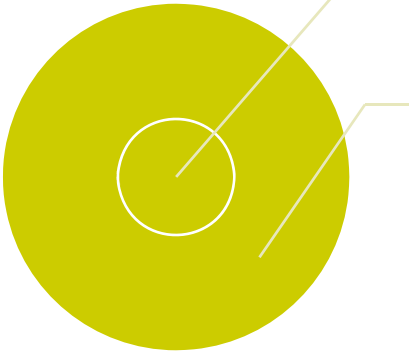
Patent Law

- Module G
- Obviousness

The obviousness inquiry



No Hindsight!!

§103 – The obviousness inquiry

- A patent may not be obtained
  - notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 [distinguishes from novelty],
- if the differences between ***[{2} ascertain differences]***
  - the claimed invention
- and
  - the prior art are such that ***[{1} scope & content]***
- the claimed invention [A] ***as a whole*** [B] would have been obvious [C] before the effective filing date of the claimed invention [D] to a person having ordinary skill in the art to which the claimed invention pertains. . . . ***[{3} assess level of skill]***
- Patentability shall not be negatived by the manner in which the invention was made

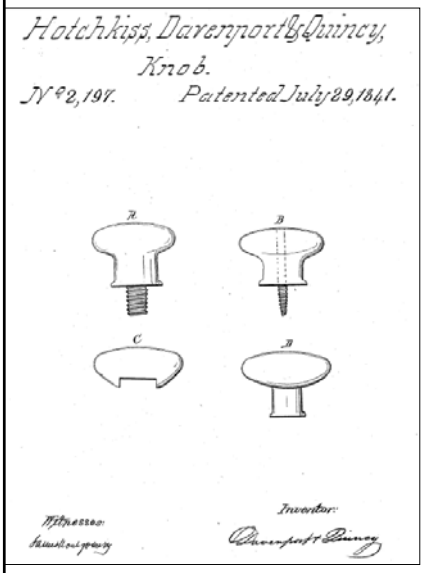
§103 – The obviousness inquiry

- Fundamental Inquiries
  - ***{1} scope & content of the prior art***
  - ***{2} ascertain differences between***
    - the claimed invention & the prior art
      - As a whole; claim by claim
    - for the claims at issue on a claim by claim basis
  - ***{3} assess level of skill of a POSITA***
  - ***{4} "secondary" or objective indicia***
    - One formulation of the list of these indicia
      - Commercial success
      - Long-felt but unsolved need
      - Failure of others
      - Prompt copying, licensing
      - Unexpected results
      - Recognizing the problem
      - Teaching "away"
      - Results unexpected
      - Disbelief / incredulity

Hotchkiss v. Greenwood (1850)

- Prior to Hotchkiss, courts and Patent Office developed "negative rules" of patentability related to "inventiveness"
  - E.g.: Mere changes in material, proportion, or form over existing technology
- Hotchkiss applied the "mere changes in material" rule, but it provided a coherent doctrinal rationale
- If the combination required "no more ingenuity or skill … than that possessed by an ordinary mechanic acquainted with the business, the patent [is] invalid"

Hotchkiss v. Greenwood (1850)



Hotchkiss, Davenport & Quincy,
Knob.
№ 2,197. Patented July 29, 1841.

Witnesses:
Inventor:

UNITED STATES PATENT OFFICE.

JOHN G. HOTCHKISS, OF NEW HAVEN, CONNECTICUT, AND JOHN A. DAVENPORT AND JOHN W. QUINCY, OF NEW YORK, N. Y.

MAKING DOOR AND OTHER KNOBS OF ALL KINDS OF CLAY USED IN POTTERY AND OF PORCELAIN.

Specification of Letters Patent No. 2,197, dated July 29, 1841.

To all whom it may concern:

Be it known that we, JOHN G. HOTCHKISS, of the city and county of New Haven and State of Connecticut, and JOHN A. DAVENPORT and JOHN W. QUINCY, both of the city, county, and State of New York, have invented an improved method of making knobs for locks, doors, cabinet-furniture, and for all other purposes for which wood and metal or other material knobs are used.

