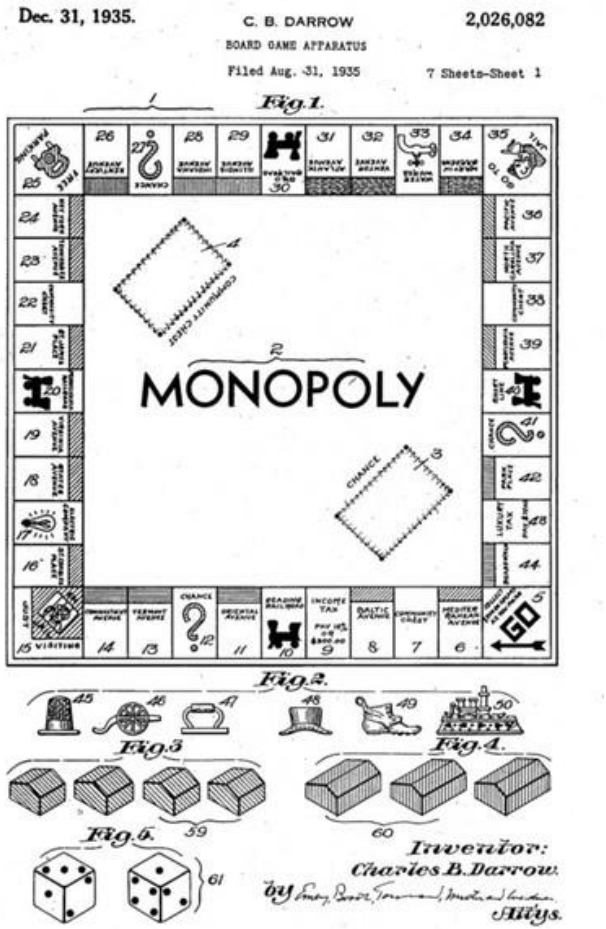
USA vs. Europe

AI & Apps

Examples

Recap: What is a patent?

- Monopoly
- Right to forbid others to exploit the invention
- No (automatic) right to exploit the invention
- Provides a description of the invention
- Lasts for 20 years



Recap: Some patent terms

Prior art

- Any evidence that your invention is already known.
- It does not need to exist physically or be commercially available. It is enough that someone, somewhere, sometime previously has described or shown or made something that contains a use of technology that is very similar to your invention (EPO)

Subject matter

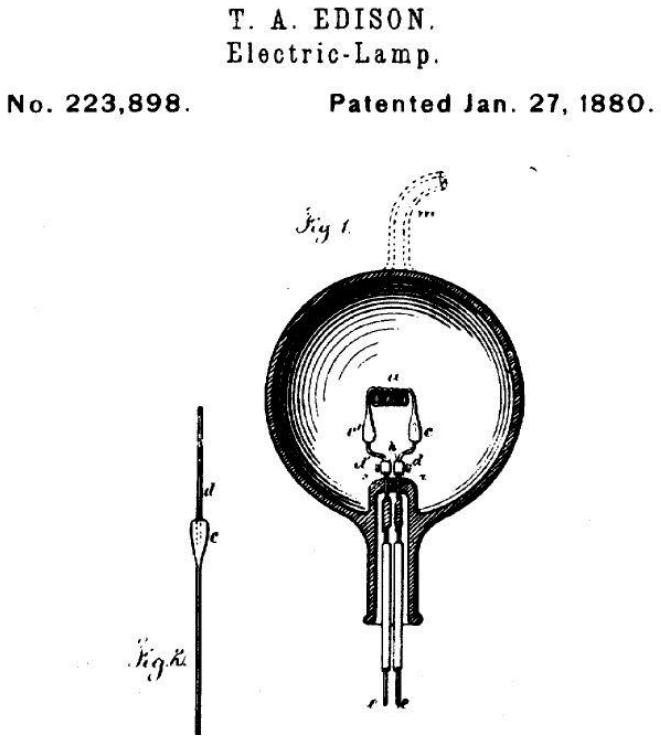
- The matter under consideration

Claims

- The patent claims that define the invention and, in turn, the scope of the patent protection

Recap: Basic Patentability Requirements

- Patentable subject matter
- Novel
- Inventive/non-obvious
- Industrially applicable (useful)



T. A. EDISON.
Electric-Lamp.

No. 223,898. Patented Jan. 27, 1880.

