

WHAT IS A PATENT?

THE STANDARDS FOR PATENTABILITY

INTRODUCTION TO INTELLECTUAL
PROPERTY LAW & POLICY

PROFESSOR WAGNER



Agenda

The Architecture of the Patent System

Patent Theory

Patent Prosecution

Enablement

Written Description

Agenda

The Architecture of the Patent System

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The Architecture of the Patent System

Administrative Agency

Evaluates applications for compliance with standards of patentability



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Evaluates applications for compliance with standards of patentability



The Patent Document

Establishes boundaries of protection (claims), disclosure required.



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Private Enforcement (Litigation)

Market determines the reward; full review of PTO grant of rights.



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The Patent Document

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

(10) **Patent No.:** US 6,302,230 B1
(45) **Date of Patent:** Oct. 16, 2001



US006302230B1

(54) **PERSONAL MOBILITY VEHICLES AND METHODS**

(75) **Inventors:** Dean L. Kamen, Bedford; Robert R. Ambrogi, Manchester; Robert J. Duggan, Northwood; J. Douglas Field, Bedford; Richard Kurt Heinzmann, Francetown, all of NH (US); Burl Amesbury, Cambridge, MA (US); Christopher C. Langenfeld, Nashua, NH (US)

(73) **Assignee:** DEKA Products Limited Partnership, Manchester, NH (US)

(*) **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.:** 09/325,978

(22) **Filed:** Jun. 4, 1999

(51) **Int. Cl.:** B60K 31/00; B60K 28/00; B62D 63/00; B60Q 1/00

(52) **U.S. Cl.:** 180/171; 180/218; 180/271; 180/21; 340/441

(58) **Field of Search:** 180/218, 271, 180/274, 170, 171, 21, 41, 440, 340/438, 441, 440, 439, 905, 936; 318/465, 461, 798; 188/181 C; 280/455.1; 298/175, 5, 20 R

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| 2,742,973 | 4/1956 | Johannesen |
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| 3,283,398 | 11/1966 | Andren |
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| U1 | 10/1998 | (DE) |
| 298 08 096 | | |
| U1 | 10/1998 | (DE) |
| 584127 | 6/1897 | (EP) |

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Schoonwinkel, A., *Design and Test of a Computer-Stabilized Unicycle*, Stanford University (1988), UMI Dissertation Services.

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Primary Examiner—Brian L. Johnson

Assistant Examiner—Matthew Luby

(74) **Attorney, Agent, or Firm**—Bromberg & Sunstein LLP

(57) **ABSTRACT**

An automatically balancing vehicle having a headroom monitor. The headroom monitor determines the difference between the maximum velocity of the vehicle and the present velocity of the vehicle. An alarm receives a signal from the headroom monitor and produces a warning when the headroom falls below a specified limit.

7 Claims, 16 Drawing Sheets



Title & Serial Number

Dates: Filing, Priority, Issue

Inventor/Assignee

Technology Fields (Classes)

References Cited

Abstract

Drawings

Specification

Claims

In Patents, "The Name of the Game is the Claims"

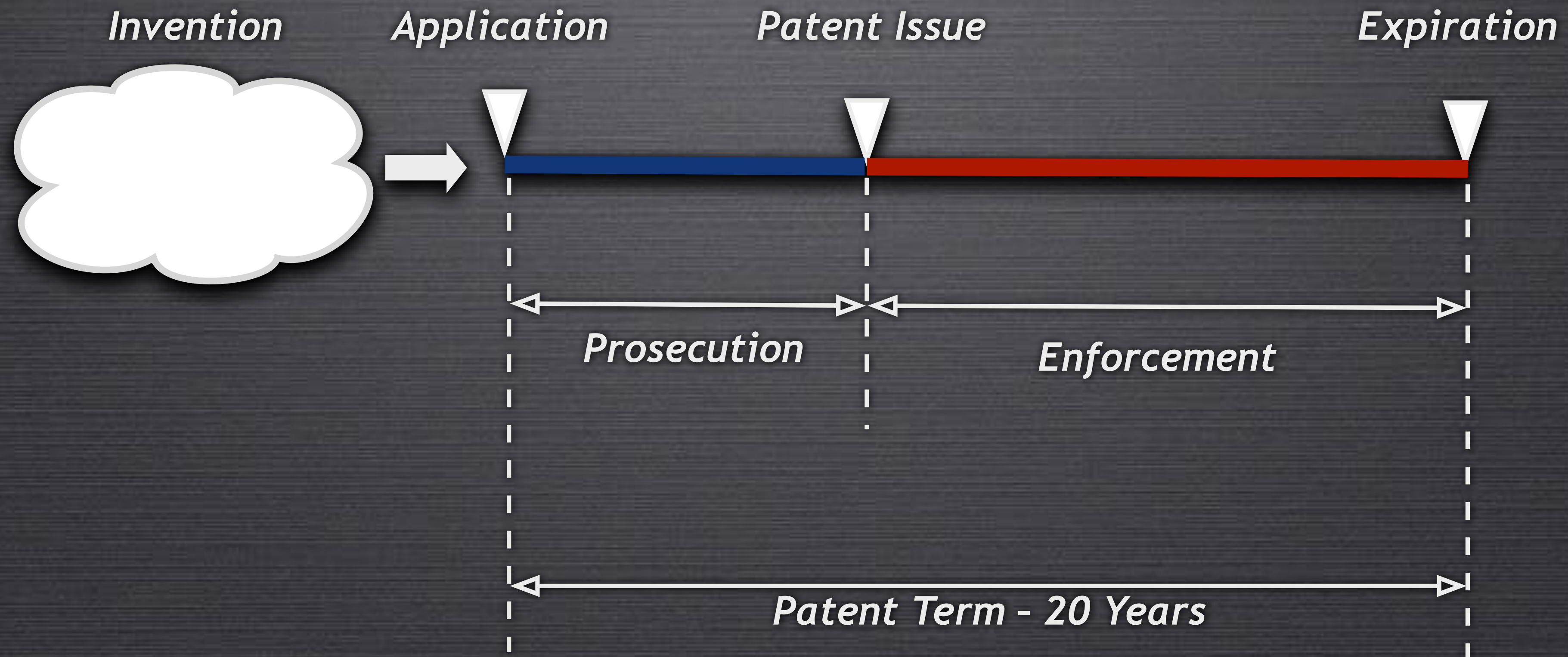
- Claims must "particularly point out and distinctly claim the invention."
- Claims need not explain how to make/use the invention.
- Consider the goals of claim language for:
 - patentees'
 - public's

35 What is claimed is:

1. A vehicle for carrying a payload including a user, the vehicle comprising:

- a. a platform which supports the user;
- 40 b. a ground-contacting module, to which the platform is mounted, which propels the user in desired motion over an underlying surface;
- 45 c. a motorized drive arrangement, coupled to the ground-contacting module; the drive arrangement, ground-contacting module and payload comprising a system being unstable with respect to tipping when the motorized drive is not powered; the motorized drive arrangement causing, when powered, automatically balanced operation of the system wherein the vehicle has a present velocity and a maximum operating velocity, determined by a requirement of acceleration to maintain balance and, in operation, has a balancing margin determined by the difference between the maximum operating velocity and the present velocity of the vehicle;
- 55 d. a balancing margin monitor, coupled to the ground-contacting module, for generating a signal characterizing the balancing margin; and
- 60 e. an alarm, coupled to the balancing margin monitor, for receiving the signal characterizing the balancing margin and for warning when the balancing margin falls below a specified limit.