This improvement consists in making said knobs of potters' clay, such as is used in any species of pottery—also of porcelain.

The operation is the same as in pottery by molding, turning, burning and glazing. They may be plain, in surface and color, or ornamented to any degree in both. The modes of fitting them for their application to doors, locks, furniture and other uses, will be as various as the uses to which they may be applied, but chiefly predicated on one principle—that of having the cavity in which the screw or shank is inserted, by which they are fastened—largest at the bottom of its depth, in form of a dovetail and a screw formed therein by pouring in metal in a fused state.

In the annexed drawing, A, represents a knob with a large screw inserted for drawers and similar purposes.

B represents a knob with a shank to pass through and receive a nut; C, the head of the knob calculated to receive a metallic neck; D, a knob, with a shank, calculated to receive a nut on the outside or front.

What we claim as our invention and desire to secure by Letters Patent is—

The manufacturing knobs as stated in the foregoing specification, of potters' clay or any kind of clay used in pottery, and shaped and finished by molding, turning, burning and glazing; and also of porcelain.

JOHN G. HOTCHKISS.
J. A. DAVENPORT.
JOHN W. QUINCY.

Witnesses:
AKEIL SHERMAN,
JAMES MONTGOMERY.

Hotchkiss v. Greenwood (1850)

- Claimed invention: Clay/Porcelain door knob with special attachment mechanism
- Known in the art:
  - Clay/porcelian knobs (presumably, door knobs)
  - The special attachment mechanism with metal, wood, etc., door knobs
- Does the combination of the two require "no more ingenuity or skill … than that possessed by an ordinary mechanic acquainted with the business, the patent [is] invalid"?
- No, this is the work of an "ordinary mechanic"
- But note: If there had not been clay knobs, then the Court said the invention would very well be patentable, even if "the means employed to adapt the new composition to a useful purpose was old ,or well known."
  - This "new composition" rule is cast in doubt by KSR.

The unstable "invention" standard

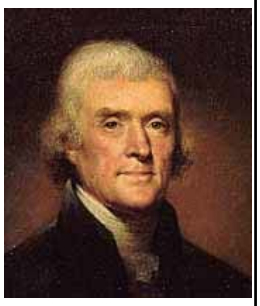
- Following Hotchkiss, a variety of standards for "inventiveness" appeared in the case law
- Formulations:
  - "inventive effort," "a substantial invention or discovery," "that impalpable something," "the inventive skill," "something new unexpected and exciting"
  - "the new device, however useful it may be, must revel the flash of creative genius, not merely the skill of the calling" (Cuno Engineering)
- Judge Hand:
  - the "invention" standard was "as fugitive, impalpable, wayward and vague a phantom as exists in the whole paraphernalia of legal concepts"
- Justice Jackson:
  - "the only patent that is valid is one which this Court has not been able to get its hands on"

Graham v. John Deere Co. (US 1966)

- Split among the circuits on Graham's '798 plow shank patent
  - The 8th circuit says that the patent is invalid
    - ultimately affirmed by the Supreme Court
    - 8th applied the traditional standard of "invention"
  - The 5th circuit said that the patent was valid
    - It produced an old result in a cheaper and otherwise more advantageous way

Graham – how to deal w/ the statutory change

- How to draw the line
  - "between the things which are worth the public embarrassment of an exclusive patent and those which are not"
  - Jefferson only wrote the utility and novelty requirements into the original patent act
- Hotchkiss (US 1851)
  - (U)nless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skillful mechanic, not that of the inventor
  - 103 codifies this "additional" requirement of patentability
- Recharacterize "invention" test as a "label"
- Clear emphasis on new word – nonobviousness
  - Difference between the subject matter sought to be patented and the prior art
- New statutory language not intended to change the general level of "patentable invention"
  - as evidenced by the legislative history's apparent references to Hotchkiss



"first administrator of our patent system"

