

ENVIRONMENTAL AND INTELLECTUAL PROPERTY RIGHTS

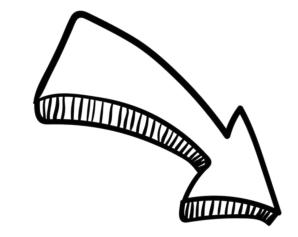
University of Ferrara ACADEMIC YEAR 2019/2020

Mr. Alessandro Bura

PATENTS AROUND US



During the last ten years, more patents have been applied for in the field of bicycle technology than in superconductor technology. More than 130 million bicycles are sold every year. There are a large number of companies in fierce competition in this market

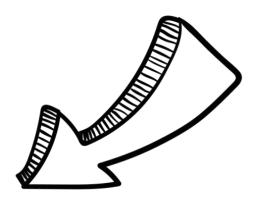




PATENTS AROUND US



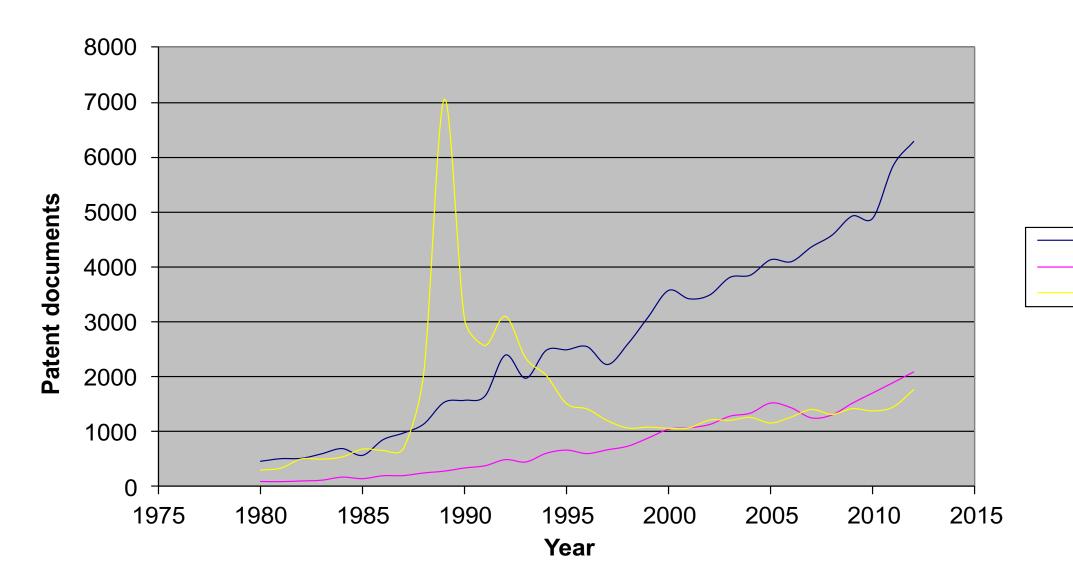




In 2012, more than 2,000 patents relating to toothbrushes were published. One plant alone reportedly manufactures 1 500 million toothbrushes a year, which is around a tenth of total global production

PATENTS IN NUMBERS (AND YEARS)





Bicycles
Toothbrushes
Superconductors

VENICE PATENT SYSTEM IN YEAR 1474

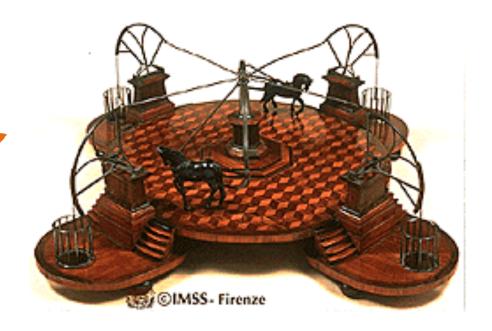


under the Venice patent law of 1474, an invention had to be new to a certain region

the resulting patent was valid for up to 10 years

the details of the invention were **not published**

Galileo Galilei obtained a patent on a water pump in 1594



DIFFERENT PATENT SYSTEMS



Senate of Venice, 1474

"Any person in this city who makes any new and ingenious contrivance, not made heretofore in our dominion, shall, as soon as it is perfected so that it can be used and exercised, give notice of the same to our State Judicial Office, it being forbidden up to 10 years for any other person in any territory of ours to make a contrivance in the form and resemblance thereof"



TODAY

- New to the world
- Up to 20 years of protection
- Publication
- Incentive to innovate and to share knowledge

1713 – FIRST TIME THAT PATENT ARE DESCRIBED IN WIRITING





during the reign of Queen Anne

"The patentee must, by an instrument in writing, describe and ascertain the nature of the invention and the manner in which it is to be performed"

AUTOCANNON BY JAMES PUCKLE



- patented in 1718 in UK
- one of the earliest weapons to be referred to as a "machine gun"
- number 418 of 1718, one of the first provide such a description





International level

Union Paris
Convention of
1883 (priority
date and national
treatment)
Patent
Cooperation
Treaty (2004)

PATENT ACTUAL PROTECTION



European Level

European Patent
Convention
(1973)
Unitary Patent
European
Enhanced
Cooperation
(2015)



National level

Civil Code (Articles 2584-2591)

Industrial Property Code (Articles 46-86)