The Life of a Patent



The Life of a Patent

Prosecution

- Ex parte administrative process
- Private/secret (for 18 months in most cases)
- Procedures allow for “continuing” applications
 - We think around 75% of all applications eventually result in a patent (‘grant rate’ is much lower)
 - Internal procedural incentives to issue patents
- Two-stage appeals
 - Board Patent Appeals and Interferences (Board)
 - Federal Circuit (also: District DC + Fed. Cir.)
- Reexamination (ex parte, inter-partes)

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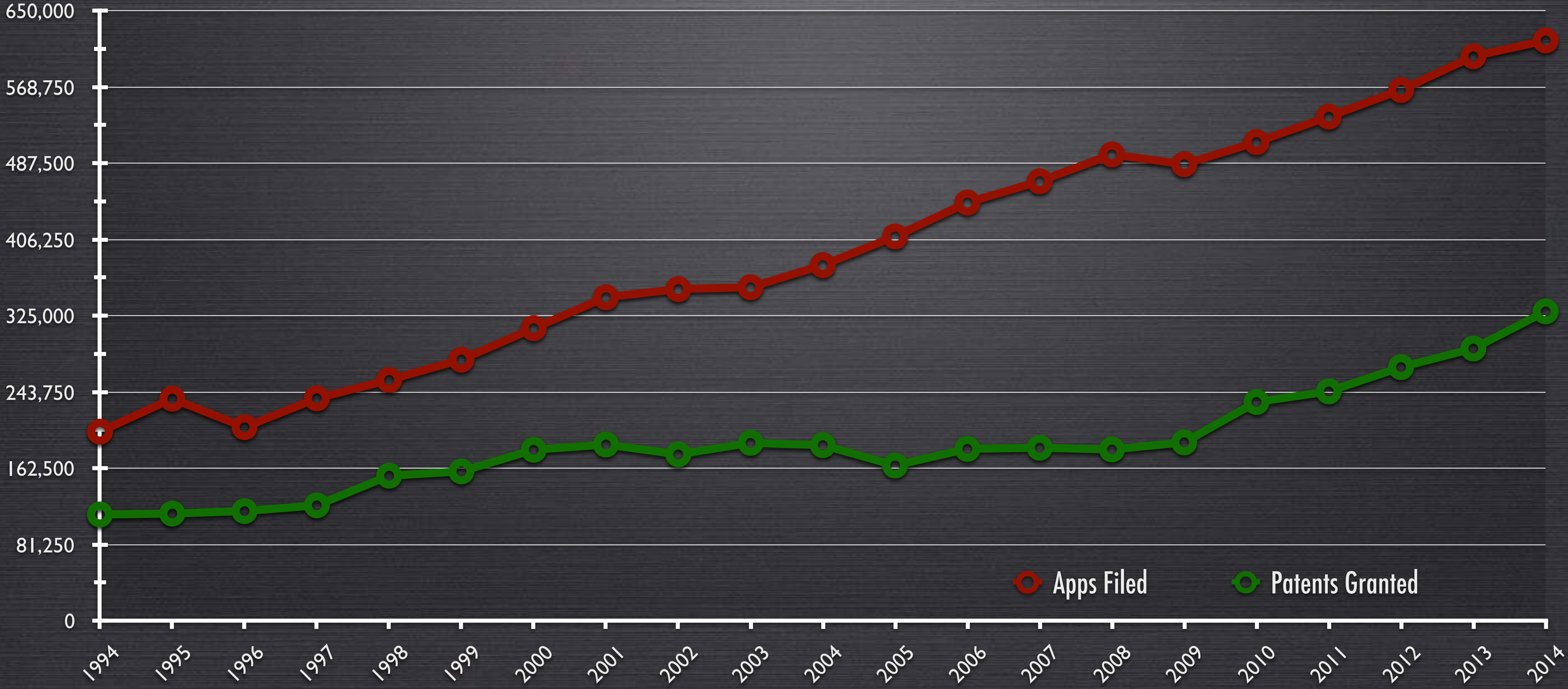
Enforcement

- A judicial / litigation process; jurisdiction in Federal Courts
- Courts are empowered to review the validity of patents.
 - But patents enjoy a statutory “presumption of validity”
- Declaratory judgment actions are not uncommon. (Why?)

The Patent System: Key Facts and Figures

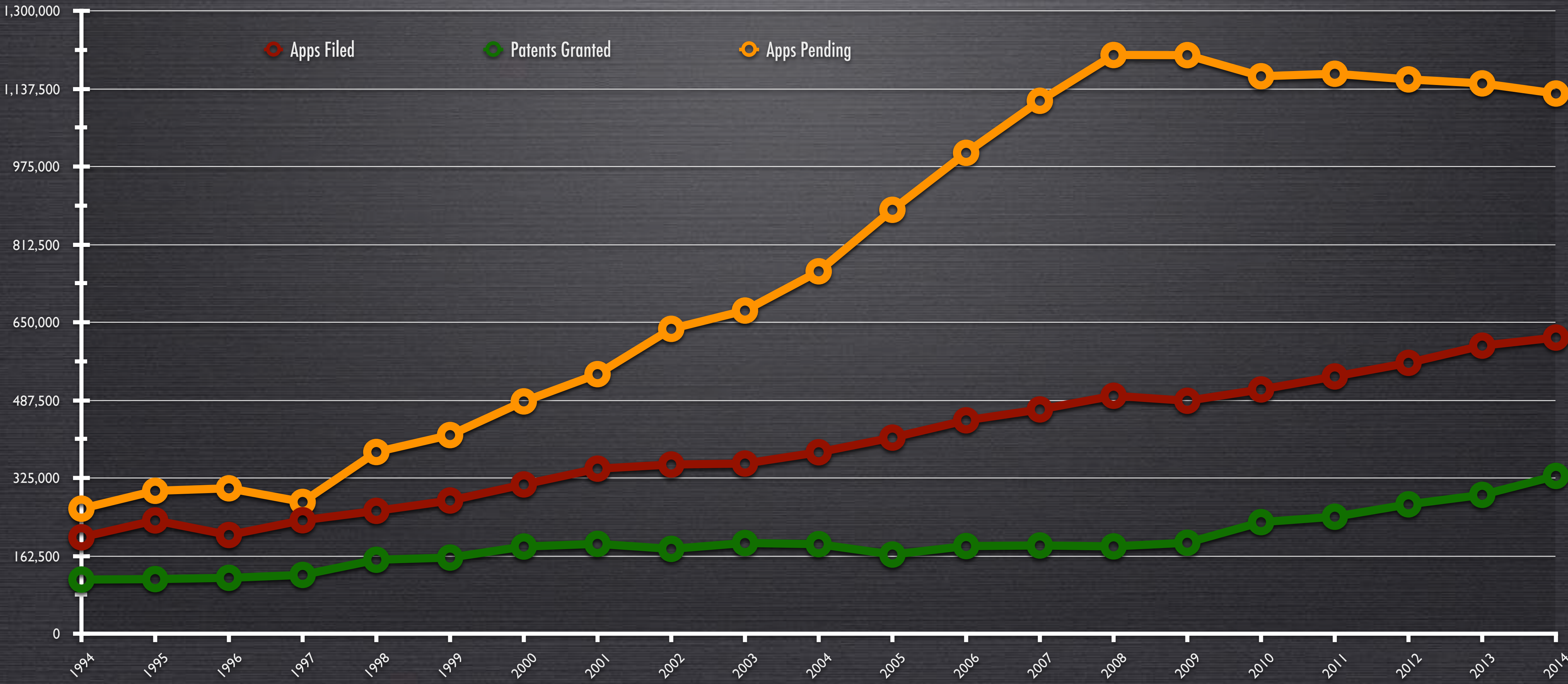
- Less than 1% of all patents are litigated
- Most estimates that less than 5% of all patents are licensed
- Typical cost of litigation: at least \$4.5M per side for cases with more than \$25M at stake; \$2M per side for smaller cases.
- By most calculations, the average expected value of patents is less than zero.
 - The distribution of patent value is heavily skewed: a few patents are enormously valuable, most have no value.