Graham

Figure 1.—GRAHAM '798 PATENT

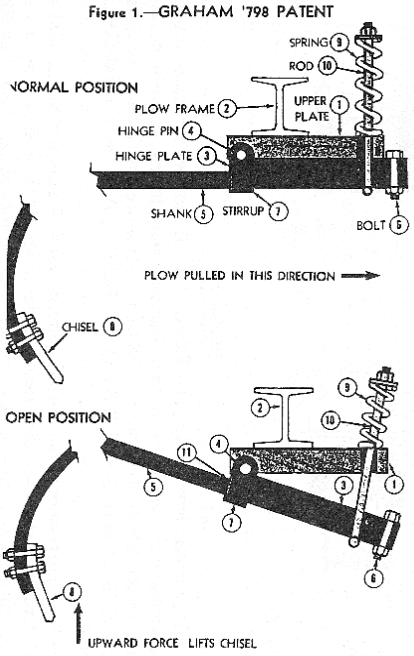
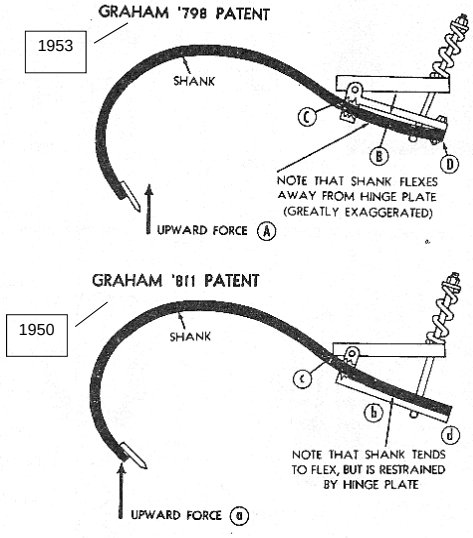


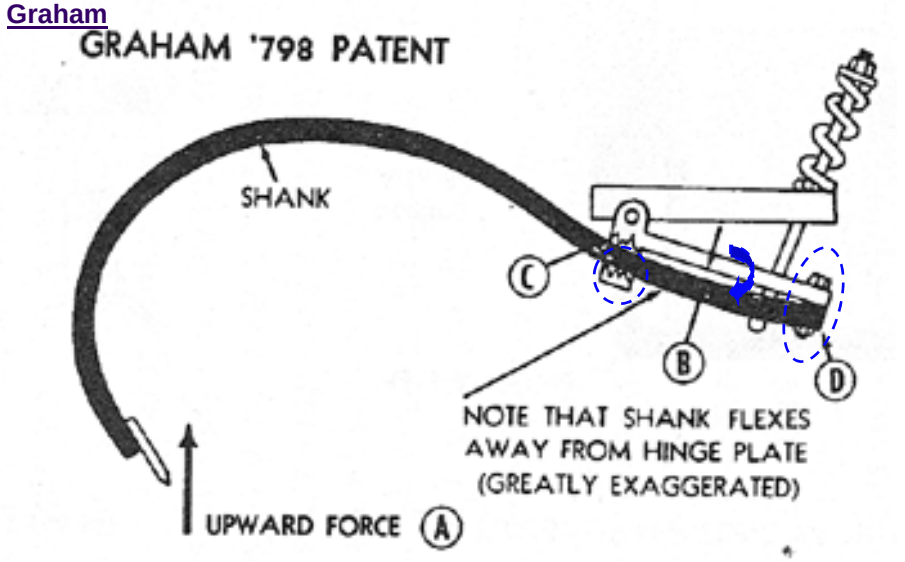
Figure 2.—FLEX COMPARISON



Graham v. John Deere Co. (US 1966)

