Introduction to

The Patent System

Adapted from an earlier version presented at the

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Coverage of this Lecture

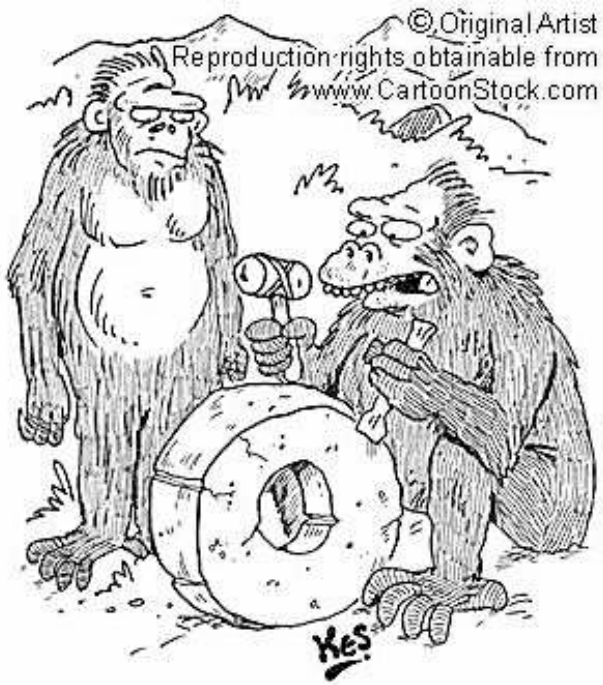
1. Introduction to patents
2. Conditions of Patentability
3. Preparing and Filing a Patent Application
4. Examination of a Patent Application
5. Patent Rights, Limitations, and Infringement
6. Exploitation of a Patent: Voluntary & Compulsory Licensing

Reference:

WIPO 2004. *WIPO Intellectual Property Handbook: Policy, Law and Use, 2nd Ed.* Publication No. 489 (E)

Introduction to Patents

invent & patent



"We'd better patent this, so the homo sapiens can't steal it from us, like they did with the fire."

The man who invented the wheel.

The man who Patented the wheel.

www.cartoonstock.com

create a limited monopoly

commercialize

Patents (Utility Patents) Protect Inventions

http://content.time.com/time/covers/0,16641,20071112,00.html

"Invention" means a solution to a specific problem in the field of technology. Being a subset of intellectual property, inventions are intangible (incorporeal).

An invention may relate to a

product or a

process.

What is a Patent?

http://fllinnovation.firstlegoleague.org/learn-about-patents

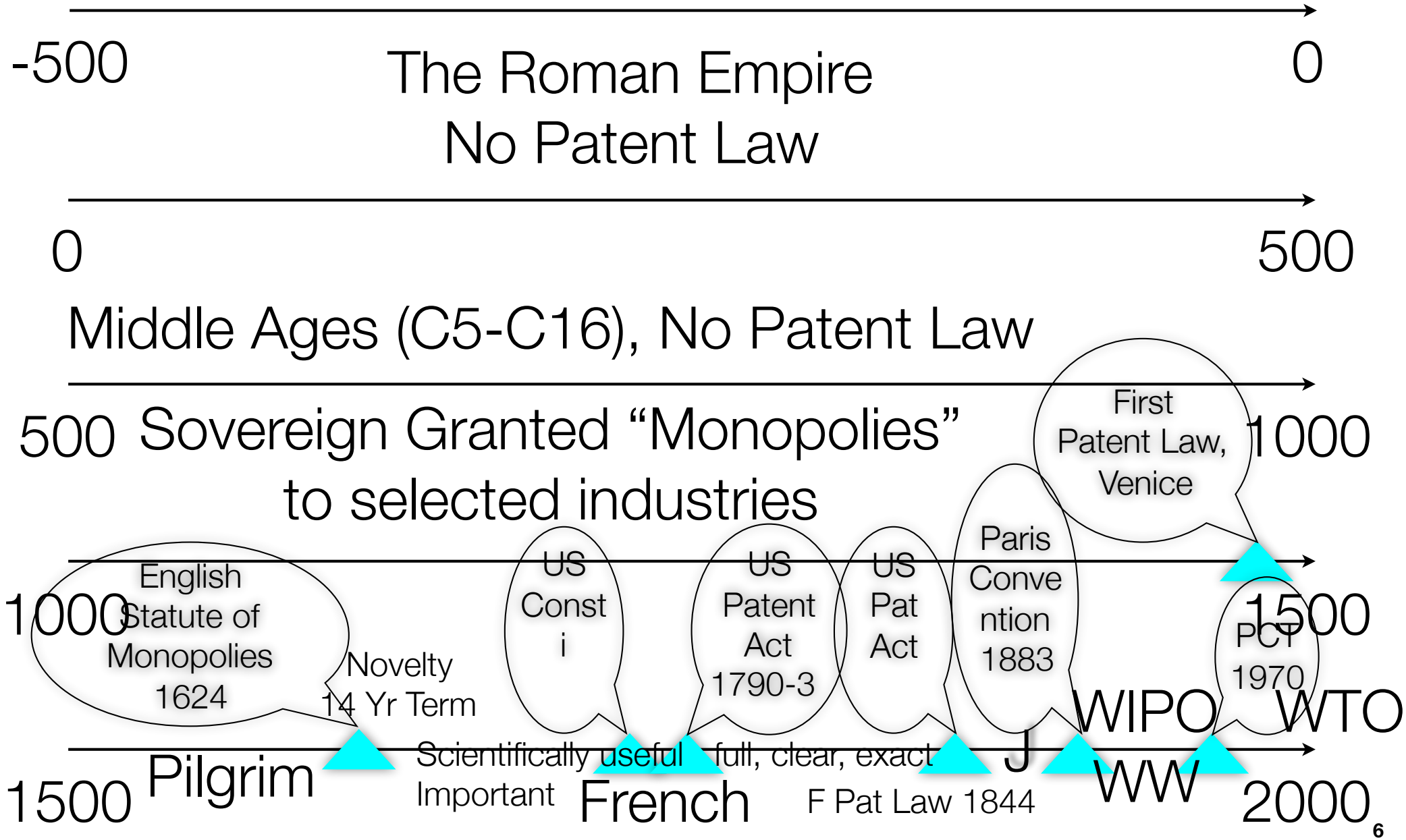
Patent as a document: document issued (granted or registered) upon **application** (and often examination) by a government office.

- Describing an **invention** --> for public disclosure
- Setting up a set of **legal rights** --> limited monopoly

http://clipartfreefor.com/files/1/38412_balance-clipart.html

Patent as a set of legal rights: **right** granted by the State to an inventor to **exclude others** from commercially exploiting the invention for a **limited period**, in return for the **disclosure** of the invention, so that others may gain the benefit of the invention. The patent holder effectively enjoys a limited monopoly from these economic rights.

A Quick Look at History



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Paris Convention

1	Establishment of the Union
2	National Treatment
3	Same treatment for certain categories of persons as for Nationals of Countries of the U.
4	Right of Priority, Division of Application
4bis	Independence of patents obtained for the same invention in different countries
4ter	Mention of the inventor in the patent
4quater	Patentability in case of restriction of sale by law
5	Importation of article; Failure to work or insufficient working; Compulsory licensing
5bis	Grace period for the payment of fees for the maintenance of rights
5ter	Patented devices forming part of vessels, aircraft, or land vehicles
5quater	Importation of products manufactured by a process patented in the importing country
5quinquies	Industrial designs
6-10	Marks
10bis	Unfair Competition
10ter	Remedies; Right to sue (Unfair Competition)
11	Temporary protection at certain international exhibitions
12-30	Administrative and Transitional Provisions

Patent Rights

http://fllinnovation.firstlegoleague.org/learn-about-patents

right to take action against any person exploiting the patented invention in the country without the patent owner's agreement

A patent grants no positive right.

a patent does not give the right to the inventor or the owner of a patented invention to make, use or sell anything

(negative) right to exclude others from making, using or selling the invention

The patent holder is given a statutory right to prevent others from commercially exploiting his invention

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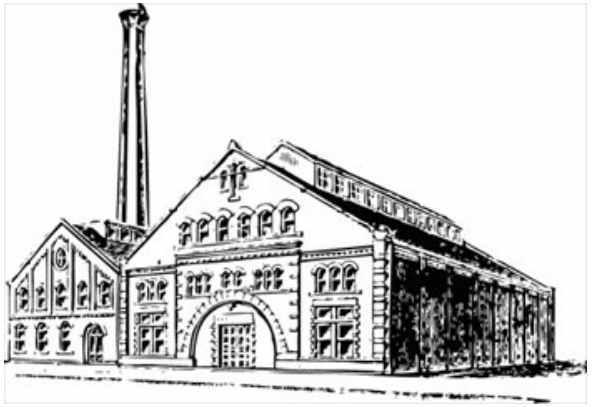


derive the material benefits as a reward for his intellectual effort & work + compensation for expenses in research experiments

Enforcement of Patents

http://www.freeclipartnow.com/money-business/bag-of-money.jpg.html

Most countries: **civil enforcement**

You need to enforce your patent rights by bringing a civil suit against an infringer.

http://www.1001freedownloads.com/free-clipart/handcuffs-2-2

Some countries: **criminal enforcement**

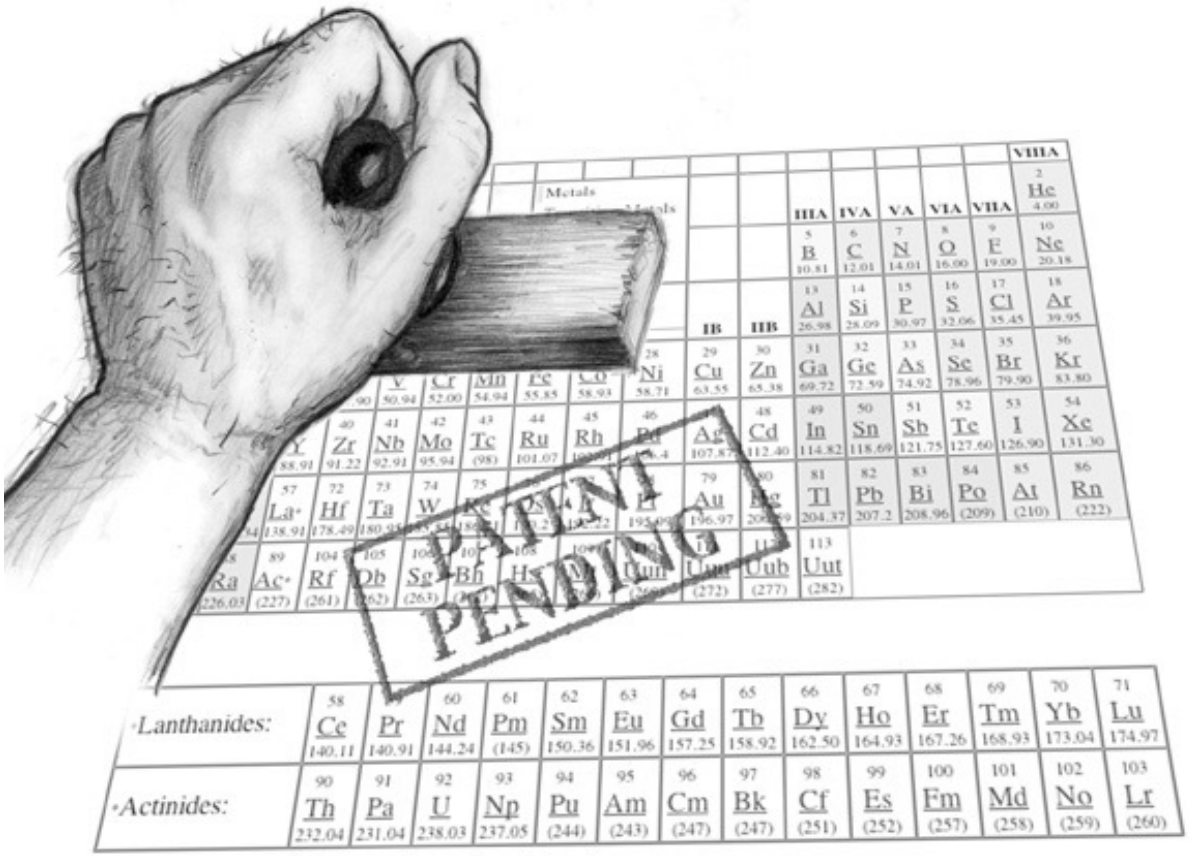
Public resources are used to enforce patent right.