Patenting Activity, 1994-2014



[Source: USPTO Performance and Accountability Reports, 1994-2014]

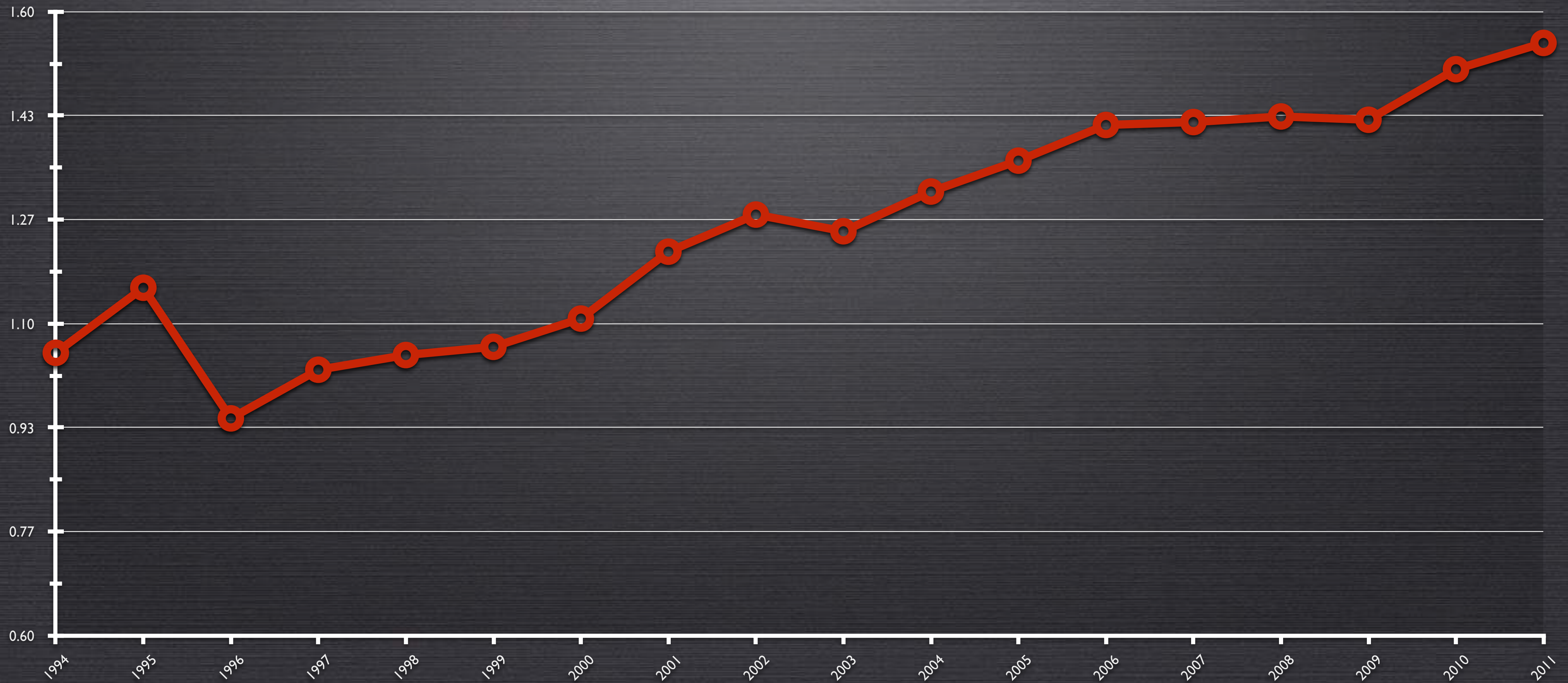
Patenting Activity, 1994-2014



[Source: USPTO Annual Reports]

Patent Intensity, 1994-2011

[Patent applications filed per \$M non-federal R&D (constant 2005 dollars)]



[Source: USPTO Annual Reports, NSF Science and Engineering Indicators 2014]

Patent Theory

Patent Theory: What Does a Patent Do?

Incentives to Invent

Patent Theory: What Does a Patent Do?

Incentives to Invent

Incentives to Disclose

Patent Theory: What Does a Patent Do?

Incentives to Invent

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... which of these is most important?

The Mechanism

or, How does the Patent Law Work?

Grant of a Property Right

- a right to exclude others (from the scope of the patent) -
 - under private control -
- can be bought/sold/licensed/traded/divided -