EXCLUSIVE RIGHTS VS PUBLIC PROGRESS

disclosure of the invention is awarded through its exclusive exploitation's right for a period of **20 years**;

technical description of the invention allowing third parties to understand the invention in every detail after its publication (18 months after filing);

invention is considered in **public domain** after 20 years from its filing



ACTUAL PATENT PROTECTION - EXAMPLE LGV



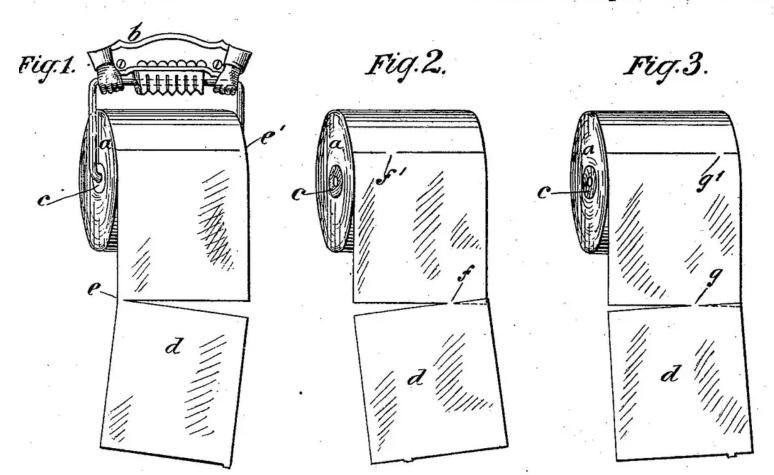
(No Model.)

S. WHEELER.

WRAPPING OR TOILET PAPER ROLL.

No. 459,516.

Patented Sept. 15, 1891.



PUBLIC DOMAIN INNVENTIONS





a wheel is a circular component that is intended to rotate on an axle bearing

it have been tried to be claimed "as such" several times as a patent but refused

however some technical specifications of tires have been protected

DEFINITION OF INVENTION

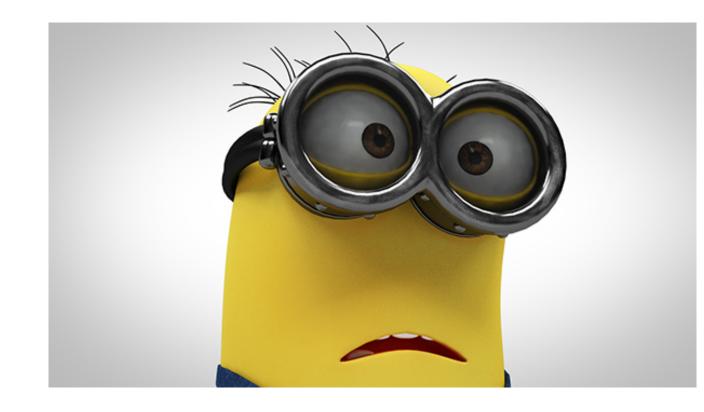
Original solution found to a **technical problem** (intuitive combination which until then had been lacking, of pre-existing concepts, ideas or features)



REQUIREMENTS OF INVENTION

LGV

- the inventive solution must belong to any field of technology
- **industrial application** (the solution must be able to have concrete applications in the industrial field)
- new worldwide (the solution must not be included in earlier documents that describe the invention)
- not obvious for a person skilled in the art (e.g. simple association or application of already known ideas applied in the same field, or in similar fields to solve the same problem)



NON PATENTABLE SUBJECT MATTERS



- discoveries of materials or substances already existing in nature
- scientific theories or mathematical methods
- plants and animals other than microorganisms, and essentially biological processes for the production of plants and animals, other than non-biological and microbiological processes



- schemes, rules or methods, such as those for doing business, performing purely mental acts or playing games
- methods of treatment for humans or animals, or diagnostic methods practiced on humans or animals (but not products for use in such methods)

EPO GUIDELINES ON COMPUTER IMPLEMENTED INVENTIONS



computer program claimed by itself is not excluded from patentability if it is capable of bringing about, when running on or loaded into a computer, a further technical effect going beyond the "normal" physical interactions between the program (software) and the computer (hardware) on which it is run (see decisions T 1173/97 and G 3/08)

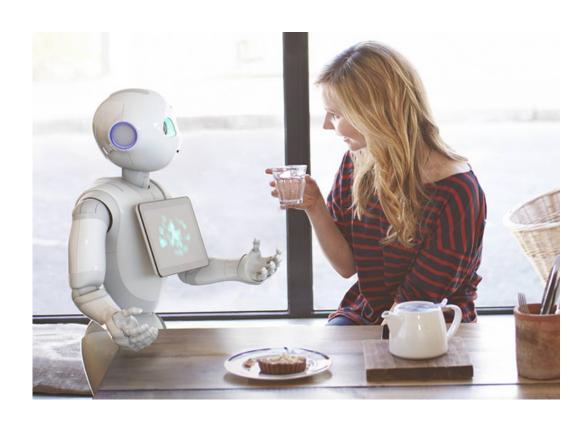




the normal physical effects of the execution of a program, e.g. electrical currents, are not in themselves sufficient to lend a computer program technical character, and a further technical effect is needed