Utility Models

http://www.cartoonstock.com/newscartoons/cartoonists/mba/lowres/mban1289l.jpg

"Utility model" or "short-term patent" carries **less strict** requirements than for patents, in particular in respect of **inventive step**, and in comparison with patents the **fees are lower**, and the **duration of protection is shorter**, but otherwise the rights under the utility model or short-term patent are similar.

Conditions of Patentability



http://www.etcgroup.org/upload/gallery/71/02/cartoon80.jpg

Patentable Subject Matter

To be eligible for patent protection, an invention must consist of **patentable subject matter**

Furthermore, the invention must

- be industrially applicable (**useful**),
- be new (**novel**),
- exhibit a sufficient "inventive step" (be **non-obvious**)

In addition, the **disclosure** of the invention in the patent application must meet certain standards.

Patentable Subject Matter

~~Exclusion List~~
~~(Exceptions to Patentability)~~
~~1. .....~~
~~2. ....~~
~~3.~~
~~4. ..~~
~~5 ....~~

http://www.clipartbest.com/mad-scientist-clip-art

Patentable invention must **not** be on the exclusion list

http://fllinnovation.firstlegoleague.org/learn-about-patents

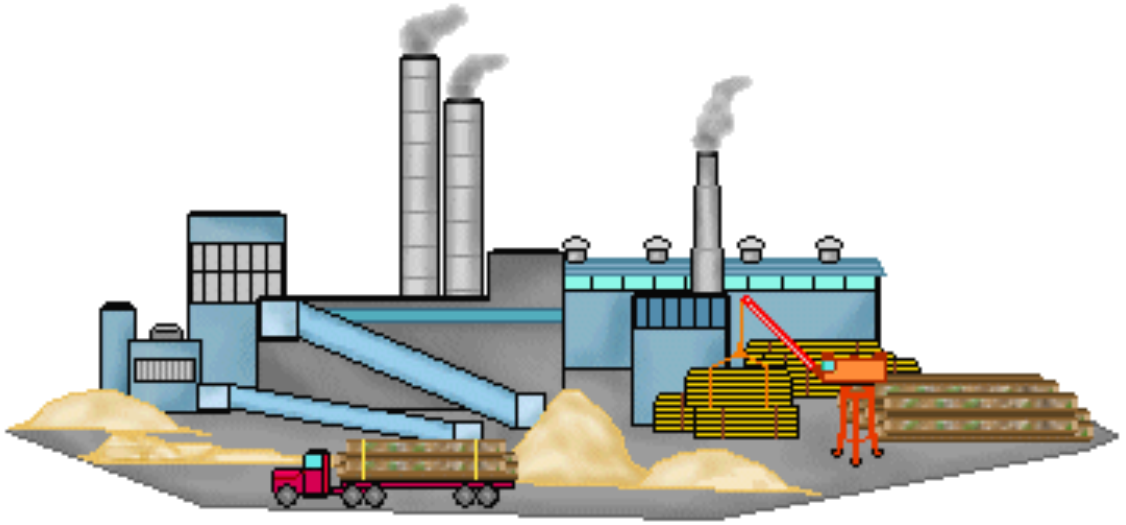
Exclusion List

(Exceptions to Patentability)

http://www.freepik.com/free-vector/lily-vector-illustration_547016.htm#term=flower%20clipart&page=1&position=16

- discoveries of materials or substances already existing in nature;
- scientific theories or mathematical methods;
- schemes, rules or methods, such as those for doing business, performing purely mental acts or playing games;
- plants and animals other than microorganisms, and essentially biological processes for the production of plants and animals, other than non-biological and microbiological processes;
- **methods** of treatment for humans or animals, or diagnostic methods practiced on humans or animals (but not products for use in such methods).
- invention the commercial exploitation of which would contravene public order or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment [TRIPS Article 27.2]

Industrial Applicability (Utility)



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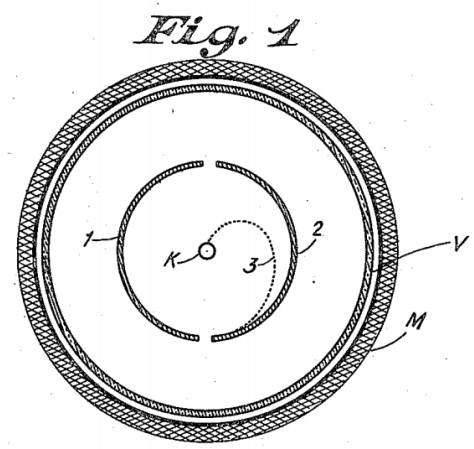
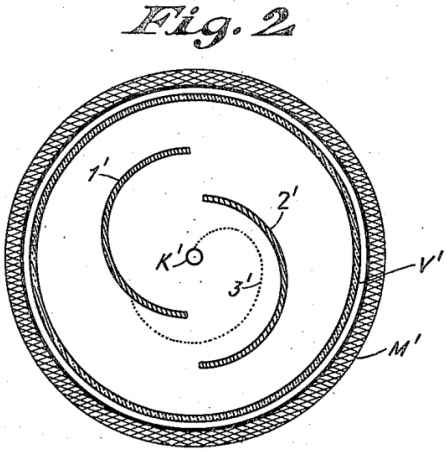
Product - must be possible to **make** the product

Process - must be possible to **carry out (use)** the process

Novelty





US Patent 2,099,533

Public policy:

- only protect new inventions
- create incentive for foreign inventors to file a domestic application as soon as possible or the novelty will be lost and the invention unpatentable

Novelty is not something which can be proved or established; only its absence can be proved.

How can Novelty be Destroyed

An invention is new if it is not ***anticipated*** by the prior art.

"Prior art" = all the 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.

- Global prior art vs what is known in the protecting country
- Printed publications vs Other types of disclosure

Three ways of prior art disclosure:

description of the invention

- in any form of tangible publication; (made available to the public through offering for sale or deposit in a public collection)
- in an oral disclosure (no need for recording);

disclosure by use

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Prior Art

http://www.clipartpanda.com/categories/stool-20clipart

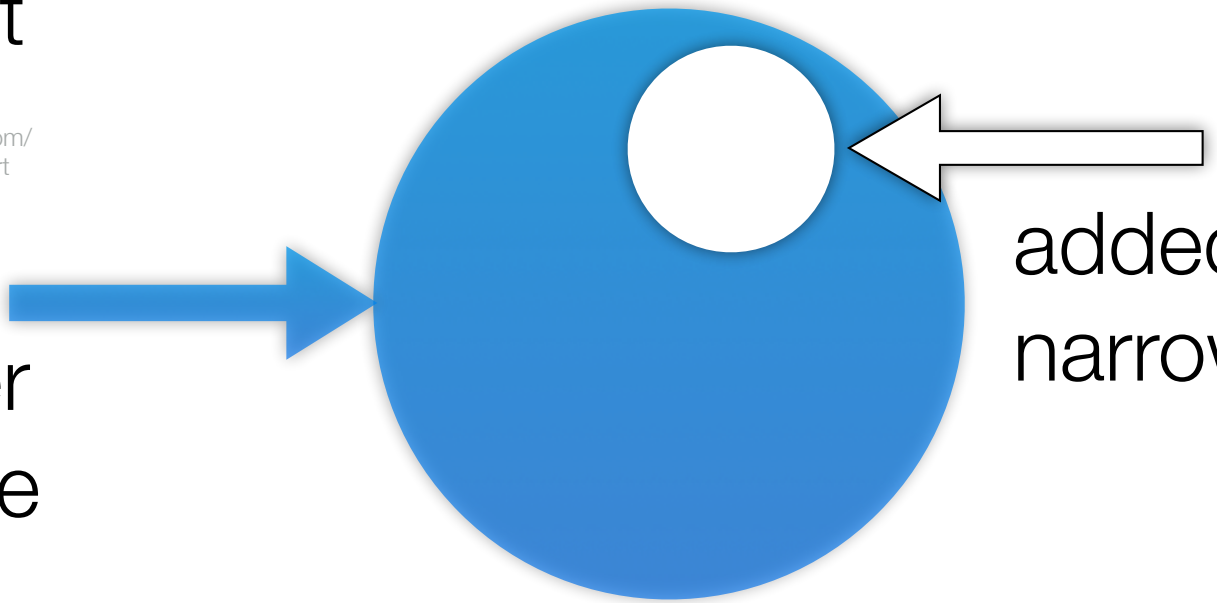
back support means not found

seating means found

4 legs found

Claimed Invention

http://www.clipartlord.com/category/home-clip-art/furniture-clip-art/chair-clip-art/page/2/



Note: in this example, we will not focus our attention on the frames that connect together a pair of legs. In real life, the frames (or bars) may itself be an invention to be protected.