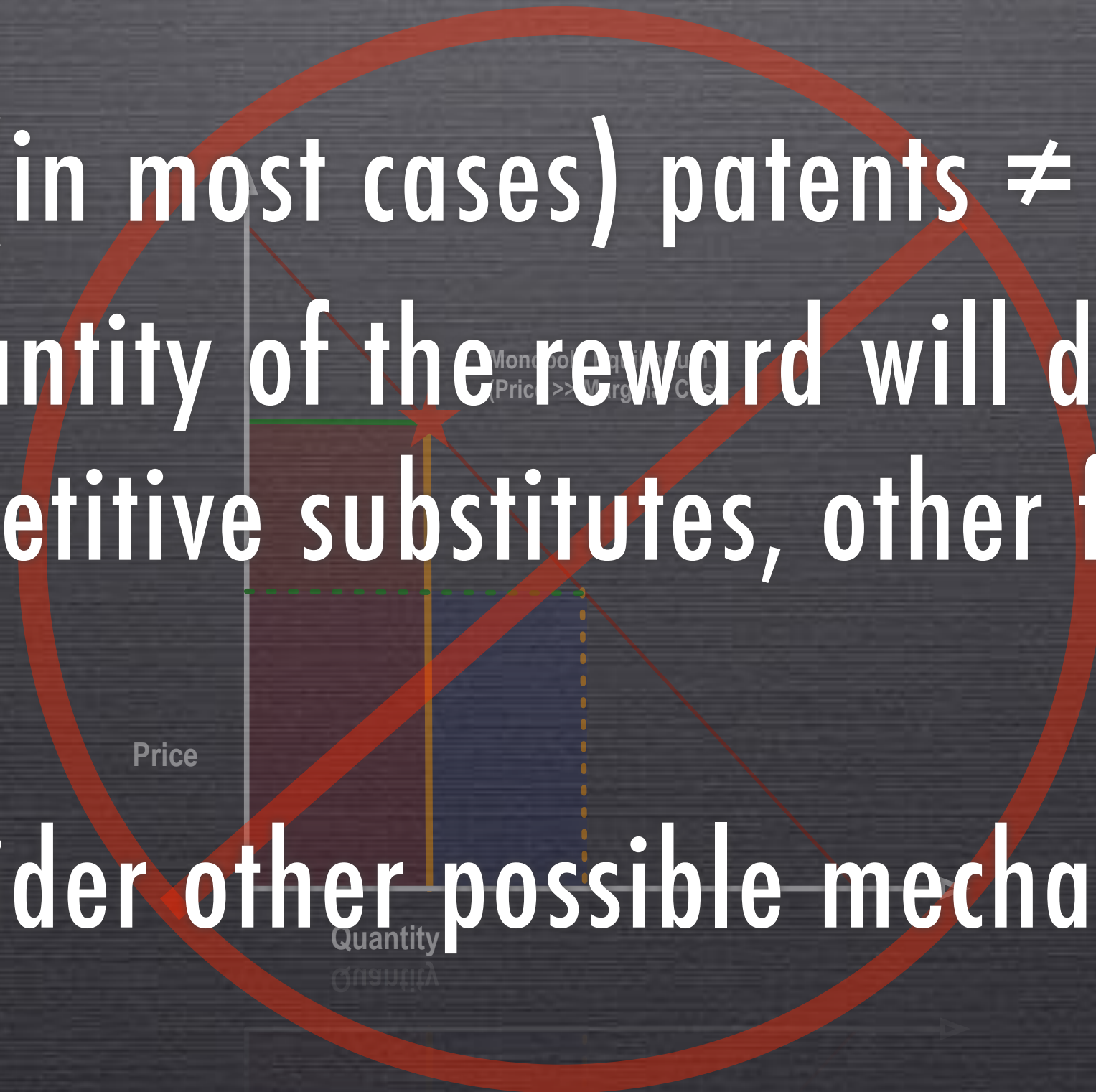
The Utilitarian Basis of the Patent Law

The Mechanism

Note that (in most cases) patents \neq monopolies.

The quantity of the reward will depend on competitive substitutes, other factors.

Consider other possible mechanisms?



Costs of the Patent System

(Can these be avoided? How?)

- **Monopolization Costs**
- **Rent-Seeking Behavior**
- **Restriction of Future Innovation**

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- Rent-Seeking Behavior
- **Restriction of Future Innovation**

Other Options

Why not simply subsidize invention/innovation directly?

Government-sponsorship of research

Cash rewards for inventive activity

Won't these schemes create the same incentives,
with less of the costs?

Patent Prosecution

The Standards for Patentability

A valid patent must be . . .

- Fully and appropriately described (§ 112)
- In compliance with statutory bars (§ 102)*
- Novel (§ 102)
- Nonobvious (§ 103)
- The work of the inventors (§ 116)
- Useful (§ 101)
- Within the appropriate subject matter (§ 101)

Patent Validity Analysis

During prosecution phase

During enforcement phase

Patent Validity Analysis

During prosecution phase

Review by USPTO Examiners assigned to case.

All aspects of validity to be reviewed.

Patent Validity Analysis

During enforcement phase

Review by court / jury.

Can revisit any / all validity issues.

A “presumption of validity” (‘clear & convincing evidence’).

An invalidity determination is final; a ‘no invalidity’ ruling is not.

Patent Prosecution

An ex parte process.

Applications kept private / secret for 18 months.

Continuation Applications

Internal Incentives of the PTO Examiners

Patent Prosecution

Appeal Process

Stage 1: USPTO Board of Patent Appeals & Interferences (BPAI)

Stage 2: Federal Circuit or US District Court

Patent Prosecution

Reexamination & Reissue

Reexamination: A reevaluation of validity, based on new prior art
(discretionary, ex parte or inter-partes)

Reissue: Party seeks cure for defect in patent

Enablement

The Standards for Patentability

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- In compliance with statutory bars (§ 102)
- Novel (§ 102)
- Nonobvious (§ 103)
- The work of the inventors (§ 116)
- Useful (§ 101)
- Within the appropriate subject matter (§ 101)

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- In compliance with statutory bars (§ 102)
- Novel (§ 102)
- Nonobvious (§ 103)
- The work of the inventors (§ 116)
- Useful (§ 101)
- Within the appropriate subject matter (§ 101)

The Enablement Requirement

35 U.S.C. § 112. - Specification

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention. . . .

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The Incandescent Lamp Patent

UNITED STATES PATENT OFFICE.

WILLIAM EDWARD SAWYER, OF NEW YORK, AND ALBON MAN, OF BROOKLYN, N. Y., ASSIGNORS TO ELECTRO-DYNAMIC LIGHT COMPANY OF NEW YORK.

ELECTRIC LIGHT.

SPECIFICATION forming part of Letters Patent No. 317,676, dated May 12, 1885.

Application filed January 9, 1880.

To all whom it may concern:

Be it known that we, WILLIAM E. SAWYER, a resident of the city, county, and State of New York, and ALBON MAN, a resident of Brooklyn, in the county of Kings and State aforesaid, both citizens of the United States, jointly have invented certain new and useful improvements in Electric Lamps, of which jointly the following is a specification.

Our invention, speaking generally, relates to that class of electric lamps employing an incandescent conductor inclosed in a transparent hermetically-sealed vessel or chamber, from which oxygen is excluded, and constitutes an improvement upon the apparatus shown in Letters Patent No. 205,144, granted to us June 18, 1878.

Our invention relates more especially to the incandescing conductor, its substance, its form, and its combination with the other elements composing the lamp. Its object is to secure a cheap and effective apparatus; and our improvement consists, first, of the combination, in a lamp-chamber composed wholly of glass, as described in Patent No. 205,144, of an incandescing conductor of carbon made from a vegetable fibrous material, in contradistinction to a similar conductor made from mineral or gas carbon, and also in the form of such conductor so made from such vegetable carbon, and combined in the lighting-circuit within the exhausted chamber of the lamp.

The accompanying drawings show all our improvements embodied in an apparatus or lamp substantially like that represented in the patent above referred to, being the form in which we have practically used it; but some of our improvements may be used in connection with other forms of lamps with equally good effect.

Reference being had to said drawings, Figure 1 is a top view of the lamp; Fig. 2, a side elevation thereof; Fig. 3, a side view in elevation of the burner on an enlarged scale to show its details more clearly, and Fig. 4 is a similar edge view.

Fig. 5 of the drawings shows a vertical section through the bottom of the lamp. In this figure *x* is a glass flange on the bottom of the lamp-chamber. *y* is a glass disk corresponding

in size to the flange, and is ground to the bottom thereof to form an air-tight joint, so that the entire wall of the chamber is formed of glass, the electrodes passing through the glass disk in the manner shown to form the lighting-circuit in the chamber, substantially as in said Patent No. 205,144. The sealing of the electrodes, where they pass through the glass wall, is done with any suitable cement, or in any of the well-known methods of sealing glass upon metal electrodes previous to the filing of this application.