IMPLEMENTED INVENTIONS VS. COMPUTER PROGRAMMES

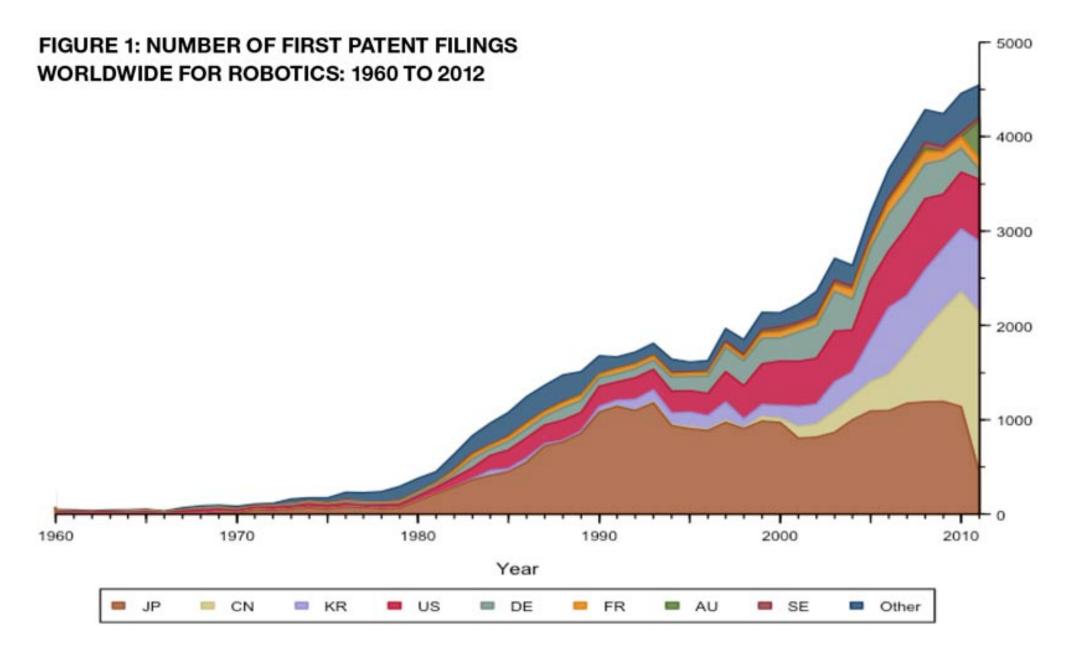






PATENTS REGARDING ROBOTICS





ARTICLE 52 EPC – AESTHETIC CREATION



aesthetic creation might be patentable should they have a technical effect



examples:

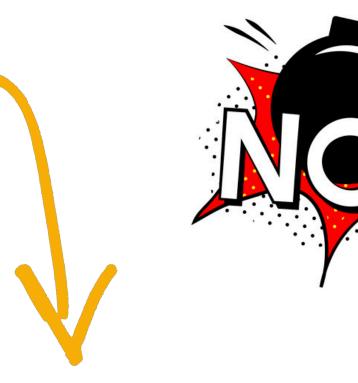
- the **pattern of soles** in sandals (technical effect to better stick the sandal on the ground);
- the pattern of a tire tread (technical effect to improved channeling of water)



ARTICLE 52 EPC – SCHEMES, RULES, ETC.



scheme for learning a language, a method of solving crossword puzzles, a game (as an abstract entity defined by its rules), modelling information or a scheme for organizing a commercial operation would not be patentable



intellectual creation «as such» without any technical effect

ARTICLE 52 EPC – DISCOVERIES



GENERAL RULE

if a new property of a known material or article is found out, <u>that is mere</u> <u>discovery and unpatentable</u> because discovery as such has no technical effect



EXCLUSIONS

discoveries put in practical use

discovery that a particular known material is able to withstand mechanical shock would not be patentable, but a <u>railway sleeper made from that material could well be patentable</u>

VIOLATION OF PUBLIC ORDER



any invention contrary to "ordre public" or morality is specifically excluded from patentability

protection is denied to inventions likely to induce riot or public disorder, or to lead to criminal or other generally offensive behavior **Anti-personnel mines**

Biotechnological inventions





PECULIAR BIOTECH INVENTIONS EXCLUDED

- processes for cloning human beings (any process, including techniques of embryo splitting)
- processes for modifying the germ line genetic identity of human beings
- uses of **human embryos** for industrial or commercial purposes



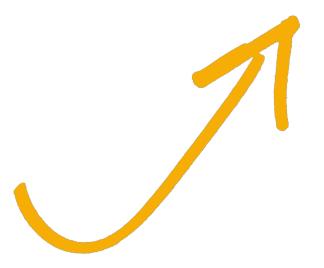
BIOTECH INVENTIONS - DEFINITIONS



Article 81-ter IPC

- biological material: a material containing genetic or selfreproducing material, or material able to reproduce itself in a biological system;
- microbiological process: any process which uses microbiological material, that entails an intervention on microbiological material or that produces a microbiological material

process for production of plants or animals is essentially biological when it <u>consists fully of natural</u> <u>phenomena</u> such as crossbreeding or selection



WHAT CAN BE PATENTED



Article 81-quarter IPC

- a) a biological material, isolated from its natural environment or produced through a technical process;
- b) a <u>technical process</u> through which biological material is produced, processed or used;
- c) any <u>new utilization</u> of a biological material or of a technical process relating to biological material;
- d) an invention relating to an <u>element isolated from the human body</u> or produced otherwise, through a technical process, even if its structure is identical to that of a natural element, provided that its function and industrial application are concretely indicated and described;
- e) an invention regarding plants or animals or rather a plant grouping characterized by the **expression of a specific gene** and not of its entire genome, if their application is not limited, from a technical standpoint, to the obtainment of a specific plant variety or animal species, and in order to obtain thereof, not only essentially biological processes are used;

ARTICLE 100 IPC – PLANT VARIETIES



a patent is not to be granted if the claimed subject-matter is directed to a specific plant variety or specific plant varieties – Article 100 IPC and Article 53 EPC



Specific protection according to Reg. CE 2100/94



PLANT VARITIES PROTECTION

The right on a new plant variety may consist of a group of plants in a botanical taxon of the lowest grade known that, whether it is or is not entirely consistent with the conditions set for the granting of the breeder's right, can be:

- a) defined based on characteristics resulting from a given genotype or a given combination of genotypes;
- b) distinguished from any other group of plants based on the expression of at least one of said characteristics;
- c) considered as a unit with regard to its suitability to be reproduced unchanged



REQUIREMENTS (1)



novelty



the vegetative reproduction or multiplication material or a harvest product of the variety has not been sold or otherwise transferred to third parties

distinguishable



is clearly distinguishable from any other variety whose existence, as of the date of filing of the application, is well known

REQUIREMENTS (2)