1. In a plow having a frame and a ground working tool provided with a shank adapted to rock relatively to the frame when the plow is in operation in a forward direction, a mounting for pivotally attaching and supporting the shank of the ground working tool to a transverse member of the frame, the mounting including a fixed member adapted to be fixed to the transverse member of the frame and having a longitudinally extending underface terminating forwardly of the transverse member to which said mounting is adapted to be fixed, the fixed member having ears extending rearwardly from said underface at the sides thereof, a shank attaching member having an elongated plate portion provided with an upper face corresponding with and normally in contact with said underface of the fixed member and provided with a longitudinally extending underface in engagement with a corresponding upper face of the shank whereby the plate portion of the shank attaching member is between the shank and the fixed member, means connecting the elongated plate portion with the shank for maintaining the upper face of the shank in constant continuous contact with the underface of said plate portion of the shank attaching member, a transverse pin pivotally connecting the shank attaching member to the fixed member at the rear ends of said normally contacting faces and whereon the shank attaching member pivots upon rocking movement of the shank, a coil spring having one end seated on the forward end of the fixed member, and means having connection with the forward end of the shank and with the other end of the coil spring whereby the spring yieldably maintains said normal contact of the upper face of the plate portion of the shank attaching member with the underface of the fixed member to maintain the normal plowing depth of the ground working tool.

Graham



- Two items are different in the '798 patent compared to the '811 patent
  - Stirrup and bolted connection
  - Position of the shank, moved from above the hinge plate to below it

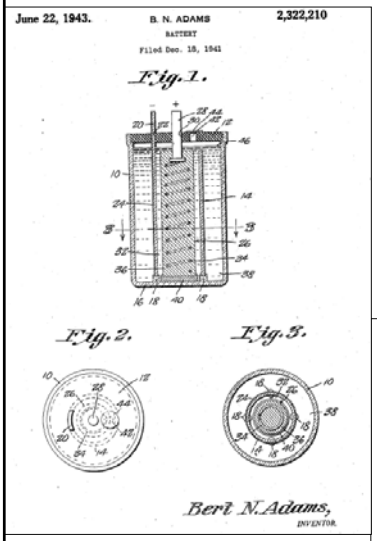
Graham

- ***{1} scope & content of the prior art***
  - Graham '811
  - Glencoe device
    - Shank is above hinge plate, like the '811 patent, but it provides a stirrup about which the hinging action occurs.
- ***{2} ascertain differences between***
  - the subject matter sought to be patented & the prior art
    - Graham '811
      - Does not have the stirrup & bolt
      - The shank is above the hinge plate
    - Glencoe
      - The shank is also above the hinge plate
      - Has the stirrup and has a bolt
  - for the claims at issue on a claim by claim basis

Graham

- ***{3}* assess level of skill of a POSITA**
  - The court notes that Graham's expert stated that "flexing" in the '798 patent was not a significant feature
  - Without documenting much of its basis for saying so, the court determines that this change in the cooperation among the elements would have been obvious
    - In large part based on the belief that a POSITA would have instantly thought so
  - What is the "flexing" argument? Why is it rejected by the court?
- ***{4}* "secondary" or objective indicia**
  - The court does not do much with its quote:
    - Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.
  - However, this quote becomes the basis for significant development of this fourth fundamental inquiry by the Federal Circuit

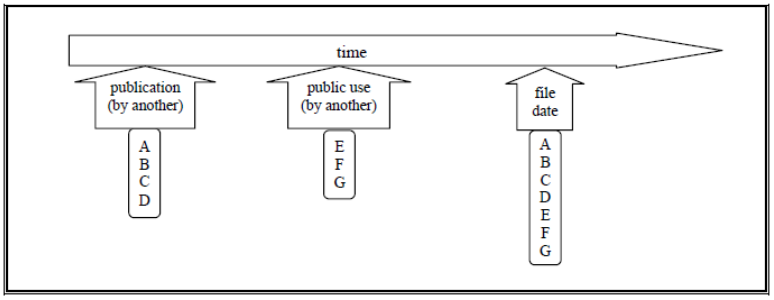
U.S. v. Adams, (1966)