The electric connections of this lamp are made in the base thereof, substantially the same as in our Patent No. 210,809, dated December 10, 1878, and the whole bottom is inclosed in a cup filled with wax or other suitable cement, the same as in that patent, the cement sealing in this lamp being also applied in substantially the same way as in the patent last above mentioned, the invention making the subject-matter of this application being improvements upon the lamps described in the patents above referred to, to the extent of the claims making part hereof.

In the practice of our invention we have made use of carbonized paper, and also wood carbon. We have also used such conductors or burners of various shapes, such as pieces with their lower ends secured to their respective supports and having their upper ends united so as to form an inverted V-shaped burner. We have also used conductors of varying contours—that is, with rectangular bends instead of curvilinear ones; but we prefer the arch shape.

No especial description of making the illuminating carbon conductors, described in this specification and making the subject-matter of this improvement, is thought necessary, as any of the ordinary methods of forming the material to be carbonized to the desired shape and size, and carbonizing it while confined in retorts in powdered carbon, substantially according to the methods in practice before the date of this improvement, may be adopted in the practice thereof by any one skilled in the arts appertaining to the making of carbons for electric lighting or for other use in the arts.

An important practical advantage which is

W. E. SAWYER & A. MAN. 2 Sheets—Sheet 1.

ELECTRIC LIGHT.

No. 317,676.

Patented May 12, 1885.

Figure 2.

Figure 3.

Figure 4.

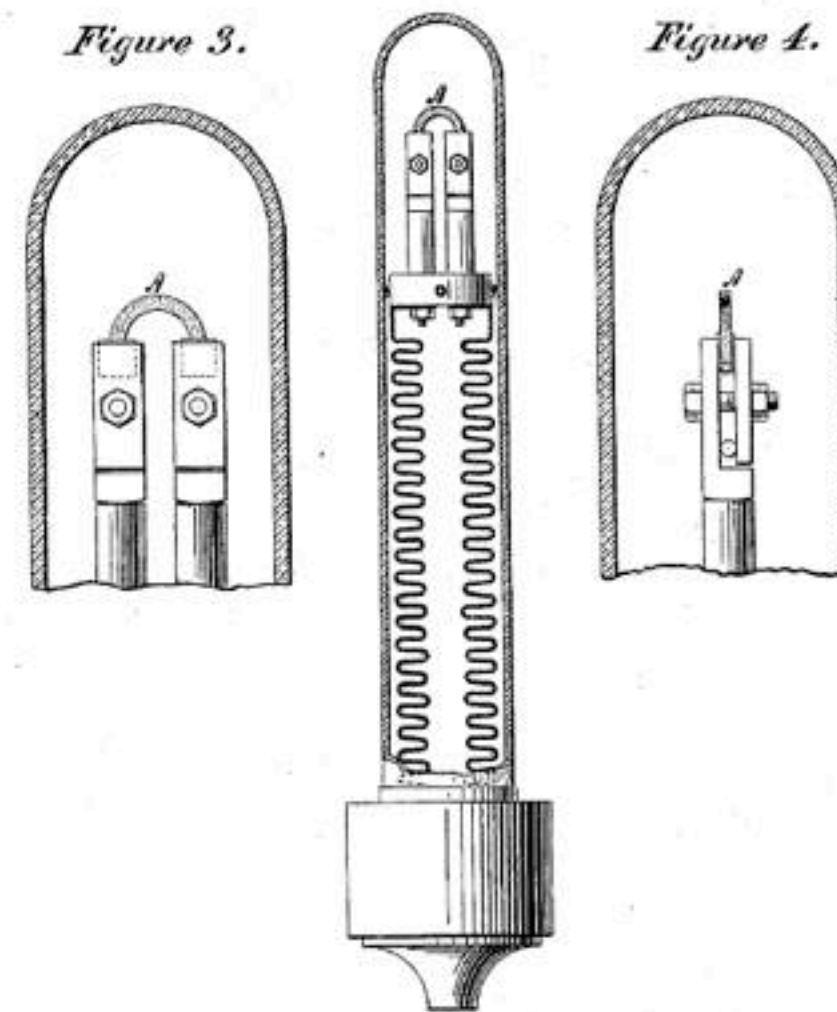


Figure 1.

Witnesses:

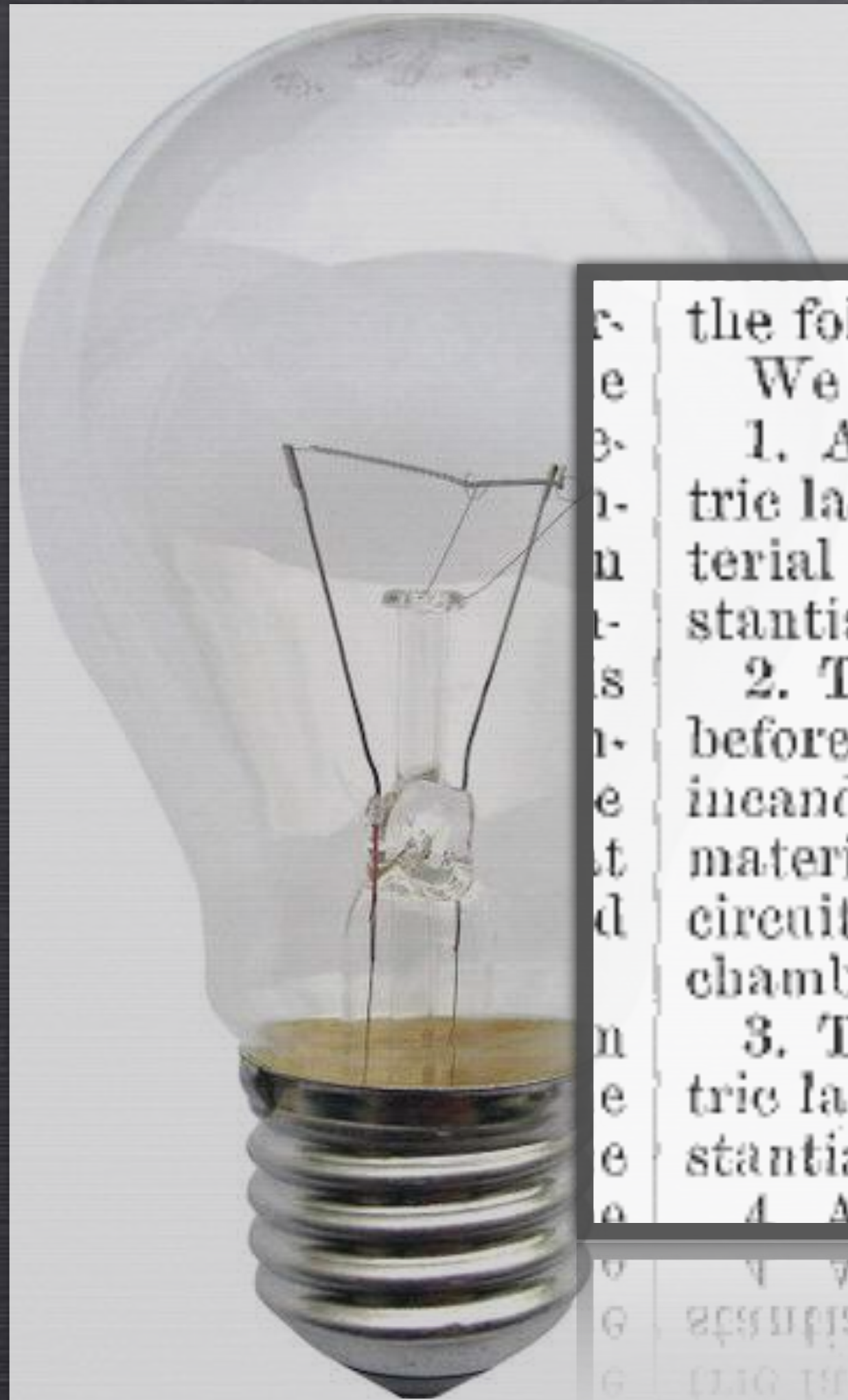
Jas. C. Cooper.