<u>homogeneus</u>



when its characteristics that are pertinent and relevant for the purposes of protection are sufficiently uniform

stable

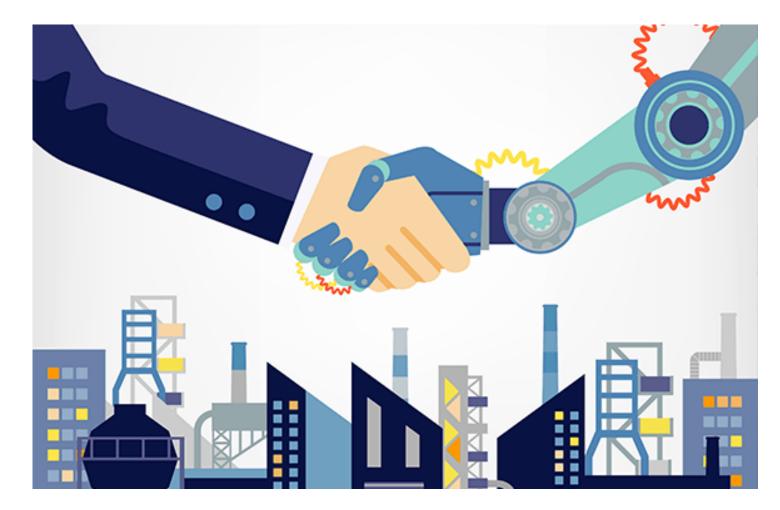


when its characteristics remain unchanged following subsequent reproductions or multiplications, or in the case of a particular reproduction or multiplication cycle, at the end of each cycle



INDUSTRIAL APPLICABILITY

- practical purposes of the invention
- product inventions: it should be possible to make that product
- process inventions: it should be possible to carry that process out or "use" it



NOVELTY - ARTICLE 54 EPC



new at the time of filing (not anticipated by the prior art)

not accessible to the public (sale or offer for sale, the presentation at an exhibition or the publication in a magazine, not even by the inventor himself/herself);

kept secret up to the date of filing of the patent application



PRIOR ART - WORLDWIDE



printed publications and other disclosures such as oral disclosures and prior use

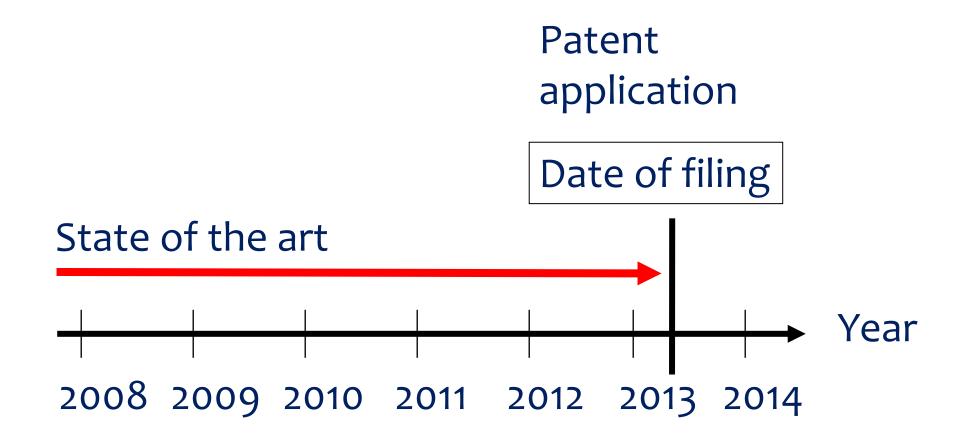
knowledge that existed prior to the relevant filing or priority date of a patent application, whether it existed by way of written or oral disclosure



a document will only destroy the novelty of any invention claimed if the subject matter is explicitly contained in the document

WHEN IS AN INVENTION "NEW"?





INVENTIVE STEP - ARTICLE 56 EPC



an invention will lack of inventive step whether it "would have been **obvious to** a person having ordinary skill in the art"



the subject matter of the claim under examination is compared not with each publication or other disclosure separately, but with the combinations thereof, insofar as each such combination is obvious to the person having ordinary skill in the art

PERSON SKILLED IN THE ART



the "person skilled in the art" is presumed to be a **skilled practitioner** in the relevant field of technology, who is possessed of average knowledge and ability and is aware of what was common general knowledge in the art at the relevant date

he is also presumed to have had access to everything in the "state of the art", in particular the documents cited in the search report, and to have had at his disposal the means and capacity for routine work and experimentation which are normal for the field of technology in question





in most cases, for assessment of inventive should be taken into account:

- the problem to be solved
- the solution to that problem
- the advantageous effects, if any, of the invention with reference to the background art

if a person having ordinary skill in the art would have been able to pose the problem, solve it in the manner claimed, and foresee the result, the inventive step is lacking

ASSESSING INVENTIVE STEP THREE STEP TEST



Stage

• Determine the **closest prior art** and common features:

- (a) a compartment for liquids
- (b) a handle
- (c) a lid
- (d) one spout





- Differences over D1:
 - two spouts instead of one
 - particular arrangement of the spouts



- time-consuming



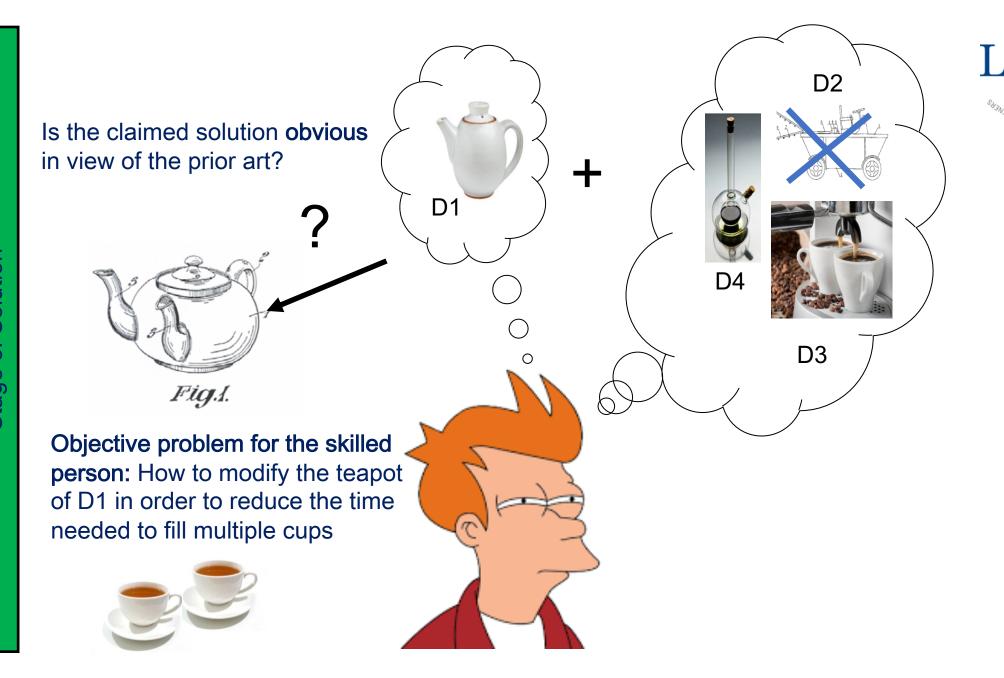
- the time needed to fill multiple cups is reduced