Inventive Step

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protection should not be given to what is already known as part of the prior art, or to anything that the person with ordinary skill (not an expert) could deduce as an obvious consequence thereof

person with ordinary skill = not the best expert needed

Inventive step ≠ novelty

Novelty: **any difference** between the invention and the prior art

Inventive step: **enough difference** exists between the invention and the prior art

inventive <= result of a creative idea

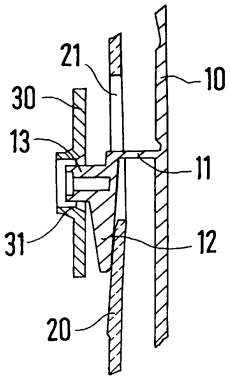
step <= noticeable

Assessing the Inventive Step

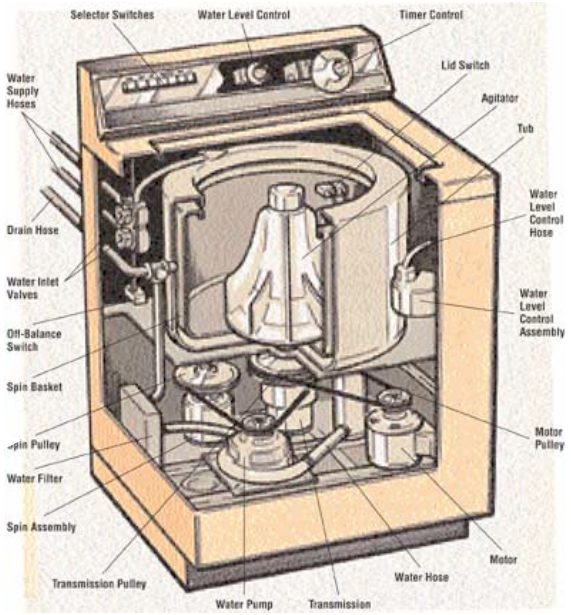
prior art
as a whole

Prior Art
Reference 1

Prior Art
Reference 2



Prior Art
Reference 3



http://static.howstuffworks.com/
gif/how-to-repair-a-washing-machine-1.jpg

assess in relation to 3 aspects

- the problem to be solved
- the solution to that problem
- the advantagrous effects, if any

Enabling Disclosure ?

sufficiently clear?

refer to drawings where appropriate?

http://www.clipartpanda.com/categories/stack-of-paper-png

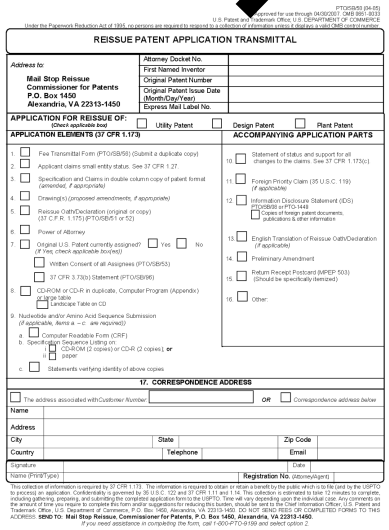
giving at least one mode for carrying out the invention?

disclose best mode? (some countries)

a person skilled in the art

Patent Office

Filing A Patent Application



REISSUE PATENT APPLICATION TRANSMITTAL

Address to:
Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

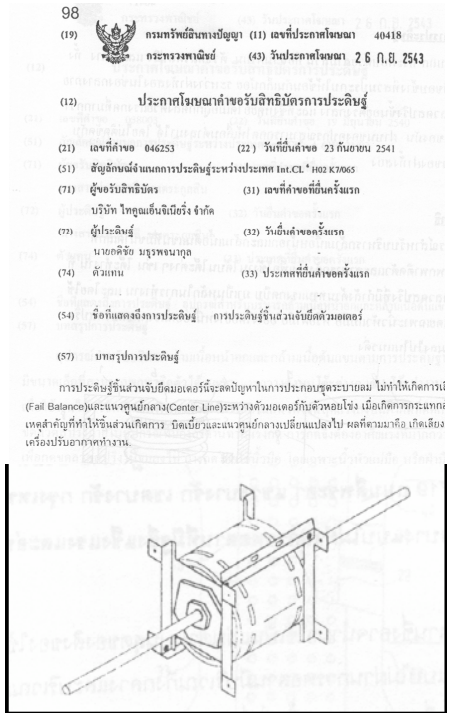
Attorney Docket No.
First Named Inventor
Original Patent Number
Original Patent Issue Date (Month/Day/Year)
Express Mail Label No.

APPLICATION FOR REISSUE OF: (Check applicable box) ☐ Utility Patent ☐ Design Patent ☐ Plant Patent

APPLICATION ELEMENTS (37 CFR 1.173) | ACCOMPANYING APPLICATION PARTS

17. CORRESPONDENCE ADDRESS

Patent Publication



98

(19) กรมทรัพย์สินทางปัญญา กระทรวงพาณิชย์ (11) เลขที่ประกาศโฆษณา 40418 (43) วันประกาศโฆษณา 26 ก.ย. 2543

(12) ประกาศโฆษณาคำขอรับสิทธิบัตรการประดิษฐ์

(21) เลขที่คำขอ 046253 (22) วันที่ยื่นคำขอ 23 กันยายน 2541

(51) สัญลักษณ์จำแนกการประดิษฐ์ระหว่างประเทศ Int.CL.[6] H02 K7/065

(71) ผู้ขอรับสิทธิบัตร บริษัท ไทยดูเอ็นพินิยริ่ง จำกัด

(72) ผู้ประดิษฐ์ นายอดิชัย บุรพจนากูล

(74) ตัวแทน (31) เลขที่คำขอที่ยื่นครั้งแรก

(32) วันยื่นคำขอครั้งแรก

(33) ประเทศที่ยื่นคำขอครั้งแรก

(54) ชื่อที่แสดงถึงการประดิษฐ์ การประดิษฐ์นี้เป็นส่วนจับยึดตัวมอเตอร์

(57) บทสรุปการประดิษฐ์

การประดิษฐ์นี้เป็นส่วนจับยึดมอเตอร์นี้จะลดปัญหาในการประกอบชุดระบายลม ไม่ทำให้เกิดการเ
(Fail Balance)และแนวศูนย์กลาง(Center Line)ระหว่างตัวมอเตอร์กับตัวหอยโข่ง เมื่อเกิดการกระแทก
เหตุสำคัญที่ทำให้เป็นส่วนเกิดการ บิดเบี้ยวและแนวศูนย์กลางเปลี่ยนแปลงไป ผลที่ตามมาคือ เกิดเสียง
เครื่องปรับอากาศห้างาน.

Opposition

Grounds for opposition
= non-compliance with any substantive requirement

- lack of novelty
- lack of inventive step
- lack of industrial application

Some countries also allow

- lack of enabling disclosure
- non-best mode

http://www.1001freedownloads.com/free-clipart/mad-scientist-2

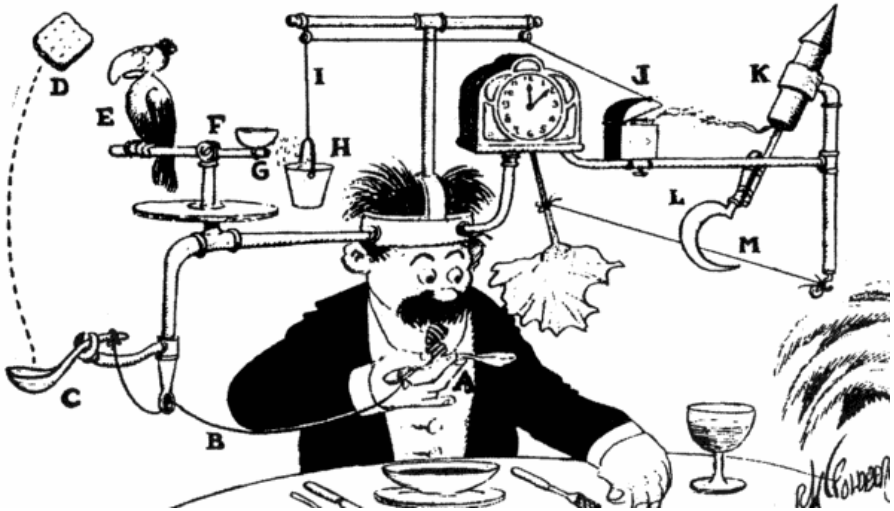
Other People

Preparing and Filing Patent Applications

http://www.ece.cmu.edu/~koopman/gif/bcpatent.gif

http://www.cartoonstock.com

Identifying the Invention (1)

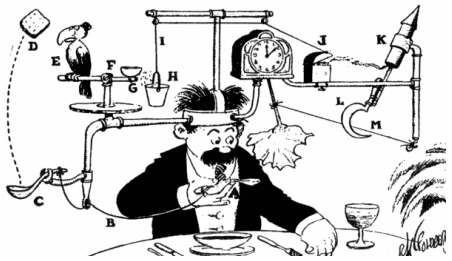


Professor Butts and the Self-Operating Napkin (1915)
taken from Wikipedia: The Fee Encyclopedia

1. summarizing all the necessary features which in combination solve a particular technical problem
2. an examination of this combination to determine whether it would, according to one's own judgment, fulfill the requirements for patentability, especially an inventive step

Identify the Invention (2)

Professor Butts and the
Self-Operating Napkin (1915)



Invention

- **Critical feature**(s)
- why each critical feature **contributes** to an effective **solution** of the problem

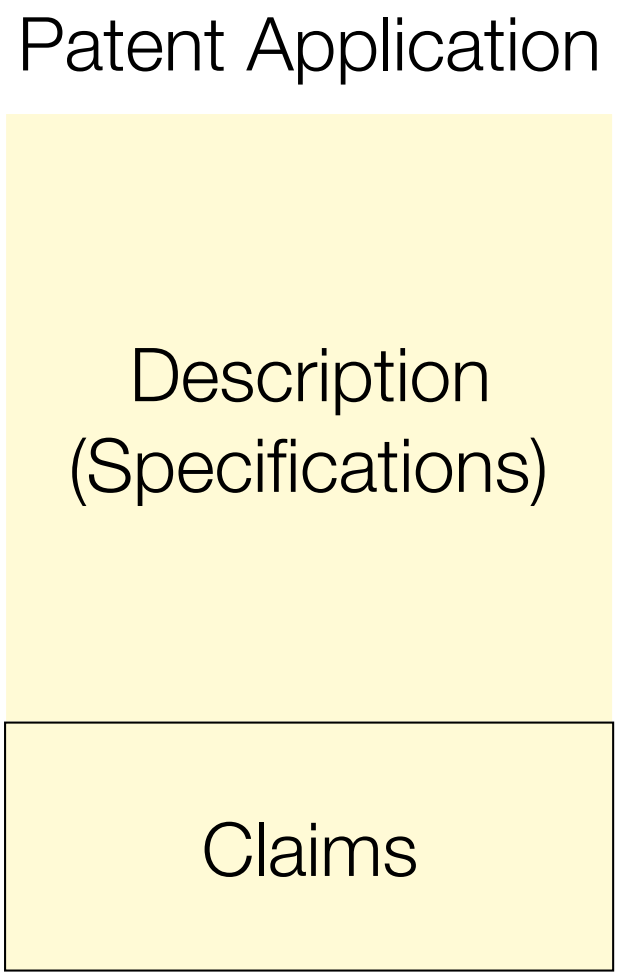
How else may this effect be achieved? i.e. can the specific features be substituted or altered while still achieving the same end result?