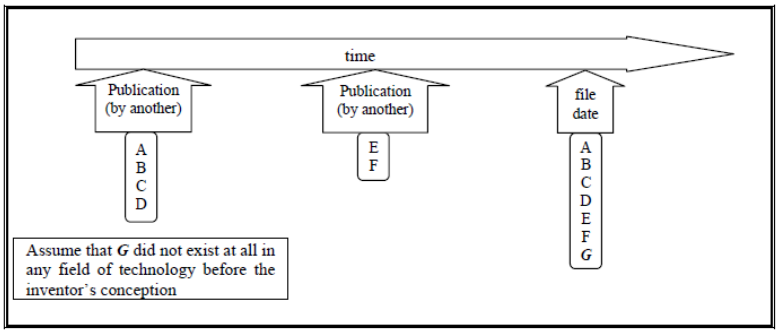

June 22, 1943. B. N. ADAMS 2,322,210
BATTERY
Filed Dec. 18, 1941
Fig. 1.
Fig. 2.
Fig. 3.
Bert N. Adams,
INVENTOR.

- Companion case to Graham v. Deere
- U.S. government as defendant
- Unexpected results from the novel wet battery configuration

The Adams invention was the first practical, water-activated, constant potential battery which could be fabricated and stored indefinitely without any fluid in its cells. It was activated within 30 minutes merely by adding water. Once activated, the battery continued to deliver electricity at a voltage which remained essentially constant regardless of the rate at which current was withdrawn. Furthermore, its capacity for generating current was exceptionally large in comparison to its size and weight. The battery was also quite efficient in that substantially its full capacity could be obtained over a wide range of currents. One disadvantage, however, was that once activated the battery could not be shut off; the chemical reactions in the battery continued even though current was not withdrawn. Nevertheless, these chemical reactions were highly exothermic, liberating large quantities of heat during operation. As a result, the battery performed with little effect on its voltage or current in very low temperatures. Relatively high temperatures would not damage the battery. Consequently, the battery was operable from 65° below zero Fahrenheit to 200° Fahrenheit.

Other obviousness examples





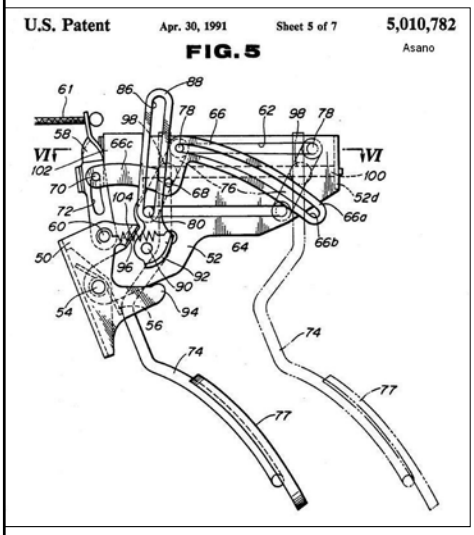
Obviousness – The Landscape Before KSR

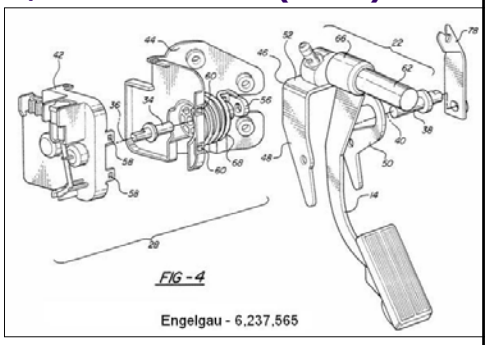
- Rise and fall of "synergism" after Graham
  - "resulting in an effect greater than the sum of the several effects taken separately" Sakraida (US 1976)
  - Repudiation by Federal Circuit – its not in the statute
  - Policy problems with "synergism"
- Patentability shall not be negatived by the manner in which the invention was made
  - To eliminate any "flash of genius" requirement
    - Accidental or lucky inventors are on equal footing with methodological researchers

Obviousness – The Landscape Before KSR

- Teaching, suggestion or motivation to combine – Combat hindsights
  - Suggestion or motivation, before the invention itself, to make the combination – to modify a reference or combine the reference teachings
  - Requirements to make a "prima facie" case of obviousness:
    - teaching, suggestion or motivation must be found in
      - The nature of the problem
      - Teachings of the references, or
      - Ordinary knowledge of a PHOSITA
        - A PHOSITA will know that certain references are of special importance to a field
        - As a "higher" level of "ordinary" skill is found for PHOSITAs in a field, more "knowledge as teachings" may be charged to the PHOSITA, but only so long as there is a specific explanation of the understanding or principle within the knowledge of the PHOSITA that would motivate one w/ no knowledge of the invention to make the combination