Basics

- Computer programs are protected by copyright
- "Programs for computers" excluded from patentability **"as such"** according to the European Patent Convention
  - as well as many other national provisions
- Computer implementation of well-known methods – **not patentable!**
  - (unless further technical effect obtained…)
- Physical devices incorporating software functionality – **patentable!**
  - Novelty and inventive step often attributed to functionality provided by software

Patenting software in Europe?

- **"Software patent"**
  - is a colloquial expression
  - may mislead to the assumption that source object code is patentable

- **EPO term: "Computer-implemented invention" - CII**
  - an invention whose implementation involves the use of a computer, computer network or other programmable apparatus
  - with features realized wholly or partly by means of a computer program

The basics of EPC

- There is no positive definition of the term "invention" in the EPC
- What is NOT an Invention?
- Exclusion criteria in Article 52(2) EPC:
  - The following, in particular, **shall not be regarded as inventions:**
    a) discoveries, scientific theories, mathematical methods
    b) aesthetic creations;
    c) schemes, rules and methods for performing mental acts, playing games or **doing business**, and **programs for computers**;
    d) presentation of information;

- Article 52(3) EPC
  - ...only to the extent to which a European patent application relates to such subject matter or activities **as such**.

Non-inventions

- Activities falling within the notion of a **non-invention** (i.e. excluded) would typically represent purely abstract concepts devoid of any technical implication
  - A non-invention has no technical character
    - *(T 258/03 (HITACHI))*
- Hence: ”as such” limitation is interpreted narrowly!

- The key concept is Technial character

Technical Character

- Further requirement for patentability **implicitly** contained in the EPC:
  - the invention must be of **"technical character“** to the extent that it
    - must relate to a **technical** field → R.42(1)(a) EPC
    - must concern a **technical** problem → R.42(1)(c) EPC
    - must have **technical** features in terms of which the matter for which protection is sought can be defined in the claim → R.43(1) EPC
  - But then again: No positive definition of the term “technical”
    - => interpret grey areas
    - series of individual EPO Board of Appeal decisions

Computer programs

- A computer is in itself technical
- But the normal technical effects, like flow of electrical current, are not sufficient
- The computer program, when carried out has to provide a **"further technical effect“**
- EPO Board of appeal landmark decisions
  - *T1173/97 - IBM*
  - *T0935/97 - IBM*

Computer programs

- **Further technical effect**
  - control of a brake in a car
  - faster communication between mobile phones
  - secure data transmission (encryption of data)
  - resource allocation in an operating system

- **No further technical effect**
  - aesthetical effects of music or a video
  - new rules for an auction scheme
  - selling and booking sailing cruise packages
  - calculation of a pension contributions

Technical character

- **General approach at the EPO**
  - Only features contributing to the technical character of the claimed subject-matter are considered for the assessment of inventive step.
  - An invention is of technical character if it solves a technical problem with – at least partially – technical means.
  - Features aimed at circumventing a technical problem rather than solving it by technical means can not contribute to the technical character of the subject-matter claimed.
  - One indication of technical character is that the claimed invention has an overall technical effect.
    - In particular a technical impact in the real world
    - All about story telling

Recognized technical character

- **Recognized technical character – improving the computer or information processing itself**
  - Making the computer run faster, more efficient
  - Facilitating or accelerating data input
  - Giving user better manual control
  - Increasing interoperability, reusability, security
  - Saving system resources: memory space, energy
  - A method of encrypting/decrypting or signing electronic communications, even if it is essentially based on a mathematical method
  - Facilitating the exchange of data among various application programs

Summary re. ”Technical character”

- The non-patentability of computer programs *as such* does not preclude the patenting of computer-implemented inventions
- If the claimed subject-matter has a technical character it is not excluded from patentability by the provisions of Art. 52(2) and (3) EPC
- The claimed subject-matter has to solve a technical problem by technical means
- There is no specific definition of 'technical‘ – it is a grey zone
- The case law of the respective areas has to be studied. Controversial views among different boards exist in some areas:
  - user interfaces
  - simulation, modelling

Is software patentable? – YES!