Patent Application

Description (Specifications)

Claims

Drafting Patent Applications



1. Unity of Invention
2. Description (Specifications)
   Enabling Disclosure
   - clear and complete
   - can be carried out by a person having ordinary skill in the art
3. Claims
   - clear and concise
   - fully supported by the description

Anatomy of a Patent Application

A typical patent application consists of the following sections:

1. Title & Technical field
2. Background of the invention
3. Summary of the invention
4. Detailed description of the invention
   Brief description of the drawings
5. Claims
6. Abstract

Title
Abstract
Technical Field
Background of the Invention
Summary of the Invention
Detailed Description of the Invention
Brief Description of the drawings
Claims

Title & Technical Field

Title

- Capture the overall essence of the invention
- Specifying the major characteristics of the invention
- No place for a trademark or an invented name

Technical Field
“This invention relates to ….<technical field> …”

Sample:

Title -->

Inventors -->

Assignee -->

US006410060B1

(12) **United States Patent**
Suvanprakorn et al.

(10) **Patent No.: US 6,410,060 B1**
(45) **Date of Patent: Jun. 25, 2002**

(54) **METHOD FOR THE IODINE FORTIFICATION OF EGGS**

(75) Inventors: **Pichit Suvanprakorn; Lerson Tanasugarn; Anusig Limahksohn; Sangsom Sinawat; Prakrom Vuthipongse**, all of Bangkok (TH)

(73) Assignee: **Biophile Corporation**, Bangkok (TH)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/081,494**

(22) Filed: **May 19, 1998**

(51) **Int. Cl.**[7] **A61K 33/18**; A61K 47/00; A61K 35/54; A23L 1/32; A23B 5/18

(52) **U.S. Cl.** **424/668**; 424/439; 424/581; 424/667; 424/669; 424/670; 424/671; 426/74; 426/298; 422/22; 422/23; 422/37

(58) **Field of Search** 424/663, 667–672, 424/581, 439; 426/74, 298, 614, 806; 422/22, 23, 37

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,915,400	A	* 12/1959	Seltzer	426/72
4,187,294	A	* 2/1980	Ishikawa et al.	424/669
5,246,717	A	* 9/1993	Garwin	426/2

FOREIGN PATENT DOCUMENTS

CN	1076596	*	9/1993
EP	472003	*	2/1992
JP	2-257859	*	10/1990

OTHER PUBLICATIONS

Chemical Abstracts 120 ; 243069, abstracting CN 1,076, 596, 1993.*
File JPAB on WEST, accession No. JP402257859A, abstracting JP 2–257859, 1990.*
Chemical Abstracts 78 : 39125 (1973).*
CAB Abstract 79 : 104479 (1976).*

* cited by examiner

Primary Examiner—John Pak
(74) *Attorney, Agent, or Firm*—Townsend and Townsend and Crew LLP

(57) **ABSTRACT**

This invention relates to the method of non-invasively fortifying eggs with iodine as a dietary supplement without compromising the structural integrity of the egg. The eggs are placed in a solution comprising iodide or iodate salts of alkali or alkali earth metals at an effective concentration for a duration of between a few seconds to a few days. Iodine then passes through the egg shell to the interior of the egg until an adequate internal iodine concentration of iodide or iodate salts is produced.

9 Claims, 2 Drawing Sheets

Technical Field:

This invention relates to the fortification of eggs with iodine as a dietary supplement by contacting the eggs with a bathing solution having iodine and/or iodate ions in suspension, allowing the iodine to pass through the egg shell to the interior of the egg until an adequate internal iodine concentration of iodine or iodate is produced.

Background of the Invention

- Background technology
- A terrific source of technology development history for anyone new to that particular technical field
- Emphasize any existing problems or difficulties which the present invention overcomes
- Any previous solutions to the problems or difficulties is described in a way that clearly sets out the difference between the present and previous solutions

Sample: Background of the Invention

"It is known that iodine is a dietary requirement for humans. Failure to obtain adequate amounts of iodine (typically less than 150 micrograms per day and especially less than 50 micrograms per day) may result in endemic goiter, with accompanying mental retardation in children. Seafood is a rich source of iodine. Consequently, people in areas far from the sea are encouraged to supplement their diet with about 400 micrograms of iodine per day. This may be in the form of 0.002% to 0.01% iodized table salt.

Ingestion of iodine via iodized salt has the advantage of providing a roughly equal dosages of iodine to all members of a population. The prolonged heating of certain dishes, however, may reduce iodide and iodate ions to yield iodine. Iodine then may be lost by evaporation and sublimation.

In Trampel, (U.S. Pat. No. 4,928,629) a method is disclosed for inoculating soluble materials into an egg. The method involves removal of at least a portion of the egg's cuticle and then forcing the soluble materials with a pump to penetrate through the pores in the egg shell. This method involves special positive pressure pumps and does not seem suitable for use with large scale batches of eggs.

In Ishikawa and Kamimae, (U.S. Pat. Nos. 4,187,294, 4,394,376, and 4,410,541) iodine-fortified poultry eggs are made by feeding the birds with a prepared feed that contains high levels of iodine. **This method has a disadvantage that** it requires access to the feed, which makes this method impossible for eggs already obtained from a commercial farm.

In other parts of the world, eggs have been preserved in alkali by coating the egg with a composition comprising principally of wood ash and rice husk. After a few weeks, the white of the egg turns into black, jelly-like substance and the egg yolk also turns dark with a characteristic smell of ammonia.

In addition, eggs have been preserved by table salt (sodium chloride) since ancient times. After a few weeks of pickling in brine, the salt would penetrate across the egg shall into the egg, making the egg, especially the egg white, taste salty."

Summary of the Invention

- Description of the invention in general terms, corresponding to the main claim
- Preferred features #1 of the invention, corresponding to a dependent claim
- Preferred features #2 of the invention, corresponding to a dependent claim
- Preferred features #3 of the invention, corresponding to a dependent claim
- and so on ...

Sample: Summary of the Invention

"This invention relates to the method of fortifying eggs, especially avian eggs, with iodine. Eggs are dipped in a bathing composition or solution comprising iodide or iodate salts of alkali or alkali earth metals at an effective concentration for a duration of between a few seconds to a few days, in order to produce an adequate internal iodine concentration of iodide or iodate salts. The iodine fortified eggs may then be considered a dietary supplement for humans or animals.

Accordingly, **it is the object of this invention to** provide a method of fortifying eggs with iodine. This method provides the surprising result that the iodine is found to concentrate in the egg yolk as opposed to the albumen. This may be useful in the subsequent preparation of food where only the egg yolk is used, for example as an emulsifying agent in salad dressings.

It is also the object of this invention to provide a heat-stable vehicle for iodine oral administration. The fact that iodine is found to concentrate in the yolk makes it more difficult for iodine to leave the egg during cooking.

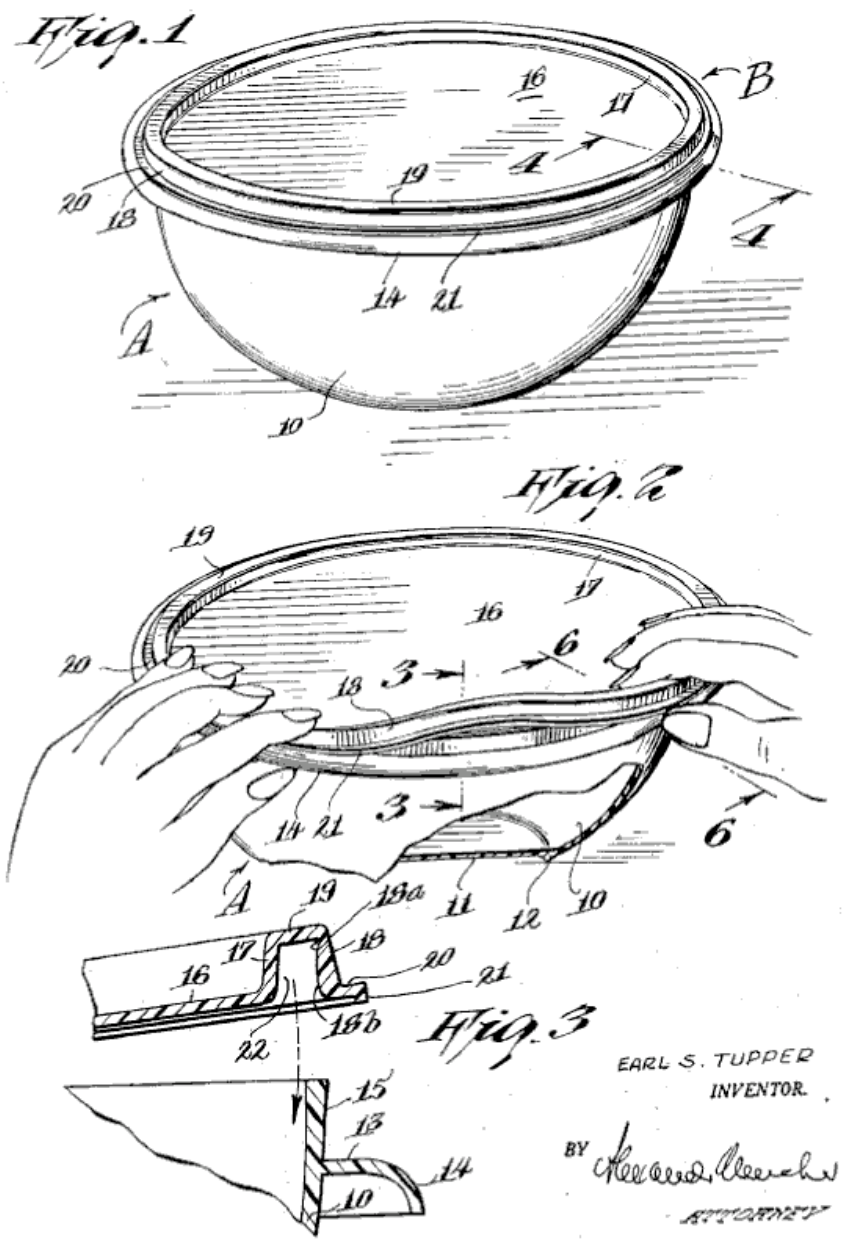
It is also the object of this invention to provide a method to supplement dietary intake of iodine without added sodium chloride, thus being suitable for people who, for personal, medical, or cultural reasons, prefer to be on low salt diet.

Another object of the invention is to provide methods where iodide or iodate salts of alkali or alkali earth metals may penetrate the pores of egg shells without breaking the egg shells. The eggs that have gone through this procedure will be indistinguishable by consumers from untreated eggs.

Yet another added benefit of the invention is that several types of microorganisms that exist on the egg cuticle, which are susceptible to iodide or iodate salts of alkali or alkali earth metal at the concentrations used, will be eliminated. Lowering the number and types of microorganisms on the egg cuticle should help lengthen the shelf life of the treated egg."