Inventors:

W. E. Sawyer
Albon Man
by their atty
W. L. Baldwin

The Incandescent Lamp Patent



the following claims. 45

We claim as our joint invention—

1. An incandescing conductor for an electric lamp, of carbonized fibrous or textile material and of an arch or horseshoe shape, substantially as hereinbefore set forth. 50

2. The combination, substantially as hereinbefore set forth, of an electric circuit and an incandescing conductor of carbonized fibrous material, included in and forming part of said circuit, and a transparent hermetically-sealed 55 chamber in which the conductor is inclosed.

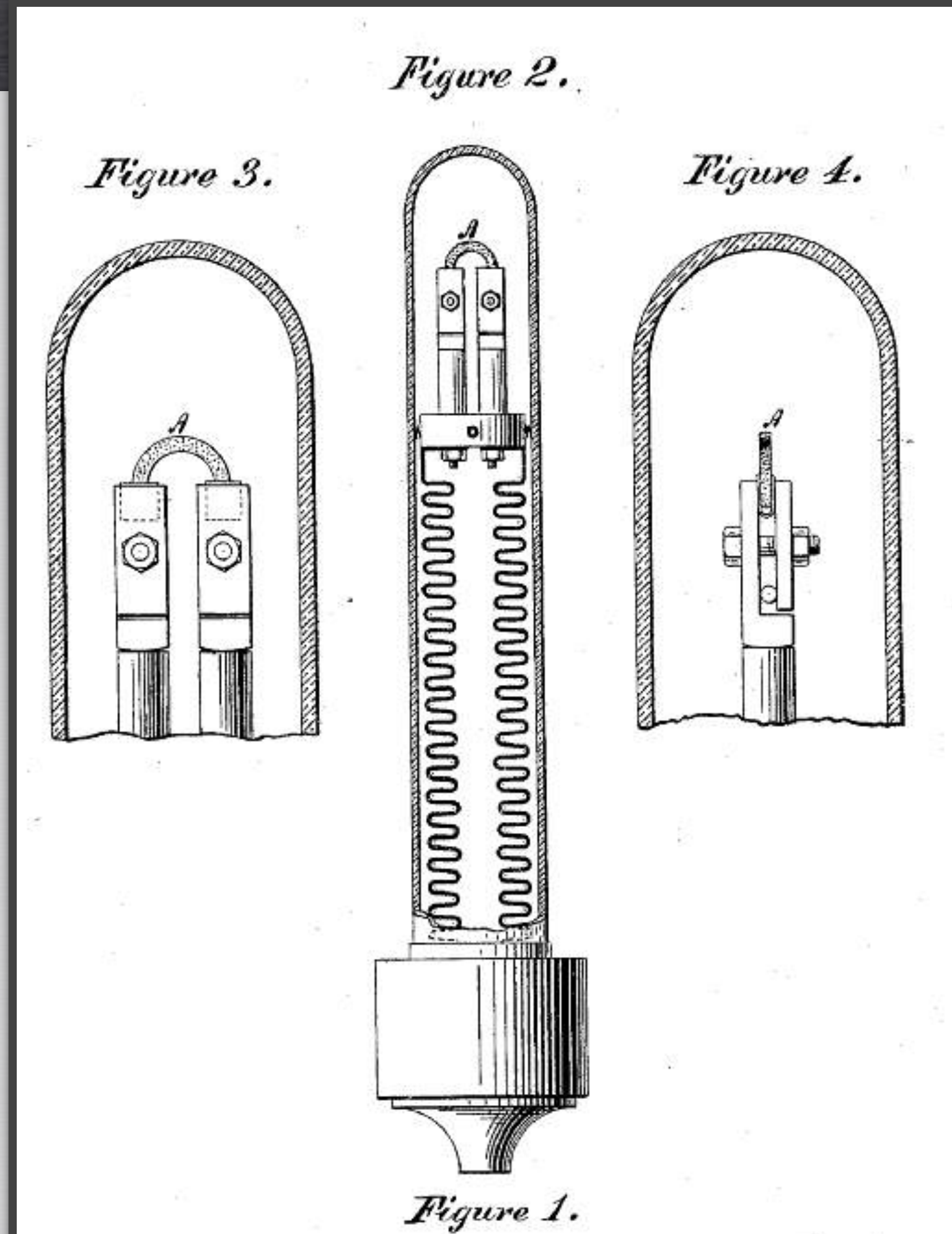
3. The incandescing conductor for an electric lamp, formed of carbonized paper, substantially as described.

4. An incandescing electric lamp consisting 60

First question

What do Sawyer & Mann claim?

The Incandescent Lamp Patent



What do Sam
 lawyer &
 principle"
 rt to find

See

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75

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 date of this improvement, may be adopted in
 the practice thereof by any one skilled in the
 arts appertaining to the making of carbons for
 electric lighting or for other use in the arts.

An important practical advantage which is 100

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The Policy of the Enablement Requirement

- How might Enablement be said to be at the “core” of the ‘patent bargain’?
- How might there be said to be two purposes of the enablement requirement?
- By what standard do we evaluate the scope of the disclosure?
 - PHOSITA (Who is this?)
 - Do you have to describe everything about your invention?
 - How do you prove your case?