- Because controlling or carrying out a technical process is not excluded from patentability
  - And controlling and carrying out a technical process is the sole purpose of many computer programs
- Computer program performs an operation
  + technical effect “in the real world”
  + novelty and inventive step
  → patentable subject matter!
- Algorithm itself: **No!**
  - Specific use of algorithm: **Yes!**
- If drafted correctly, computer implemented inventions can be patented globally

Pros and cons of software patenting

- Short lifetime of software solutions
- Possibly difficult to detect and prove infringement
- Several solutions to one problem
  - protecting only one solution may have limited value

+ Much stronger protection than copyright

  Covers underlying technical method

+ Scope of protection may be broad (depending on claim language)

+ Distribution of software is easy, i.e. huge market possible

  but vulnerable to direct copying

+ Functional protection aligns with marketing

  A strategic software patent may be extremely valuable!

Software copyright

No functional protection

Only source code protection

Depending on programming language

Software patents

Functional protection

Independent of programming language

Independent of source code

USA vs. Europe

- **USA**
  - Everything “under the sun” allowed – including software patents
    - Possible explanation of dominating US position
  - After several Supreme Court decisions, situation is more complex
  - Key is whether the claims are directed to an abstract idea
- **Europe**
  - Many years of EPO case law from BoA has matured the approach
  - Key is whether the claims involve a technical contribution over the prior art, invention must be of technical character

- **Today:** Convergence between USA and Europe
- Patents behind Alice decision rejected in Europe for lack of inventive step because of lack of “technical character”

What's the deal with smartphone Apps?

- Basically a piece of software
- Patentable – YES!
- Can take advantage of sensors in phone

- When to patent a mobile app:
  - The technology is of interest to a large group of users
  - The app is expected to have a reasonably long life time
  - The app has a technical effect and is novel and inventive
  - The patent protection serves the overall business strategy

And how about AI?

- Application of artificial intelligence is by definition computer implemented
- EPO sees AI algorithms and machine learning models as subsets of mathematical methods → AI-enhanced computational models and algorithms not patentable ***as such***.
  - But new technical use of e.g. a neural network may be patentable if it solves a technical problem
- Application of artificial intelligence, in particular machine learning (ML), opens new door of opportunities
- Several aspects of AI can generate IP

What is patentable in AI?

- Typical setup: A trained machine learning model is applied in order to make predictions or decisions – what is patentable?
  - Is the model new?
  - Is the model improved?
  - Is the model trained in a new way?
  - Is the trained model applied in a new way?
  - Is useful data for the training provided in a new way?
  - Does the application of AI improve the functioning of the computer itself or another technical process?
  - Most important question:
    - What technical contribution does the invention make?
      - Can that provide novelty and inventive step in a patent application?