Detailed Description

- Brief description of the drawings
- Detailed description of the invention
  - the structure of the invention
  - description of the actual operation of the invention



Earl S. Tupper (1907-1983)
Bowl & Cover Patent (1945)
US Patent No. 2,789,607

Brief Description of the Drawings

- Mechanical drawings, electrical drawings, flow chart diagram, chemical formulas, graphs, etc. can be used in appropriate cases
- Drawings are numbered, e.g. Fig. 1, Fig. 2, …
- No text except single descriptive words (labels) that do not interfere with the lines of the drawings

Sample Detailed Description

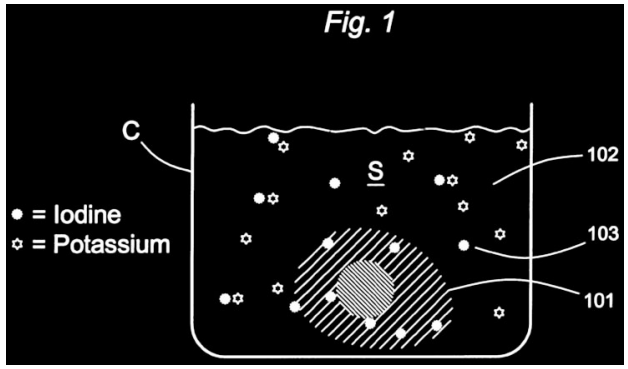


FIG. 1 illustrates an egg placed in a solution containing iodine or iodate ions; and

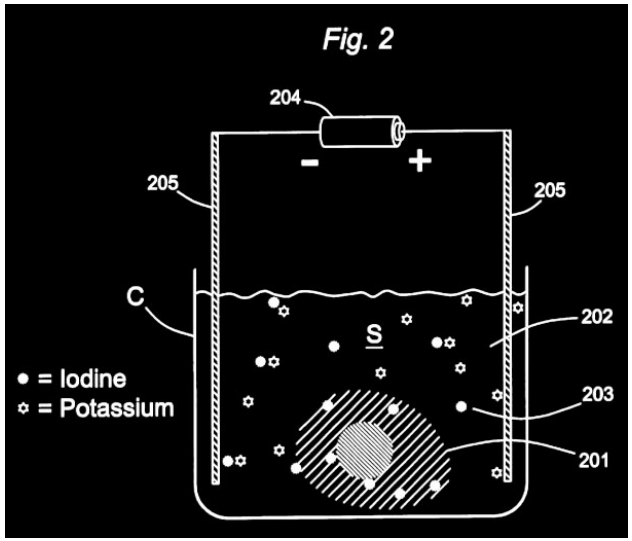


FIG. 2 illustrates an egg being fortified with iodate ions drawn to the egg by an electric field.

"**Referring to FIG. 1**, eggs are non-invasively fortified with iodine as a dietary supplement without compromising the structural integrity of the egg. The eggs E are placed in a solution S with container C comprising iodide or iodate salts of alkali or alkaline earth metals at an effective concentration for a duration of between a few seconds to a few days. Iodine then passes through the egg shell to the interior of the egg until an adequate internal iodine concentration of iodide or iodate salts is produced.

In a preferred embodiment, the pH of the solution is between 5 and 7.5. In addition, the temperature of the solution is maintained between 1 and 40 degrees Celsius, preferably between 20 and 30 degrees Celsius. The solution includes iodized table salt (containing 0.002% to 0.02% equivalent iodine) and added water.

The iodine-containing ionic species may be in a composition consisting of aqueous solution of iodide (I^-) or iodate (IO_3^-) salt of alkali or alkali earth metals, for example, potassium iodide or potassium iodate. The iodine-containing ionic species generated and passed through the egg's cuticle and shell seem to have high affinity for the albumen and even higher affinity for the phospholipids in the egg yolk.

Migration of iodine-containing ions through the cuticle, the porous shell, and the vitelline membrane may be influenced by one or more of the following factors: the concentration gradient of the iodine-containing ions, the osmotic pressure difference between different compartments, the thermodynamic activity of such ions, the pH difference between different compartments, the temperature of the egg and the surrounding composition, and other physical and chemical properties of iodine-containing ionic species.

Alternatively, iodide or iodate ions, which are both negative ionic species, may be induced to travel through the egg shell under the influence of a suitable electric field.

The iodine penetration process, whether performed by concentration gradient or by ionic movement under an electric field, is allowed to continue until adequate levels of iodine (e.g. iodate) have entered the egg."

Sample Example

The example below is set forth to illustrate this invention.

Fresh eggs are bathed in slightly acidic pH buffered, potassium iodate solutions. The method may take from a few seconds up to a few days depending on the concentration of iodine required to enter the eggs.

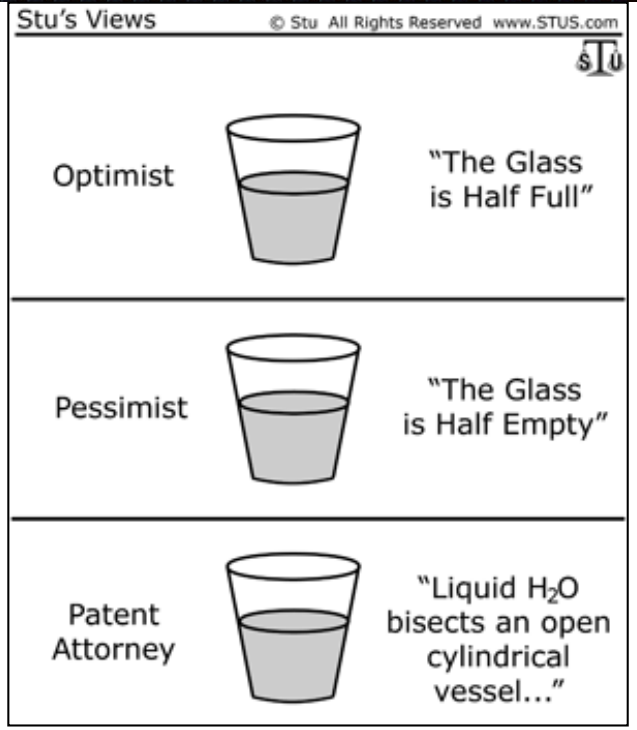
In a typical preparation, using 50% potassium iodate (KIO_3) in the bathing solution buffered with a phosphate buffer at pH 6.5 and room temperature, iodine was detected in egg yolk by the Hurtly's modification or von Fellenberg's procedure as follows:

Bathing Time	Microgram Iodine in Yolk/egg
10 seconds	53
20 seconds	60
30 seconds	100
5 minutes	250
24 hours	1,400

Experimental Results

It will be observed that we fortify eggs without adding salt. Unlike the prior art technique of immersing eggs in salt, the iodine fortified eggs here are visually not distinguishable from regular eggs. This is an important marketing advantage to the use of this technique.

Claims



http://www.stus.com/stus-category.php?cat=TOP&sub=IPL

Claims are the "heart" of any patent since they define the protection or the scope of the exclusive right provided by the patent.

The wording of the claims defines the invention in terms of its technical features disclosed in the description and may carry no reference to commercial advantages.

The Claim Section starts with a broad **main claim**

The main claim is also an **independent claim** since it does not refer to any preceeding claim(s).

Followed by many **dependent claims** as needed

- Some element of additional invention is needed in each succeeding claim in order to narrow the scope of the claims.
- Narrowing scopes produce stronger claims which could withstand any anticipation by more relevant prior arts.

Additional independent claims are allowed as long as the unity of invention is still maintained.

Sample Claims:

Main Claim

1. A method of non-invasively fortifying an egg which includes a yolk, albumen, and a surrounding shell, said method comprising contacting the egg shell with a solution of a solute selected from the group consisting of iodide and iodate salts of alkali metals and alkaline-earth metals and having a pH of 5.0 to 7.5, at a temperature between 20 and 30 degrees Celsius for a sufficient period of time to cause said solute to penetrate the shell and enter the egg.
2. A method **according to claim 1** wherein the solute is an iodide salt.
3. A method **according to claim 1** wherein the solute is an iodate salt.
4. A method **according to claim 1** further comprising placing the egg and solution in an electric field to promote the penetration.
5. A method **according to claim 1** further comprising p
the penetration.

Another Independent Claim

6. A method of supplementing a diet with iodine, said method comprising non-invasively fortifying an egg which includes a yolk, albumin, and a surrounding shell by contacting the egg shell with a solution of a solute selected from the group consisting of iodide and iodate salts of alkali metals and alkaline-earth metals and having a pH of 5.0 to 7.5, at a temperature between 20 and 30 degrees Celsius for a sufficient period of time to cause said solute to penetrate the shell and enter the egg, and feeding at least part of said egg to an animal or human.
7. A method **according to claim 6** further com
8. A method **according to claim 7** further com

Yet Another Independent Claim

9. A method for prolonging the storage life of an egg, said method comprising non-invasively fortifying an egg which includes a yolk, albumin, and a surrounding shell by contacting the egg shell with a solution of a solute selected from the group consisting of iodide and iodate salts of alkali metals and alkaline-earth metals and having a pH of 5.0 to 7.5, at a temperature between 20 and 30 degrees Celsius for a sufficient period of time to cause said solute to penetrate the shell and enter the egg, and storing the egg.

Abstract

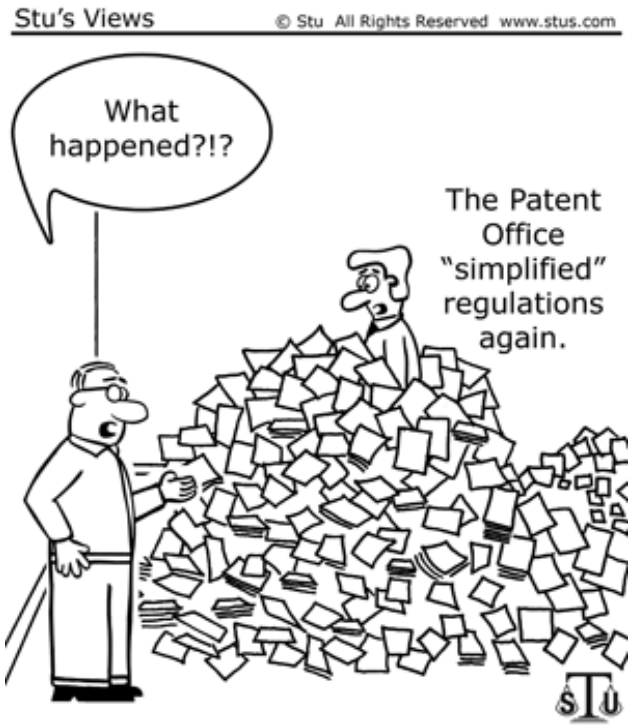
- An abstract is a short summary of the description and the claims.
- Abstracts serves as a “scanning tool” to enable anyone to obtain information about the essential contents of the invention
- Be as concise as the disclosure permits -- between 50 and 150 words

Sample Abstract

"This invention relates to the method of non-invasively fortifying eggs with iodine as a dietary supplement without compromising the structural integrity of the egg. The eggs are placed in a solution comprising iodide or iodate salts of alkali or alkali earth metals at an effective concentration for a duration of between a few seconds to a few days. Iodine then passes through the egg shell to the interior of the egg until an adequate internal iodine concentration of iodide or iodate salts is produced."