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007)





KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007)

For a designer starting with Asano, the question was where to attach the sensor. The consequent legal question, then, is whether a pedal designer of ordinary skill starting with Asano would have found it obvious to put the sensor on a fixed pivot point. The prior art discussed above leads us to the conclusion that attaching the sensor where both KSR and Engelgau put it would have been obvious to a person of ordinary skill.

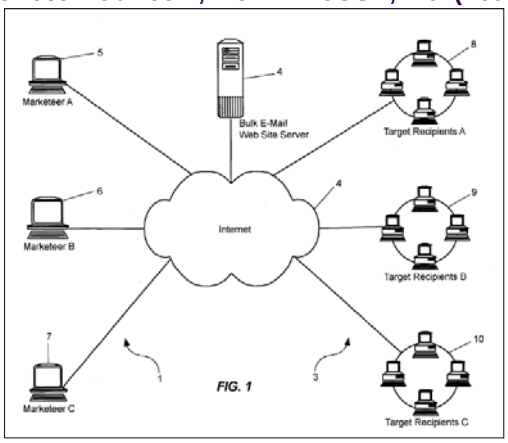
The '936 patent taught the utility of putting the sensor on the pedal device, not in the engine. Smith, in turn, explained to put the sensor not on the pedal's footpad but instead on its support structure. And from the known wire-chafing problems of Rixon, and Smith's teaching that "the pedal assemblies must not precipitate any motion in the connecting wires," the designer would know to place the sensor on a nonmoving part of the pedal structure. The most obvious nonmoving point on the structure from which a sensor can easily detect the pedal's position is a pivot point. The designer, accordingly, would follow Smith in mounting the sensor on a pivot, thereby designing an adjustable electronic pedal covered by claim 4.

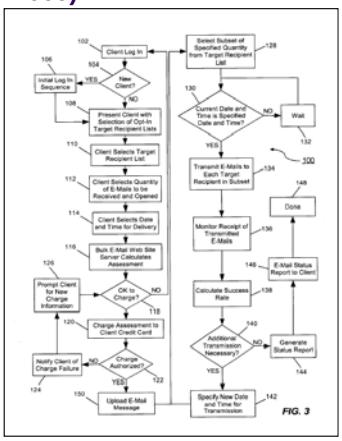
Just as it was possible to begin with the objective to upgrade Asano to work with a computer-controlled throttle, so too was it possible to take an adjustable electronic pedal like Rixon and seek an improvement that would avoid the wire-chafing problem. Following similar steps to those just explained, a designer would learn from Smith to avoid sensor movement and would come, thereby, to Asano because Asano disclosed an adjustable pedal with a fixed pivot.

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398 (2007)

claim limitation	reference(s) providing elements corresponding to the limitation	apparent reason for POSITA to combine
a support . . .	Asano; Redding	
an adjustable pedal assembly having a pedal arm moveable . . .	Asano; Redding	
a pivot for pivotally supporting said adjustable pedal assembly . . . defining a pivot axis	Asano	Not merely useful to a POSITA as an example of how to solve the "constant ratio problem" (even force for the pedal throughout its range of movement)
- position of said pivot remains constant while said pedal arm moves . . . (from the last 2 claim lines)	Asano	Rixon, an adjustable pedal with electronic sensor on the footpad, discussed wire chaffing problems; eliminating such problems is suggested by a fixed pivot to eliminate/reduce wire movement
an electronic control attached to said support . . .	'936 patent (detect the pedal position on the pedal structure, not in the engine area); Smith (how to mount a sensor on the pedal's support structure, noting wire chafing problems in Rixon)	Market conditions show demand for computerized throttle control, suggesting eventual use of electronic sensors to transfer pedal position to engine controls
- responsive to said pivot for providing a signal that corresponds to pedal arm position . . .	'068 patent (modular sensor); use of modular sensors in Chevrolet trucks	For non-adjustable pedals, Chevrolet had used modular sensors for measuring pedal position by attachment to the rotating pedal shaft