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Written Description

The Written Description Requirement

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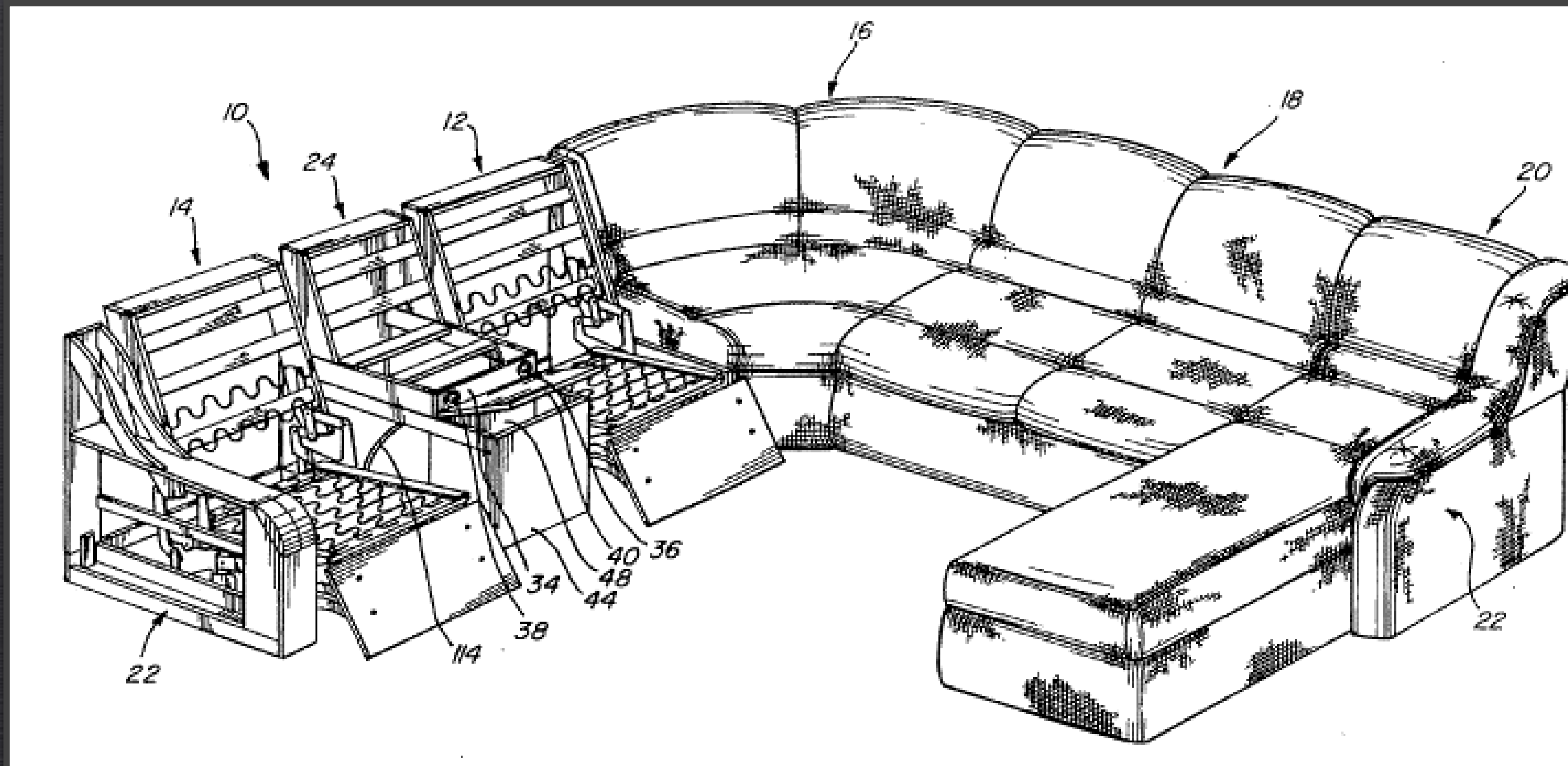
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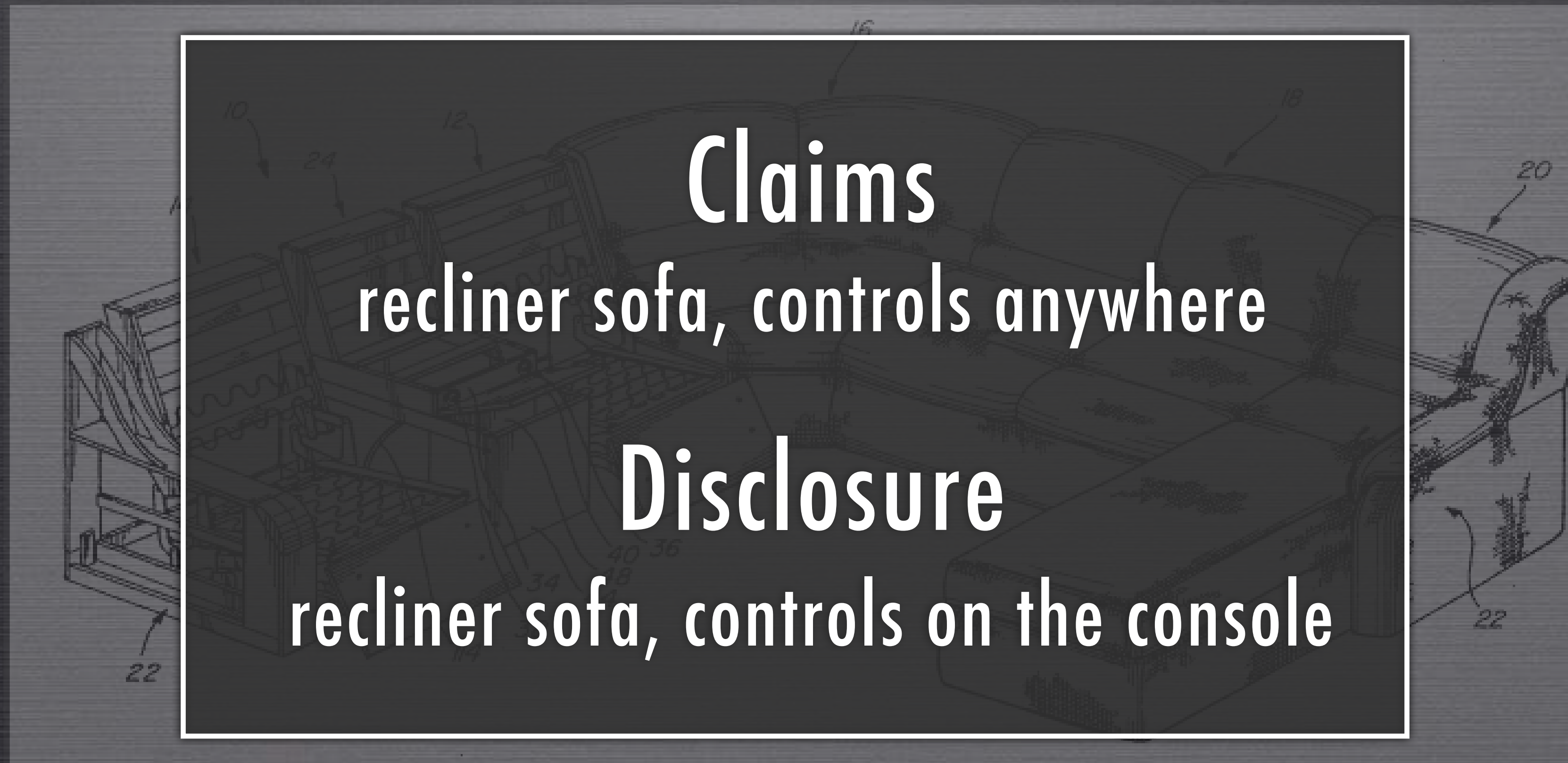
Is this different from enablement?