[total = 84 words]

Examination of a Patent Application



The Patent Office

Examiners' desks at The Thai Patent Office
showing file wrappers containing patent applications, supporting documents, and written communications between the PTO and the inventors and/or their agents

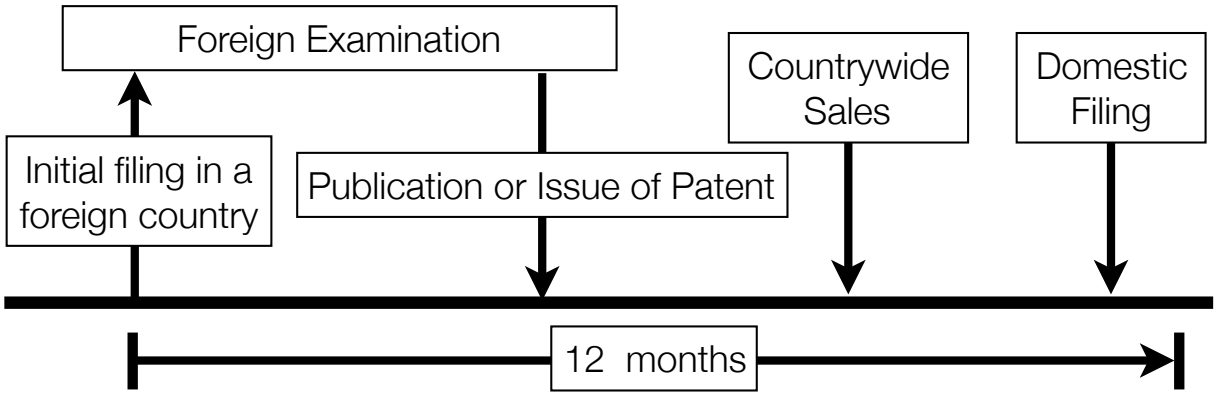
1. Examination of the Form, Filing Date, and Priority Date
2. Search
3. Examination of the substance (Substantive Examination)

Examination of the Filing Date

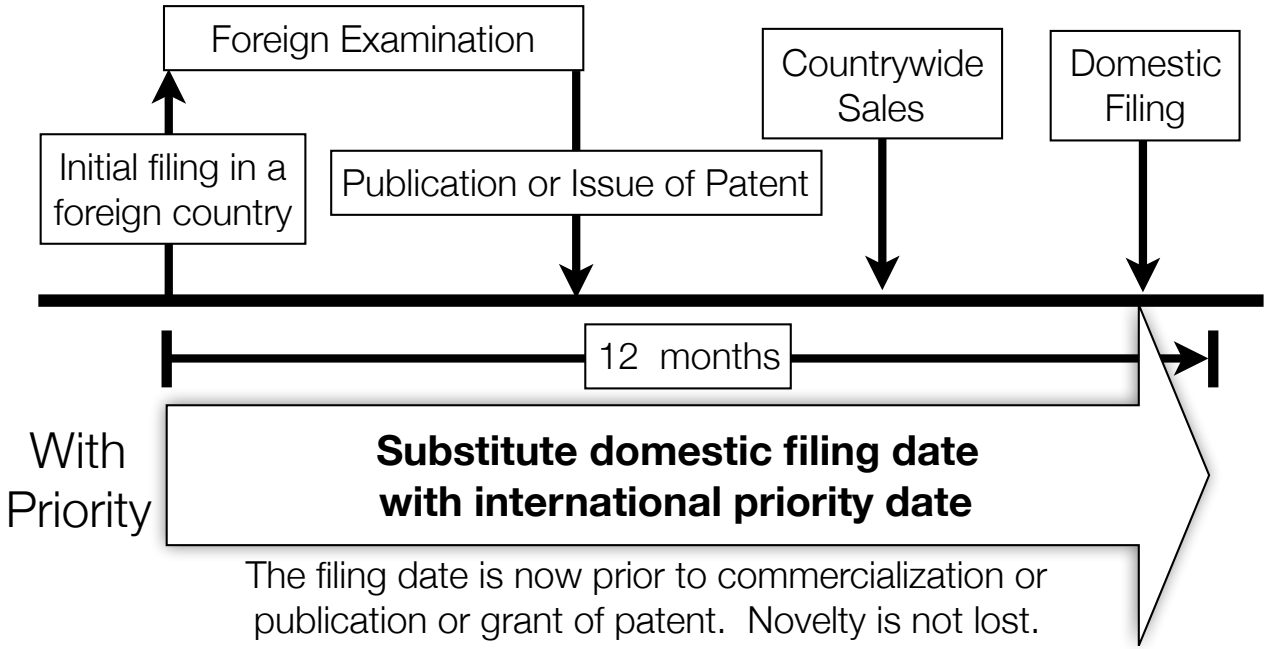
Verify the filing date

- for later calculations involving patent term
- for calculations involving priority date, e.g. in another Member country of the Paris Convention
- for use in determining novelty and inventive step

Examination of the Priority Date



Without priority, novelty is lost.



Right of Priority

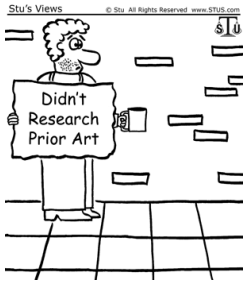
- Paris Convention
- national, regional, or international filing <12 months before domestic filing
- Some non-Paris countries may use reciprocity

Examination as to Form

1. representation by a patent attorney, if any
2. contents of the request
3. statement concerning the inventor
4. physical requirement governing the description/claims/drawing
5. abstract included?

Opportunity to correct mistakes

Search



- Where to search
  - "the search file" = patent documents + nonpatent documents (article from technical journals)
  - on-line commercial DB
  - internet search
  - no other types of disclosure, especially public use
- Scope of the search
  - all directly relevant technical fields
  - extended to analogous fields
- When to search
  - concurrently with the examination
  - separately from the examination - a search report is issued
    - scope of the search
    - list of documents found during the search, which disclose subject matter the same or closely resembling the invention
    - the claims in the applications that should be compared with the documents found

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference CMC-123-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US07/00150	International filing date *(day/month/year)* 05 April 2007 (05.04.2007)	(Earliest) Priority Date *(day/month/year)* 05 April 2006 (05.04.2006)
Applicant ACME FASTENER CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      [X] the international application in the language in which it was filed.
      [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
   b. [ ] This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.
2. [ ] **Certain claims were found unsearchable** (see Box No. II).
3. [X] **Unity of invention is lacking** (see Box No. III).
4. With regard to the **title**,
   [X] the text is approved as submitted by the applicant.
   [ ] the text has been established by this Authority to read as follows:
5. With regard to the **abstract**,
   [X] the text is approved as submitted by the applicant.
   [ ] the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 3
      [X] as suggested by the applicant.
      [ ] as selected by this Authority, because the applicant failed to suggest a figure.
      [ ] as selected by this Authority, because this figure better characterizes the invention.
   b. [ ] none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (April 2007) (Revised)

Substantive Examination

- Examination of the substance to ensure that the patent application satisfies conditions of patentability
  - Is the invention sufficiently disclosed in a clear and complete manner to enable persons of ordinary skill in the art to practice the invention? [In some countries this step is part of the preliminary examination to be taken before the pre-grant publication.]
  - Is the invention excluded from patentability by specific legal provisions (the "Exclusion List")?
  - Is the invention new? Does it involve an inventive step? Is the invention applicable to (any type of) industry?

Amendments

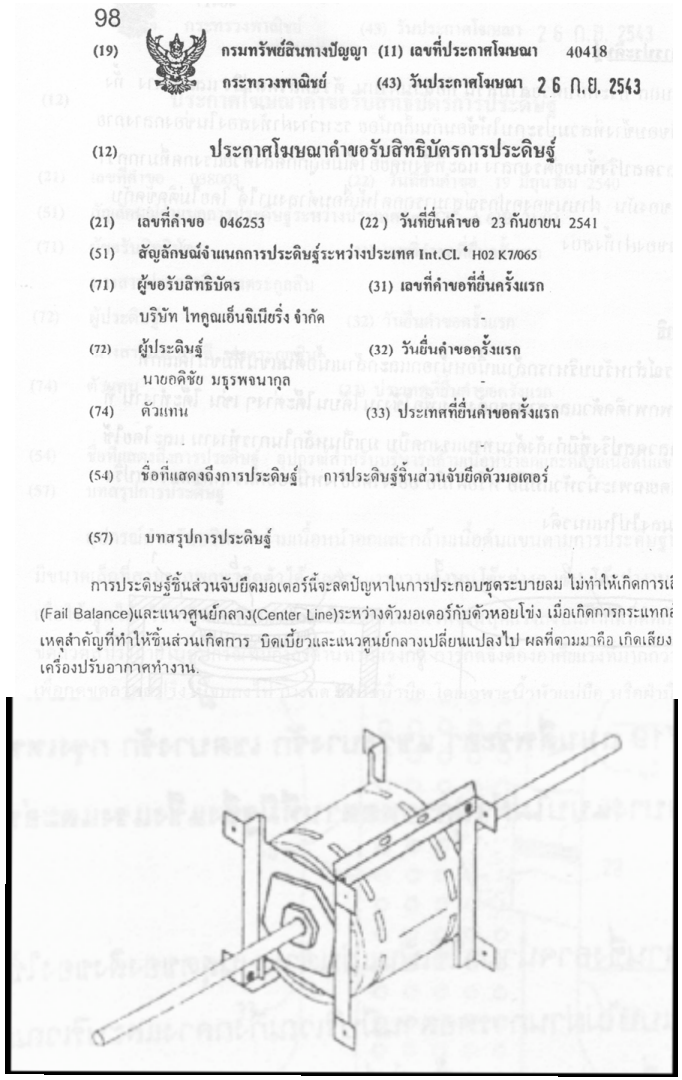
- The applicant is allowed a certain time to remove any objections raised during the substantive examination.
- Clarification of the disclosure makes a better description of the invention, which brings about a more precise definition of the scope of protection.
- An amendment must not enlarge the scope of the invention, as specified in the specification and in the Claims.

Grant & Publication

http://fllinnovation.firstlegoleague.org/learn-about-patents

- A patent is granted if
  - Form requirements have been fulfilled
  - Substance requirements have been fulfilled
  - No or unsuccessful opposition
- When a patent is granted
  - Details of the patent is entered into the Patent Registry
  - Annual fees payment (in some countries)
    - The Patent Office publishes an Official Gazette

Official Gazette of the Patent Office



98

(19) กรมทรัพย์สินทางปัญญา (11) เลขที่ประกาศโฆษณา 40418
กระทรวงพาณิชย์ (43) วันประกาศโฆษณา 26 ก.ย. 2543

(12) ประกาศโฆษณาคำขอรับสิทธิบัตรการประดิษฐ์

(21) เลขที่คำขอ 046253 (22) วันที่ยื่นคำขอ 23 กันยายน 2541

(51) สัญลักษณ์จำแนกการประดิษฐ์ระหว่างประเทศ Int.Cl. [6] H02 K7/065

(71) ผู้ขอรับสิทธิบัตร (31) เลขที่คำขอที่ยื่นครั้งแรก
บริษัท ไทคูณเอ็นจิเนียริ่ง จำกัด -

(72) ผู้ประดิษฐ์ (32) วันยื่นคำขอครั้งแรก
นายอดิชัย มธุรพจนากุล -

(74) ตัวแทน (33) ประเทศที่ยื่นคำขอครั้งแรก
-

(54) ชื่อที่แสดงถึงการประดิษฐ์ การประดิษฐ์ชิ้นส่วนจับยึดตัวมอเตอร์

(57) บทสรุปการประดิษฐ์

การประดิษฐ์ชิ้นส่วนจับยึดมอเตอร์นี้จะลดปัญหาในการประกอบชุดระบายลม ไม่ทำให้เกิดการเ
(Fail Balance)และแนวศูนย์กลาง(Center Line)ระหว่างตัวมอเตอร์กับตัวหอยโข่ง เมื่อเกิดการกระแทก
เหตุสำคัญที่ทำให้ชิ้นส่วนเกิดการ บิดเบี้ยวและแนวศูนย์กลางเปลี่ยนแปลงไป ผลที่ตามมาคือ เกิดเสียง
เครื่องปรับอากาศทำงาน.