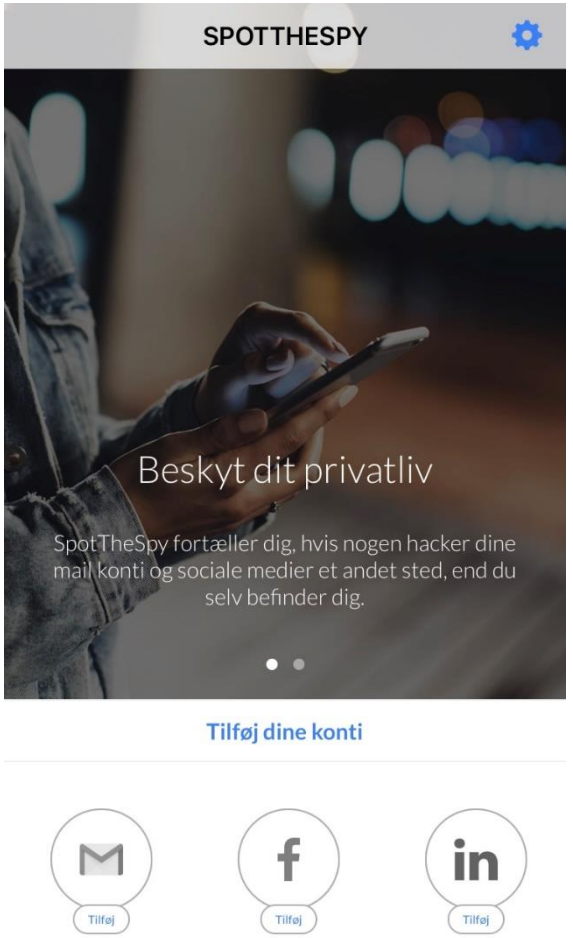
General considerations before filing

- Is patent or trade secret the best option for the IP solutions?
  - Can the implementation be reverse-engineered?
  - Is infringement detectable?
- What are the chances of meeting the patentability requirements?
- How would a patent serve the business objectives?
- Will the scope of protection be broad enough?
- What is the life-time of the invention?

Case stories

App - SpotTheSpy

- Protect your online privacy against hackers
- SpotTheSpy informs you if anyone hacks into your e-mail or social media accounts from a different location than where you actually are
- Compares where you are to where the account is being used
- Filed 2015, patented in EP, US and China
- Available on App Store and Google Play



mindway AI – GameScanner

- GameScanner is an AI solution based on neuroscience
- Web service for monitoring online gambling
- AI algorithm provides for automatic identification of problem gambling behavior to prevent and intervene in time

- Invented by Professor Kim Mouridsen from Aarhus University
- Patent application filed April 2018
- mindway AI founded July 2018
- Better Collective acquired 90% of mindway AI in Jan 2021

Claim 1 of mindway AI patent application

- A computer implemented method for detection of possible problem gaming behaviour of a subject engaged in one or more games involving monetary transactions, the method comprising the steps of:
  - obtaining a dataset comprising the subject's gaming transactions over a time period,
  - analysing the gaming behaviour of said subject by modelling against *a trained model employing artificial intelligence*, and
  - predicting and/or detecting Possible Problem Gambling Behavior (PPGB) of said subject based on the analysis
  - wherein the trained model is trained based on one or more behavioral targets of a plurality of subjects as outcome.

Guess which feature?

A computer-implemented method of controlling a portable electronic device comprising a touch-sensitive display, comprising:

- detecting contact with the touch-sensitive display while the device is in a user-interface lock state;
- transitioning the device to a user-interface unlock state if the detected contact corresponds to a predefined gesture; and
- maintaining the device in the user-interface lock state if the detected contact does not correspond to the predefined gesture; characterized by
- moving an unlock image along a predefined displayed path on the touch-sensitive display in accordance with the contact, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device.

Apple

- Invalid in Europe – lack of inventive step (Neonode)
- Valid in US
  - Part of Apple vs. Samsung lawsuit

Guess which feature?

A method for ordering an item using a client system, the method comprising:

- receiving from a server system a client identifier of the client system; persistently storing the client identifier at the client system;
- displaying information identifying the item and displaying an indication of a single action that is to be performed to order the identified item; and
- in response to the indicated single action being performed, sending to a server system a request to order the identified item and automatically sending the client identifier

- whereby a user does not input identification information when ordering the item.

Amazon 1-click

- Filed in 1999
- Invalid in Europe – lack of inventive step (prior art)
- Valid in US
- Extremely valuable

Which product?

A computer-implemented method of displaying on a display device a player character, the player character being provided with a plurality of contact determination points, comprising:

- displaying a background object having an attribute associated with a respective side of the background object;
- making a determination of contact between the background object and said player character;
- determining the side of the object with which the player character has made contact based on the determination of which of the contact determination points overlap with the background object; and
- selecting and executing a process based on the attribute associated with the side of the object with which the player character has made contact.

Super Mario

Which EP patent?