- how to modify the teapot of D1 to reduce the time needed to fill multiple cups





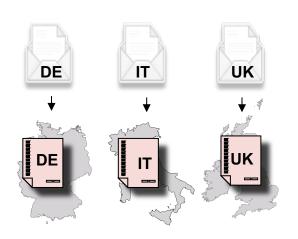


NATIONAL AND EUROPEAN PATH FOR PATENTS



National route

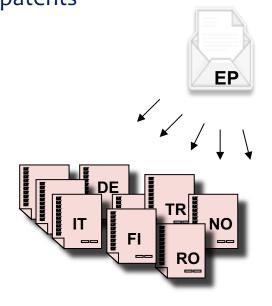
separate procedures for each state procedures differ according to national law



European Patent Convention

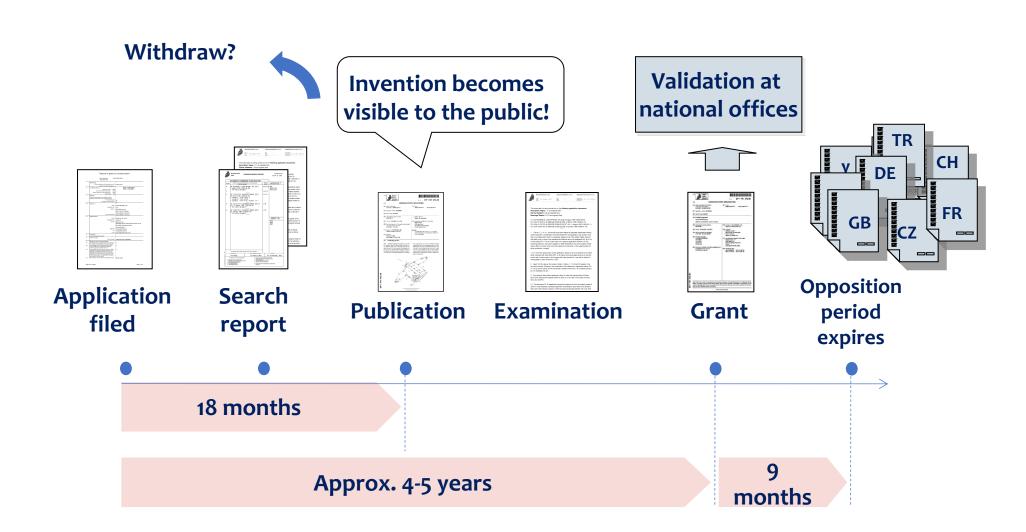
one application filed at one office for up to 42 states one procedure applicant selects the desired states one European patent for up to 42 states results in a bundle of national patents





THE GRANT PROCEDURE BEFORE THE EPO



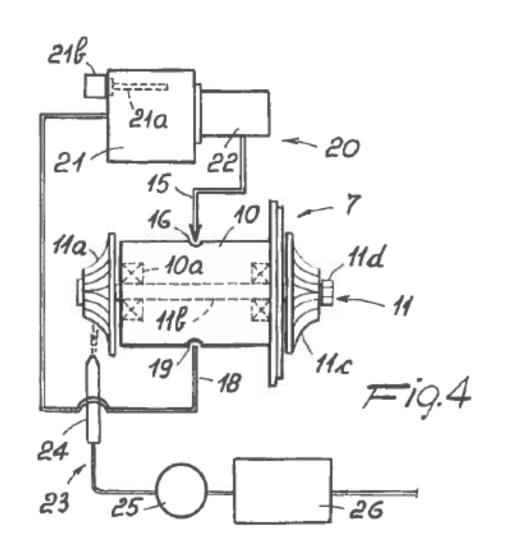


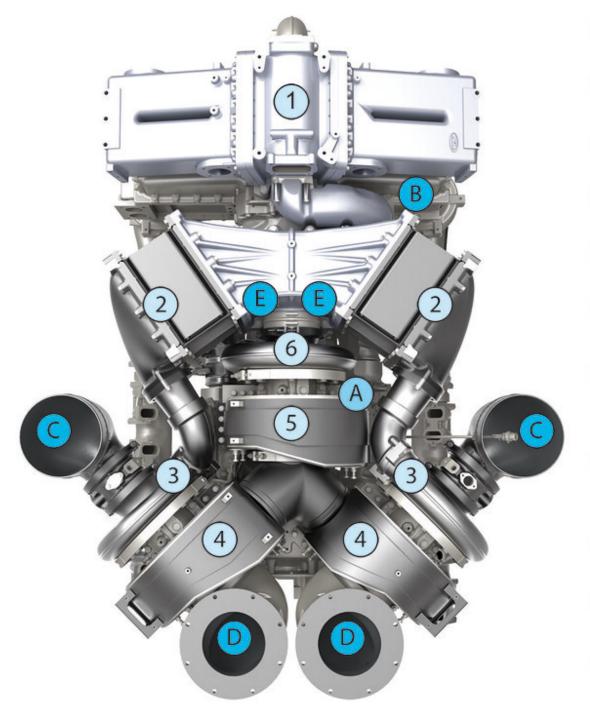
CASE STUDY – INVALIDITY COUNTERCLAIM



Patent no. EP 0699 900 A2
Filed on June 20, 1995
Priority of August 4, 1994 IT
MI941697