Bibliographic Data of the patent

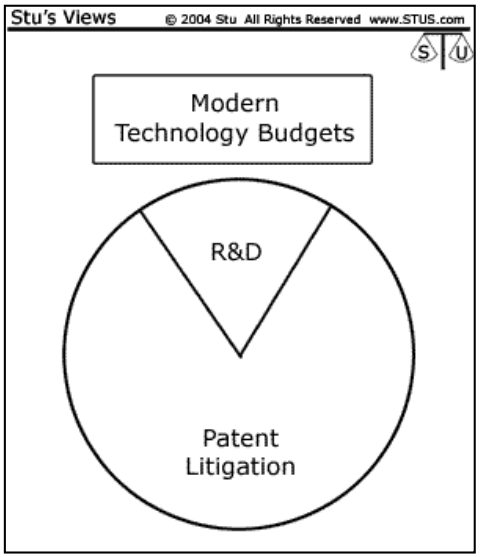
Patent Rights, Limitations and Infringements

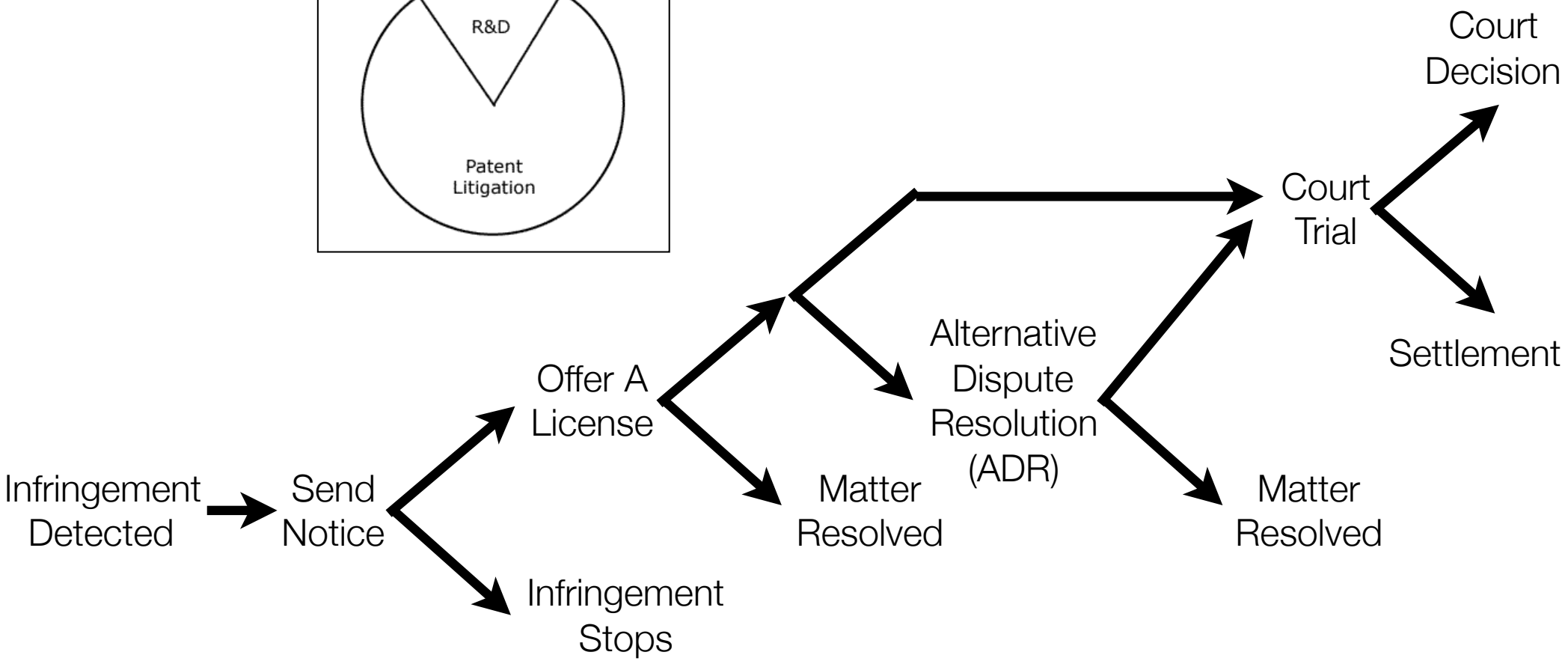
- Exclusive rights of the patent owner
- Enforcement of rights
- Types of infringements
- Elements in establishement of infringements
- Remedies available to the patent owner

Rights and Limitations

- Exclusive rights excluding others from exploiting (e.g. make-use-sell) the invention. Such activities constitute patent infringements.
- Exceptions
  - the claims which define the monopoly may be subject to amendment or invalidation by the courts in respect of defects which were not detected prior to the grant of the patent
  - where the invention is an improvement or development of an earlier subsisting patent, the patent owner may need to obtain a license and pay royalties to the earlier patent owner.
  - the patent owner's rights are usually limited by the patent law, for example: the working requirement ---> Compulsory Licensing
  - patented inventions may often be used by Government or by third parties authorized by Government, where the public interest so requires

Enforcement of Rights





Types of Infringement

- Straight copying or with minor modifications without any attempt to avoid patent infringement
  - unscrupulous infringer
  - patent claim(s) believed to be invalid
- Deliberately trying to design around the patent but does not quite fall outside the scope of the claim of the patent. --> most litigation
- Innocent infringement

Elements in Establishing Infringement

- The prohibited act must have been committed
  - the carrying out of a prohibited act;
  - the prohibited act must be in relation to a product or process falling within the scope of a claim of the patent
- Patent rights must exist at the time the prohibited act is committed
  - the prohibited act must have been done after the publication of the patent application, or the issuance of the patent where no early publication occurs;
  - the prohibited act must have been done in the country where the patent has been granted;

Prohibited Acts (TRIPS Article 28)

1. A patent shall confer on its owner the following exclusive rights:

   where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing* for these purposes that product;

   where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process.

2. Patent owners shall also have the right to assign, or transfer by succession, the patent and to conclude licensing contracts.

* This right, like all other rights conferred under this Agreement in respect of the use, sale, importation or other distribution of goods, is subject to the provision of Article 6 [Exhaustion].

Prohibited Act: Making the Product

- making
  - = the product described and claimed in the patent is carried out in practice
  - = manufacturing (commercial scale), regardless of the quantity of the goods produced
- major exceptions in most laws
  - where the patented product is made for the sole purpose of scientific research and experiment;
  - where a third party had started making the product before the date when the patent application for an invention incorporated in the product was filed; and
  - where the patented product is made under a non-voluntary license or under an authorization granted by the Government on public interest grounds
- In respect of a patented process, only the making of products directly (immediately, without further transformation or

Prohibited Act: Use of the Patented Product

- Provides strength of protection to cover the use of the patented product irrespective of
  - repetitive / continuous - just once is enough
  - the purpose of use
  - the patent owner or someone else made the product
- Usual exceptions
  - where the use of the patented product is solely for purposes of **scientific research** and experiment;
  - where the patented product that is used is a product which was put on the market in the country by the owner of the patent for invention, or with his **authorization**;
  - where the use of the patented product occurs in **vehicles in transit** in the country;
  - where the patented product is used by third parties who have the special right to continue to make the product [e.g. **prior use** exception]; and
  - where the patented product is used under a **non-voluntary license** or under an authorization granted by the Government on public interest grounds

Prohibited Act: Sale of the Patented Product

- forming part of the right to distribute the product (sale, offer for sale, import)
- Irrespective of
  - who made the product
  - with or without authorization

Prohibited Act: Importing the Patented Product

- importation is a physical act of transportation of the product across the border into the territory of the country
- doesn't matter
  - which country the product is imported from
  - whether importation takes place for the purpose of use or sale
  - whether the imported product enjoys patent protection in the country in which it was made or in the country from which it was imported

After Publication of the Application or Issue of the Patent

- The patent right is effective (active or fully established) after it is issued (although the filing date is used to calculate the term of the patent).
- In some countries, the patent applicant is allowed to send the cease or desist notice to potential infringers after the pre-grant publication, but the right to sue commences at the time the patent is actually granted.

In the Country where the Patent has been Granted

- Generally speaking, patents do not extend beyond the boundaries of the country which granted the patent.
- However, in a small number of countries, particularly U.K. Dependent Territories, it is possible to extend the coverage of a United Kingdom patent to those countries by the owner of the U.K. patent applying, generally within a period of three years from the date of grant thereof, to register such patent in the country concerned.

Within the Scope of a Claim of the Patent

- The scope of protection of the patent is determined in all countries by the claims. The meaning of the claims is ultimately interpreted by the courts. The manner in which the courts will interpret a claim in turn depends upon the domestic law and to a certain extent the rules or regulations.
- The courts, particularly in common law systems, attempt to determine what structure the language of the claim defines, and whether or not the alleged infringing structure corresponds to the structure defined in the language of the claims.
  - Are all the elements of the claim present in the alleged infringement?
  - Do all the elements have the same form?
  - Do all the elements perform the same function?
  - Do the elements have the same relationship to the other elements?
- If the answer to each of these questions is “YES,” then the infringement is established.

That which would literally infringe if later in time anticipates if earlier than the date of invention

http://www.clipartpanda.com/categories/stool-20clipart

All elements of the claims are present in the alleged infringement

seating means found

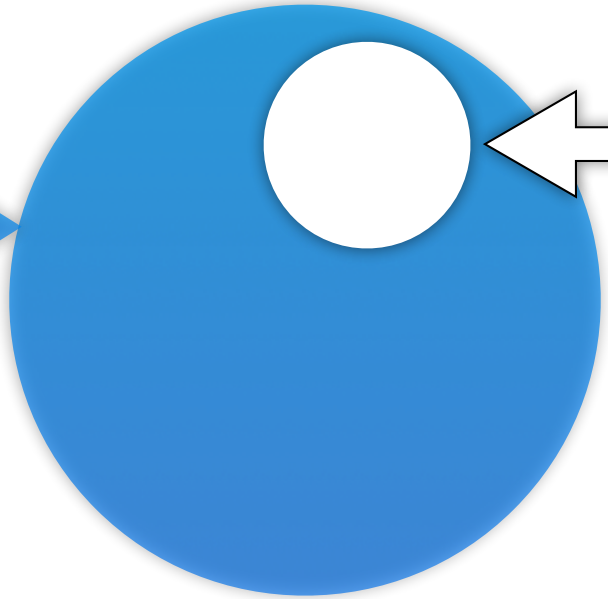
4 legs found

http://www.clipartlord.com/category/home-clip-art/furniture-clip-art/chair-clip-art/page/2/

Patent Claims

1. seating means
2. 4 support means (legs)

wider scope



Alleged Infringing Invention

narrower scope

(because of the extra element i.e. the back rest)

Note: in this example, we will not focus our attention on the frames that connect together a pair of legs. In real life, the frames (or bars) may itself be an invention to be protected.