A method for determining the type, the number, and the volume of financial instruments for the funding of a loan with equivalent proceeds to a debtor by means of a first computer system, the loan being designed to be at least partially refinanced during the remaining term to maturity, requirements having been made as to a maximum difference in balance between on the one hand payments on the loan and the amount of refinancing and on the other hand net payments to the owner of the financial instruments applied for the funding, requirements having been made as to a maximum difference in proceeds between on the one hand the sum of the market price of the volume of the financial instruments applied for the funding of the loan and on the other hand the principal of the loan, and requirements having been made as to a maximum difference between the interest rate on the loan and the yield on the financial instruments applied for the funding, which method comprises;
(a) loading and storing, in a memory or a storage medium of the computer system, a first set of data indicating the parameters: principal of the loan, term to maturity, and profile of repayment of the loan,
(b) loading and storing, in a memory or a storage medium of the computer system, a second set of data indicating a desired/intended profile of refinancing, such as one or more point(s) in time at which refinancing is to take place, and indicating the amount of the remaining debt to be refinanced at said point(s) in time, and/or which second set of data indicating a desired/intended profile of funding such as the desired/intended number of financial instruments applied for the funding with their type and volume,
(c) loading and storing, in a memory or a storage medium of the computer system, a third set of data indicating a maximum difference in balance within a predetermined period, a maximum difference in proceeds and a maximum difference in interest rates equivalent to the difference between the interest rate on the loan and the yield on the financial instruments applied for the funding,
(d) determining and storing, in a memory or a storage medium of the computer system, a fourth set of data indicating a selected number of financial instruments with inherent characteristics such as type, price/market price, and date of the price/market price,
(e) determining and storing, in a memory or a storage medium of the computer system, a fifth set of data representing a first interest rate on the loan,
(f) calculating and storing, in a memory or a storage medium of the computer system, a sixth set of data representing a first profile of repayment and interest corresponding to interest and repayment for debtor as well as a first profile of the remaining debt, the first profile of repayment and interest and the first profile of the remaining debt being calculated on the basis of the principal of the loan, term to maturity, and profile of repayment loaded under (a), the profile of refinancing and/or profile of funding loaded under (b), and the first interest rate on the loan determined under (e),
(g) selecting a number of financial instruments among the financial instruments stored under (d), and calculating and storing a seventh set of data indicating said selected financial instruments with their volumes to be applied in the funding of the loan, which seventh set of data is calculated on the basis of the first profile of repayment and interest and first profile of the remaining debt determined under (f), the profile of refinancing indicated under (b), and/or the profile of funding indicated under (b), as well as the requirements to maximum difference in balance, maximum difference in proceeds, and/or maximum difference in interest rates determined under (c), and, in case of refinancing, where financial instruments from a previous funding have not yet matured, the type, the number and volume of these instruments, performing one or more recalculations, if necessary, including selecting a new number of the financial instruments stored under (d), if necessary, storing in a memory or a storage medium of the computer system, after each recalculation, the recalculated interest rate, the recalculated profile of repayment and interest, the recalculated profile of the remaining debt, and the selected financial instruments with their calculated volumes, until all requirements indicated under (c) have been fulfilled, if desired, followed by transcribing, transferring to a storage medium, or transmitting to another computer system, the combination so determined of the type, the number, and the volume of financial instruments for funding the loan, preferably together with the calculated interest rate, preferably together with the calculated profile of repayment and interest, and preferably together with the calculated profile of the remaining debt.

Realkredit Danmark FlexLån®

- Variable interest rate mortgage loan
- Issued as European Patent no. EP 0 8380 63 B1 in april 1999
- Rejected in Opposition filed by Danske Bank
  - Lack of inventive step, no technical contribution

(30) Priority: **02.02.1996 DK 11496**
15.02.1996 DK 16596

(43) Date of publication of application:
29.04.1998 Bulletin 1998/18

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Q&A

Thank you!

A recording of this webinar will be available on **https://hoiberg.com**

The topic of the next HØIBERG Patent School webinar is:

”Freedom to operate - how to ensure market access”

March 24th, 2021

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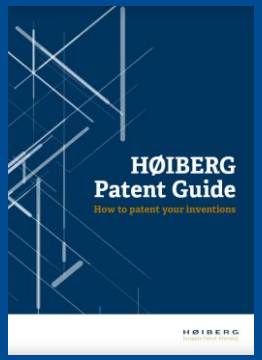

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