Balancing process and balancing machine for turbosupercharger units in supercharged engines



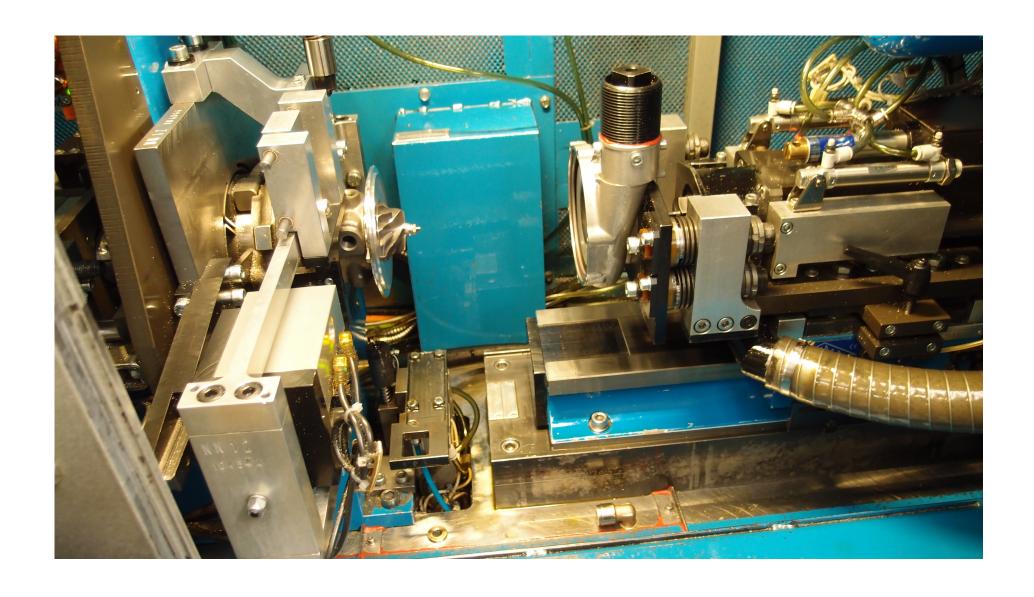


- 1) charge air cooler
- 2 intercooler
- 3 low-pressure compressor
- (4) low-pressure turbine
- 5 high-pressure turbine
- 6 high-pressure compressor
- A from high-pressure compressor to charge air cooler
- B from charge air cooler to cylinder bank
- intake air
- exhaust outlet
- from intercooler to high-pressure compressor



ALLEGED INFRINGED PRODUCT





HOW TECHNICAL EFFECT IS BROUGHT LGV

the process consists in associating a substantially complete turbosupercharger unit with an unbalance-detecting device, supplying the turbosupercharger unit with lubrificating oil at the same temperature and pressure as the operating ones, setting the rotor of the turbosupercharger unit in rotation by compressed air flow, and carrying out detection of unbalances under these conditions. The machine comprises an unbalance-detecting device adapted to engage a turbosupercharger unit, a feeding device for feeding oil at the operating temperature and pressure, and a delivery device for delivering compressed air to the rotor of said turbosupercharger unit

Claims

- A balancing process for turbosupercharger units in supercharged engines, characterized in that it consists in:
 - associating a substantially complete turbosupercharger unit with an unbalance-detecting device,
 - supplying said turbosupercharger unit, while in engagement with said detecting device, with lubricating oil having the same temperature and pressure features as provided under normal operating conditions,
 - setting the rotor of said turbosupercharger unit in rotation by a compressed-air flow, while said turbosupercharger unit is supplied with oil, and
 - carrying out at least one operating step consisting in detecting unbalances in said turbosupercharger unit while it is rotating.
- A process according to claim 1, in which during said first operating step the compressed-air pressure is such adjusted that a first predetermined rotation speed is imposed to said assembled turbosupercharger unit.

PATENT CLAIMS

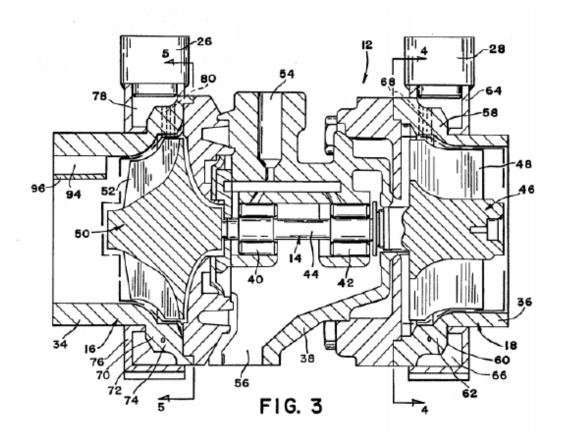




THE CONCLUSIONS OF TECHNICAL EXPERT



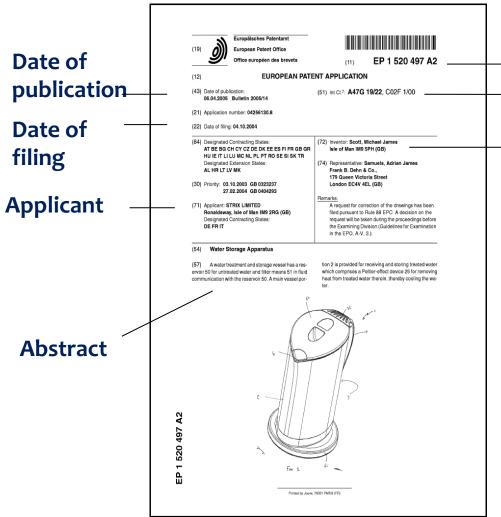
Null and void, lacking inventive step due to prior art US 4 864 859