Perfect Web Tech., Inc. v. InfoUSA, Inc. (Fed. Cir. 2009)



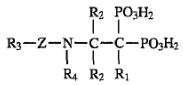


1. A method for managing bulk e-mail distribution comprising the steps:
(A) matching a target recipient profile with a group of target recipients;
(B) transmitting a set of bulk e-mails to said target recipients in said matched group;
(C) calculating a quantity of e-mails in said set of bulk e-mails which have been successfully received by said target recipients; and
(D) if said calculated quantity does not exceed a prescribed minimum quantity of successfully received e-mails, repeating steps (A)-(C) until said calculated quantity exceeds said prescribed minimum quantity.

Proctor & Gamble Co. v. Teva Pharm., Inc. (Fed. Cir. 2009)

What is claimed is:

1. A diphosphonic acid compound, or a pharmaceutically-acceptable salt or ester thereof, having the structure:



wherein Z is a pyridine ring; R_1 is hydrogen substituted or unsubstituted amino, amido, hydroxy, C_1–C_6 alkoxy, halogen, carboxylate, a substituted or unsubstituted, a saturated or unsaturated hydrocarbon chain having from 1 to 6 carbon atoms, substituted or unsubstituted phenyl, or substituted or unsubstituted benzyl; R_2 is hydrogen, or a substituted or unsubstituted, saturated or unsaturated hydrocarbon chain having from 1 to 4 carbon atoms; R_3 is hydrogen, a substituted or unsubstituted, saturated or unsaturated hydrocarbon chain having from 1 to 6 carbon atoms, substituted or unsubstituted benzyl, hydroxy, halogen, C_1–C_6 alkoxy, amino, substituted amino, substituted or unsubstituted phenyl, substituted or unsubstituted naphthyl, carbonyl, nitro, amido, or carboxylate; and R_4 is hydrogen, a substituted or unsubstituted, saturated or unsaturated hydrocarbon chain having from 1 to 4 carbon atoms, or acetyl; and wherein said substituted R_1, R_2, R_3 and R_4 groups are independently substituted with methyl, ethyl, amino, chloro, nitro, methoxy, hydroxy, acetamido, or acetate.

- Structural similarity of the claimed compound compared to the prior art; suggestion in the prior art to make the change in the structure?
  - unpredictability
- Unexpected results

Daiichi Sankyo Co., Ltd. v. Apotex, Inc. (Fed. Cir. 2007)

- PHOSITA
- Factors to decide who is the PHOSITA

The district court concluded that the ordinary person skilled in the art pertaining to the '741 patent "would have a medical degree, experience treating patients with ear infections, and knowledge of the pharmacology and use of antibiotics. This person would be . . . a pediatrician or general practitioner — those doctors who are often the 'first line of defense' in treating ear infections and who, by virtue of their medical training, possess basic pharmacological knowledge." . . . . Apotex argues that the district court clearly erred in this determination and that one having ordinary skill in the relevant art is properly defined as "a person engaged in developing new pharmaceuticals, formulations and treatment methods, or a specialist in ear treatments such as an otologist, otolaryngologist, or otorhinolaryngologist who also has training in pharmaceutical formulations."

"Factors that may be considered in determining level of ordinary skill in the art include: (1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field." . . . . These factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art.