Infringement in Real Life

- changes in form will not avoid infringement if there is no change in the result produced.
- Changing the order of steps in a process will not avoid infringement if the result is the same.
- The presence of additional elements in an alleged infringement does not avoid infringement if all the elements of the patent claim are also present. (See previous slide.)

Doctrine of Equivalents

- Has there been a **substitution of equivalent elements** in the alleged infringement?
- **an infringer should not be allowed to** continue his actions where he basically makes use of the patented invention while merely substituting a variant for an element of the invention which is equivalent technically and functionally to the element as contained in the patent claim, irrespective of whether the variant used by the infringer turns out to be an improvement or otherwise.
- Criteria for equivalents: If two devices:
  - **function** (do the same work) in **substantially the same manner** (way)
  - **accomplish** (produce) **the same result**
- they are the same, even though they differ in name, form or shape.

Remedies Available to the Patent Owner

- Civil sanctions - available in all cases
  - award of damages, calculated from
    - financial loss suffered as a result of the infringement by the patent owner, including royalty payments loss from the infringer
    - account of profits gained by the infringer
  - granting of injunctions: prohibition of the infringing acts
  - other remedies provided in the general laws, e.g. seizure & destruction of the infringing products or tools
- Criminal sanctions - **intentional** infringements
  - fine or imprisonment or both

Exploitation of a Patented Invention: Voluntary & Compulsory

Filing & prosecution of patent applications
- No money is made (a lot of money could be spent)

Exploitation of a patented invention
- This is where money is made --> social benefit, too.

- Voluntary exploitation
  - Selling an invention (transferring a patent)
  - Licensing
- Compulsory licensing

Voluntary & Compulsory Licensing

- voluntary licensing = granted by the patent owner
- compulsory (non-voluntary) licensing = compulsed by the state in a Compulsory Licensing
  - To combat patent abuse, e.g. failure to work the patent
  - In the public interest

Non-working of a Patent

- Non-working refers to **making** a patented product, or **using** a patented process, in the country where the patent is issued, either by the patent owner or his licensee.
- The laws in some countries specifically provide that "importation of product does not constitute working"
- Some countries believe that society does not gain enough benefit from invention disclosure alone to justify granting exclusive patent rights.
- Non-working amounts to using the exclusive patent rights to prevent others from manufacturing or to control importation

Arguments Against Compulsory Working of an Invention

- Non-voluntary licensing is **less effective** than voluntary licensing in **encouraging knowhow transfer under cooperative atmosphere**.
- Non-working may be dictated by **economic feasibility** taking into account the comparative advantages of countries in the region.
- Therefore, non-voluntary licensing should be **limited only to correcting abuses** which may arise in the exercise of patent rights.

Arguments For Compulsory Licensing

- CL is of **little practical importance** since compulsory licensing provisions are seldom applied for and even less likely to be granted.
- CL provisions serve to **encourage** a patent owner to enter into a voluntary licensing agreement
- Members are allowed by Paris Convention Article 5A(2) to provide for granting of CL to prevent abuses resulting from the exercise of patent rights, including failure to work. Article 5A(4) sets a **grace period** of 4 years from filing date or 3 yrs from issue date, whichever expires later. Legitimate reasons for failure to work are allowed.

Procedural Safe Guard & Compensation for Non-voluntary Licensing

- grant conditions are really met
- adequate payment is made to the patent owner
- cancellation means of the non-voluntary licensing when grounds for the grant of such a license no longer exists
- If compulsory licensing (CL) cannot correct the abuse, Paris Convention Article 5A(3) allows forfeiture (revocation) of the patent no sooner than 2 years from the grant of the first CL

Non-voluntary License Granted in the Public Interest

- no “abuse” of the patent right
- granted in favor of private parties and eventually serving public interest
  - perform CL on the “dominant patent” in order to work the invention claimed in the “dependent patent”
  - Some countries may have requirements for
    - dependent patent must serve a different purpose from that of the dominant patent
    - dependent patent must constitute a real technical advance in relation to the invention claimed in the dominant patent
  - Many countries allows owner of the dominant patent to obtain a compulsory license under the dependent patent in return (similar to cross-licensing)
- granted in favor of the government itself
  action taken by the government or persons designated by the government
  - e.g. for reason of public interest including public health (TH)
  - e.g. in time of war and/or in national emergencies

Non-voluntary Licensing

http://www.crazywebsite.com/free-holiday/christmas-clipart/pg-free-christmas-clipart-1/snowman-funny-clipart-mobile01_jpg.htm

- Non-working (abusive practics)
- In the name of Public Interest

Safeguard

- Because the grant of non-voluntary licenses confers the right to use a valuable property right of the patent owner, without his consent, procedural safeguards should be established to **ensure that the grant of such licenses is only when, and for as long as, the conditions warrant it**.
- Moreover, provisions should be made for the **compensation** of the patent owner for the use of his property rights. Safeguards are also provided under Article 31 of the TRIPS Agreement.

Compulsory Licensing Under TRIPS Article 31

(a) Authorization of a compulsory license must be considered on its individual merits. This means that applications for compulsory licenses must be considered on a case-by-case basis.

(b) A compulsory license can only be granted if the proposed compulsory licensee has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and if such efforts have not been successful within a reasonable period of time. This requirement may be waived by a Member in the cases of a national emergency or other circumstances of extreme urgency, or in cases of public non-commercial use.

(c) The scope and duration of a compulsory license must be limited to the purpose for which it was authorized. However, in the case of semi-conductor technology a compulsory license may only be granted for public non-commercial use, or to remedy a practice determined to be anti-competitive.

(d) A compulsory license must be non-exclusive.

(e) A compulsory license may not be assigned without that part of the enterprise or goodwill which produces the product under that license.

(f) A compulsory license must be authorized predominantly for the supply of the domestic market of the Member that grants the license.

(g) A compulsory license must be liable to be terminated, subject to adequate protection of the legitimate interests of the compulsory licensee, if the circumstances that justified its grant have ceased to exist and are unlikely to recur.

(h) The patent owner must be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the allowed use.

(i) The legal validity of any decision relating to the grant of a compulsory license must be subject to judicial review or other independent review by a distinct higher authority in the Member that granted the license.

(j) Any decision relating to the remuneration in respect of a compulsory license must be subject to judicial review or other independent review by a distinct higher authority in the Member that granted the license.

(k) A Member is not obliged to apply the conditions set forth in items (b) and (f) above where the compulsory license is granted to remedy a practice determined to be anti-competitive. The need to correct anti-competitive practices may be taken into account in determining the amount of remuneration in such cases. The competent authority of the Member must have the power to refuse termination of a compulsory license if the conditions that justified its grant are likely to recur.

(l) In cases of dependency between two patents belonging to different owners, so that the later patent cannot be exploited without infringing the earlier patent, the following additional conditions must be applied:

the invention claimed in the second patent must involve an important technical advance of considerable economic significance in relation to the invention claimed in the first patent;

the owner of the first patent is entitled to a cross-license on reasonable terms to use the invention claimed in the second patent; and

the use authorized in respect of the first patent may not be assigned except with the assignment of the second patent.

Issue	TRIPS Article 31
Condition (prior licensing effort) & Criteria (case-by-case)	(a) Authorization of a compulsory license must be considered on its individual merits. This means that applications for compulsory licenses must be considered on a case-by-case basis. (b) A compulsory license can only be granted if the proposed compulsory licensee has made efforts to obtain authorization from the right holder on reasonable commercial terms and conditions and if such efforts have not been successful within a reasonable period of time. This requirement may be waived by a Member in the cases of a national emergency or other circumstances of extreme urgency, or in cases of public non-commercial use. [except in K - remedy anti-competitive practice]
exclusivity	(d) A compulsory license must be non-exclusive.
limited scope & duration predominantly for domestic market	(c) The scope and duration of a compulsory license must be limited to the purpose for which it was authorized. However, in the case of semi-conductor technology a compulsory license may only be granted for public non-commercial use, or to remedy a practice determined to be anti-competitive. (g) A compulsory license must be liable to be terminated, subject to adequate protection of the legitimate interests of the compulsory licensee, if the circumstances that justified its grant have ceased to exist and are unlikely to recur. (f) A compulsory license must be authorized predominantly for the supply of the domestic market of the Member that grants the license. [Except in K - remedy anti-competitive practice]
stringent measure for anti-competition	(k) A Member is not obliged to apply the conditions set forth in items (b) [Prior Licensing Effort] and (f) [Predominantly for the domestic market] above where the compulsory license is granted to remedy a practice determined to be anti-competitive. The need to correct anti-competitive practices may be taken into account in determining the amount of remuneration in such cases. The competent authority of the Member must have the power to refuse termination of a compulsory license if the conditions that justified its grant are likely to recur.
assignment of interdependent patent	(e) A compulsory license may not be assigned without that part of the enterprise or goodwill which produces the product under that license. (l) In cases of dependency between two patents belonging to different owners, so that the later patent cannot be exploited without infringing the earlier patent, the following additional conditions must be applied: • [In interdependent patents] the invention claimed in the second patent must involve an important technical advance of considerable economic significance in relation to the invention claimed in the first patent; • [In interdependent patents] the owner of the first patent is entitled to a cross-license on reasonable terms to use the invention claimed in the second patent; and • [In interdependent patents] the use authorized in respect of the first patent may not be assigned except with the assignment of the second patent.
remuneration and judicial review	(h) The patent owner must be paid adequate remuneration in the circumstances of each case, taking into account the economic value of the allowed use. (i) The legal validity of any decision relating to the grant of a compulsory license must be subject to judicial review or other independent review by a distinct higher authority in the Member that granted the license. (j) Any decision relating to the remuneration in respect of a compulsory license must be subject to judicial review or other independent review by a distinct higher authority in the Member that granted the license.

Compulsory Licensing under TRIPS Article 31

- Condition & Criteria
- Exclusivity
- Limited scope & duration predominantly for domestic mkt
- measures for anti-competition
- assignment of interdependent patents
- remuneration and judicial review

Finally, if all else fail, ...

- Recall that if compulsory licensing (CL) cannot correct the abuse (i.e. non-working), Paris Convention Article 5A(3) allows forfeiture (revocation) of the patent no sooner than 2 years from the grant of the first CL
- Some countries actually use this type of safeguard.

That's All, Folks!
Hope you enjoyed the lecture.