"It is essential that the rotating component 14 be dynamically balanced, to prevent excessive noise and to prevent excessive vibration from damaging the components, including the bearings 40, 42. It is also necessary to communicate engine lubricating oil to the bearings 40, 42. This is done by passing oil into an oil inlet 54, through the bearings 40, 42, and out through an outlet 56. It is necessary during the balancing operation to accelerate the rotating component 14 to substantially normal operating speeds, it is also necessary to communicate oil to the bearings 40, 42 during balancing"

PATENTS' ASPECT





Application number Technical class Inventor

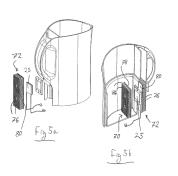
Claims

- 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)



Description

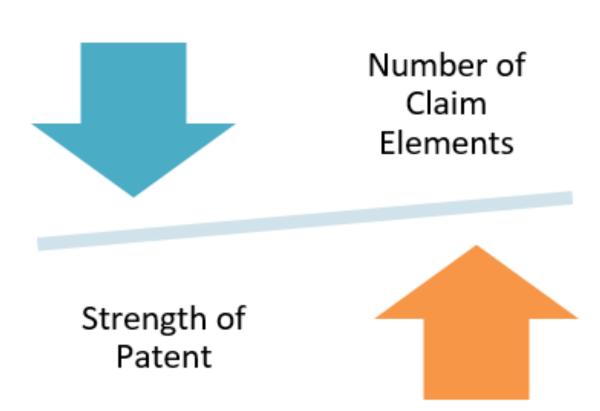


Drawing(s)

PATENT'S CONTENTS



- Title
- Technical field
- Background information and prior art
- Description of how your invention addresses a technical problem
- List of figures
- A detailed description
- One example of intended use
- A sequence listing (if relevant)
- CLAIMS



PROTECTION IS ASSESSED ON CLAIMS



the claims define the protection which is the purpose of the patent



they define clearly the scope of the exclusive right provided by the patent. Therefore it is the most important task in the work of the patent agent when preparing the application, to produce a wording of the claims which defines the invention in terms of the technical features disclosed in the description and which does not contain any reference to commercial advantages

INDEPENDENT AND DIPENDENT CLAIMS





the series of claims start with an independent claim (broad main claim followed by a number of claims of narrower scope)

the narrower claims (<u>dependent claims</u>)
following the broad main claim usually
refer back to one or more of the
preceding claims. They introduce some
additional features in order to better
explain (and claim) the technical form
of the invention

EP2184475A1 – BIBLIOGRAPHIC DATA





Espacenet

EP2184475A1 Enhanced diesel particulate filter service regeneration method

Applicants: FORD GLOBAL TECH LLC [US]

Inventors: BROOK DAVID JONATHAN [GB], CASTELLANO JAVIER [GB], HARMSEN JAN [NL], WRIGHT JAMES

[GB]

Classifications:

IPC **F01N9/00; F02D41/02; F02D41/40;**

CPC F01N3/0253 (EP); F01N9/002 (EP); F02D41/0245 (EP); F02D41/029 (EP);

F02D41/405 (EP); F02D41/1446 (EP); Y02T10/26 (EP); Y02T10/44 (EP); Y02T10/47 (EP);

Priorities: EP08168759A 2008-11-10

Application: EP2184475A1·2008-11-10

Publication: EP2184475A1·2010-05-12

Published as: AT548552T; EP2184475A1; EP2184475B1

Enhanced diesel particulate filter service regeneration method

Abstract

The invention relates to a regeneration strategy to regenerate a Diesel Particulate Filter mounted in the exhaust path of an Internal Combustion engine, comprising the steps of: Heating exhaust gas up to a target temperature at the center location before the inlet of said Diesel Particulate Filter, said target temperature value is set below particulate ignition temperature, Ramping up the target temperature slowly up to particulate ignition temperature in long term duration in front of said Diesel Particulate Filter, Increasing the temperature quickly up to a temperature above particulate ignition temperature in front of said Diesel Particulate Filter, if said temperature has reached the particulate ignition temperature.

CLAIM TREE



☆ EP2184475A1 Enhanced diesel particulate filter service regeneration method

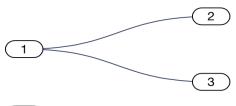
Available in V

Patent Translate >

Bibliographic data Description Claims Drawings Original document Citations Legal events Patent family

Original claims Claims tree

- 1. Regeneration strategy to regenerate a Diesel Particulate Filter mounted in the exhaust path of an Internal Combustion engine, comprising the steps of: Heating exhaust gas up to a target temperature at the center location before the inlet of said Diesel Particulate Filter, said target temperature value is set below particulate ignition temperature, Ramping up the target temperature slowly up to particulate ignition temperature in long term duration in front of said Diesel Particulate Filter, Increasing the temperature quickly up to a temperature above particulate ignition temperature in front of said Diesel Particulate Filter, if said temperature has reached the particulate ignition temperature.
 - 2. Regeneration strategy according to claim 1, characterized in, that time duration for heating up the temperature upto said target temperature takes 150sec.
 - ──3. Regeneration strategy, according to claim 1 or 2, characterized in, that that said target temperature ha a value of 500°C.
 - 4. Regeneration strategy, according to any preceeding claim; characterized in, that said temperature is then slowly ramped up to 600°C in front of said Diesel Particulate Filter over a 1000sec duration.
- -5. Regeneration strategy according to any preceeding claim, characterized in, that said temperature will be increased after reaching particulate ignition temperature upto 640°C.
- 6. Regeneration strategy according to any preceeding claim, characterized by a PI (proportional and integral) control system, whereby a feedback loop is closed via a thermocouple placed in the inlet cone of said Diesel Particulate Filter.
- 7. Regeneration strategy according to any preceeding claim, characterized in, that the quantity in the post injection is modified.
- -8. Regeneration strategy according to any preceeding claim,, characterized by non linear gains and saturation of the system.