In re Icon Health & Fitness, Inc. (Fed. Cir. 2007)

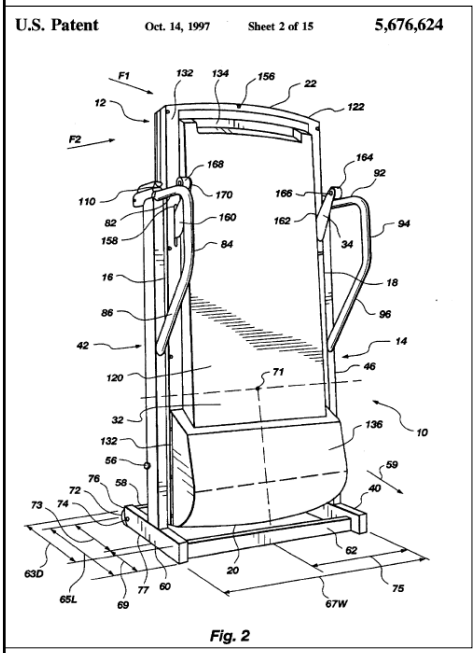
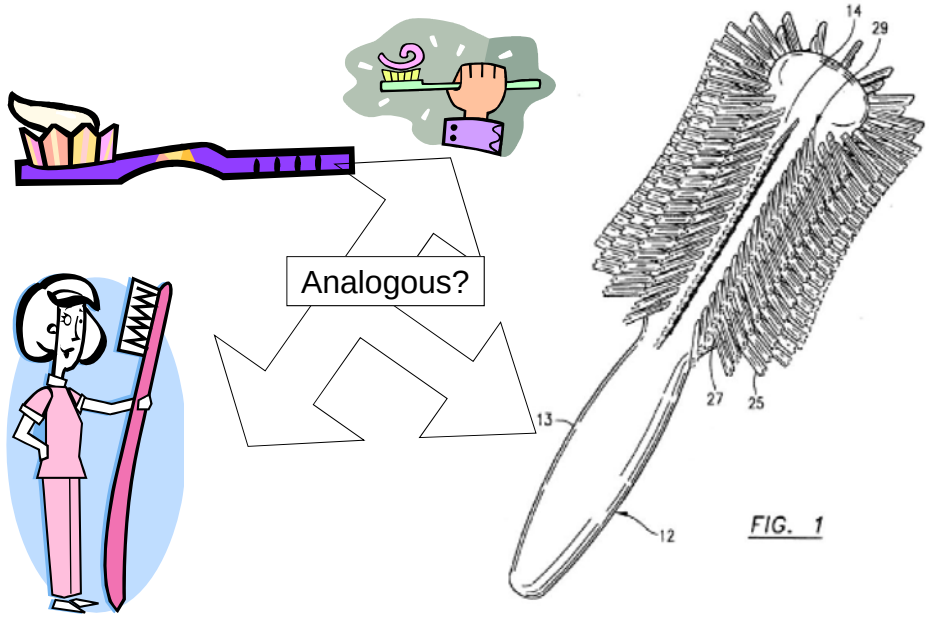


Fig. 2

- Analogous Art
  - (1) whether the art is from the same field of endeavor, regardless of the problem addressed
  - (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.
- Is a fold-up bed analogous to a fold-up treadmill?
- ?

Note 1 after In re Icon - In re Bigio (Fed. Cir. 2004)



Iron Grip Barbell Co. v. USA Sports, Inc. (Fed. Cir. 2004)

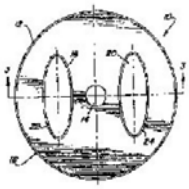


Fig. 1. The '502 patent's two-grip plate.

Fig. 2. The '183 patent's four-grip plate.

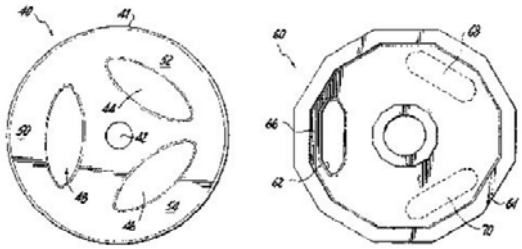


Fig. 3. The '015 patent's three-grip plates.

- Prior art: grips / plate of 1, 2 and 4
- Iron Grip's claim is to a plate with 3 grips
- Secondary Considerations –
  - Licensing
    - Nexus?
  - No "long-felt need" even if 3-grip absent on the market at time of filing
  - Copying