- 5
- 6
- 7

EXCLUSIVE RIGHTS GRANTED



exclusive exploitation of the technical idea behind the patent (protection against infringements)

exclusive rights granted to the owner should be licenses or sell as all the IPRs

exclusive rights are granted for a period of **20 years** from the date of filing (apart from pharmaceutical invention to which an additional period of 5 years should be granted)



EXCLUSIVE RIGHTS - ART. 66 IPC



the owner has the right to make, use, sell or import the patented product

process inventions include the right to make, use, sell or import the product directly obtained through the patented process.

exclusive rights shall be granted following the registration process



AN ITALIAN INFRIGEMENT CASE



EP 1 979 053

Date of filing: 2.12.2006

Priority: 13.12.2005 IT

UD20050211

Product for treating the skin and mucous membranes, and relative method of preparation



MAIN INDEPENDENT CLAIM

- Method for preparing a product for treating the skin and mucous membranes, <u>characterized in that</u> it comprises the following steps:
- LGV

- to make available a suitable quantity of trichloracetic acid (CCl3COOH or TCA);
- to make available a suitable quantity of hydrogen peroxide (H2O2);
- to make a first mixture of said trichloracetic acid with said hydrogen peroxide





INDEPENDENT AND DEPENDENT CLAIM

- to make available a determinate quantity of basic compound, able to achieve a buffer effect of said trichloracetic acid comprised in said first mixture;
- to add said basic compound to said first mixture in order to buffer said first mixture comprising said trichloracetic acid CCl3COOH.
- 2. Method as in claim 1, characterized in that said basic compound is at least a compound chosen from a group comprising ammonia, triethanolamine, or mixture thereof.
- 3. Method as in claim 1 or 2, characterized in that said product obtained from step e) has a pH comprised between 2.3 and 2.6.



INFRINGING PRODUCT



CLASS I MEDICAL DEVICE MAIN INGREDIENTS:

TRICHLOROACETIC ACID (TCA)

10 - 15%*

HYDROGEN PEROXIDE

1 - 5%

KOJIC ACID

5 - 10%

MANDELIC ACID

5 - 10%

INFRINGING TREATMENT'S INDICATIONS



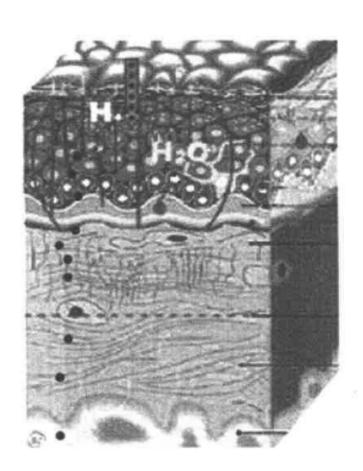
BIOREVITALIZING PEELING

FORMULATED FOR THE TREATMENT OF SKINS AFFECTED BY:

- CHRONO-AGEING: IT LEAVES TISSUES FIRMER SMOOTHER AND BRIGHTER
- PHOTO-AGEING: IT HELPS REMOVE SPOTS AND REDUCES SKIN DISCOLORATION
- ACNE: IT EXERTS A SOOTHING ANTI-INFLAMMATORY ACTION ON ACNEIC SKINS
- DYSCHROMIAS: IT LIGHTENS SKIN SPOTS AND MINIMIZES DYSCHROMIAS THANKS TO TYROSINASE INHIBITION AND THE LIGHTENING OF EXISTING MELANINE
- SCARS: IT HAS A STRONG SMOOTHING POWER ON SCAR TISSUE
- STRETCHMARKS: IT LIGHTENS DEEP STRETCH MARKS AND REMOVES MEDIUM-DEEP ONES

Hydrogen Peroxide modulation effects on TCA





•TCA REACTION on the epidermis, ASSOCIATED WITH THE RELEASE OF H+ IONS is modulated by Hydrogen Peroxide with the formation of water.

•THE NEUTRALIZING ACTION OF HYDROGEN PEROXIDE EXHAUSTS ITSELF IN THE EPIDERMIS. THE H + IONS WHICH HAVE REMAINED FREE ALLOW TCA TO PENETRATE SUPERFICIAL DERMIS GENTLY WITHOUT CREATING FROST AND TRIGGERING:

- Controlled damage
- Tissue repair and remodelling
- Regenerative stimulus and Revitalization

COURT'S DECISION

the variations included by the infringer in his product **are not suitable to exclude the violation**

in particular, the chemical elements are almost identical (missing only the basic compound in the infringing product) and relative methods of preparation are equivalent since they obtain the same buffer effect on the skin

the buffer effect obtained by the infringer by controlling the pH rate.

(Court of Bologna, February 19, 2016)



INVENTIONS BY EMPLOYEES



when there is a relationship of <u>subordinate</u> work, there are four different cases:

- the employee-inventor is not entitled to any bonus;
- the employee-inventor is entitled to a "fair bonus";
- the employee-inventor is the owner of the invention but the employer has the right of preemption for the use or purchase of the patent;
- a researcher working for a University or public research body has the right to a particular treatment



INVENTIONS MADE BY EMPLOYEES



when the inventive activity is deemed to be an **object of the contract** or relationship and is rewarded accordingly and distinctly



company owns the invention automatically

when the **invention** is performed in the **field of activity of the company** where the inventor is employed without being paid separately



employer has the right of preemption for the exclusive exploitation (employee's fair bonus and right to be recognized as the inventor)

when the inventor works for a **University** or a public authority which has research among its institutional purposes



the researcher is **exclusive owner** of the rights deriving from the patentable invention of which he is the author

Thank you for your attention!

Alessandro Bura

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