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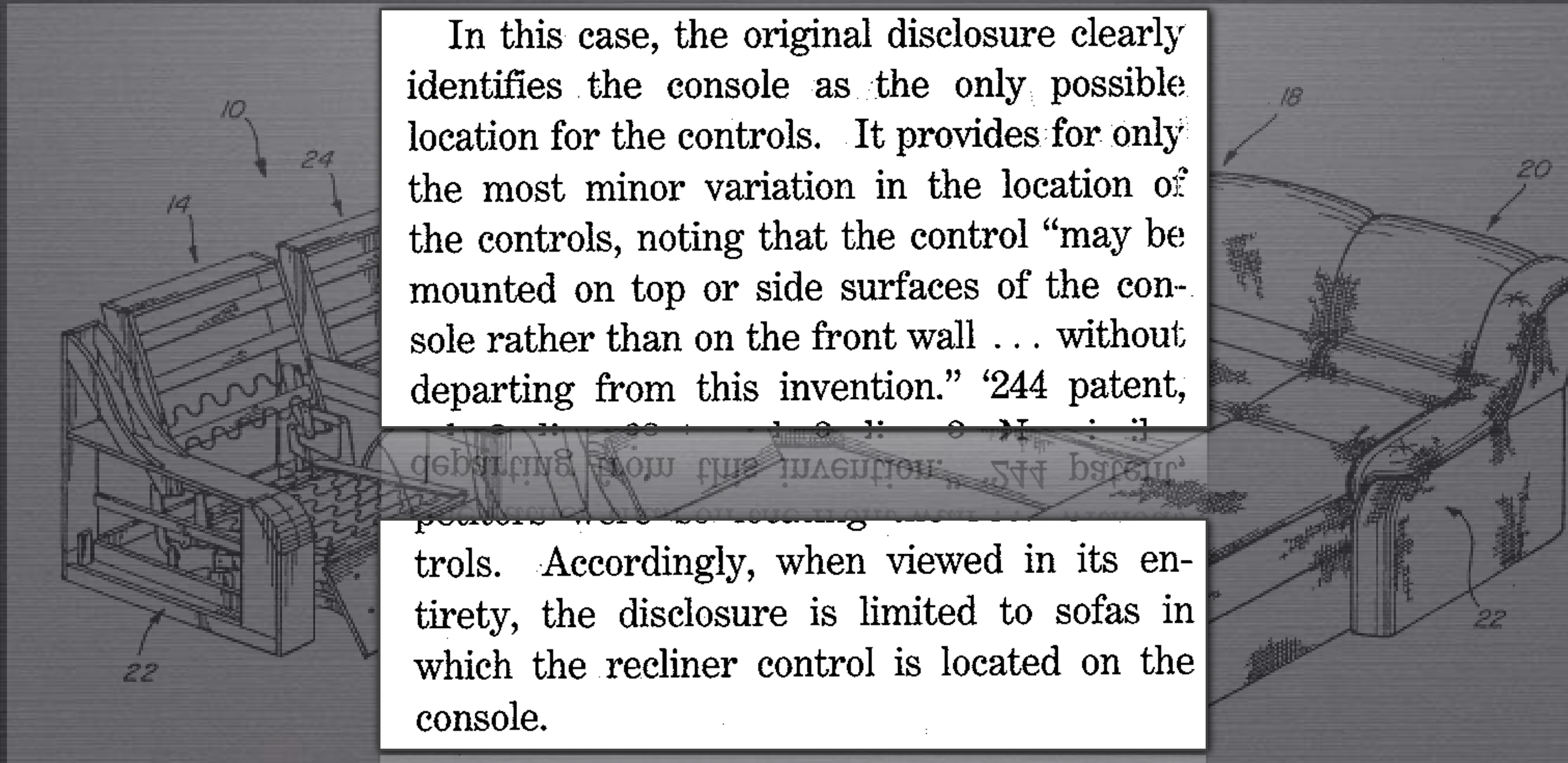
Gentry Gallery v Berkline (Fed. Cir. 1998)



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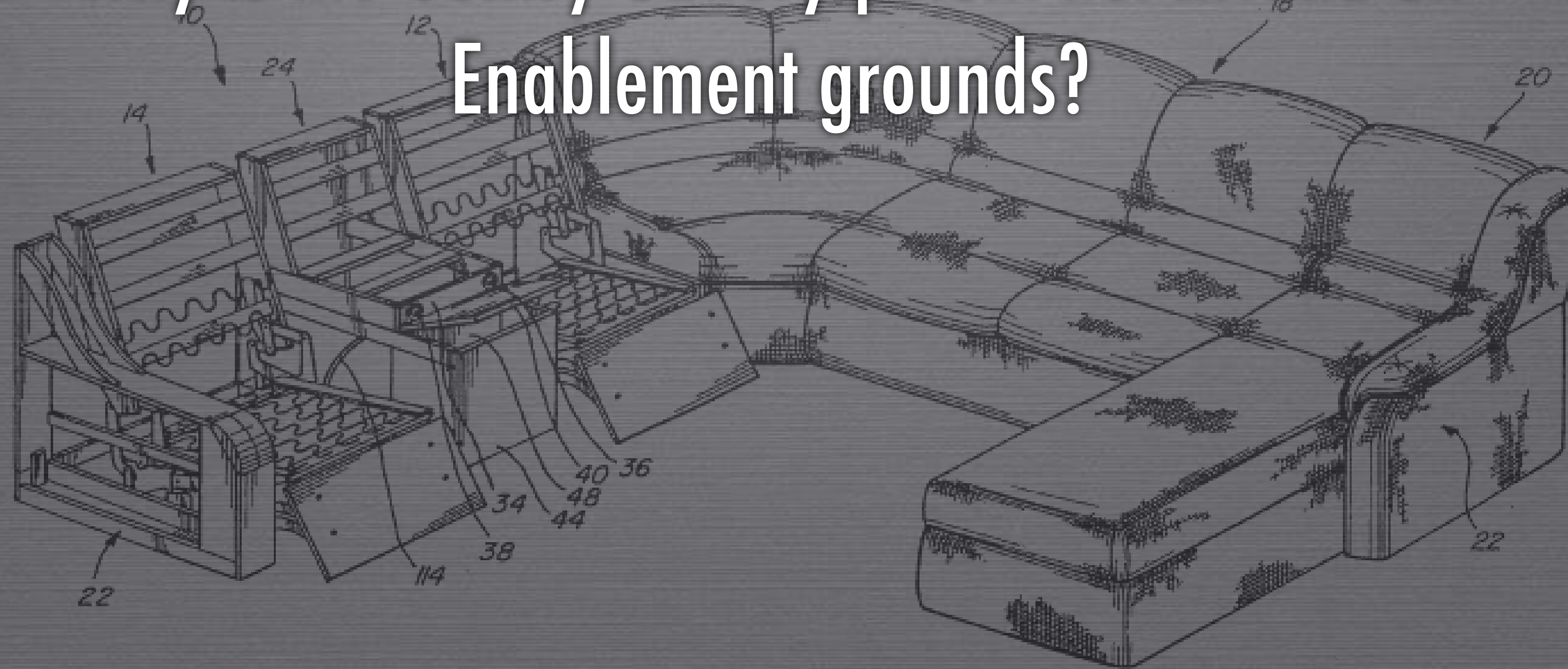


In this case, the original disclosure clearly identifies the console as the only possible location for the controls. It provides for only the most minor variation in the location of the controls, noting that the control “may be mounted on top or side surfaces of the console rather than on the front wall . . . without departing from this invention.” ‘244 patent,

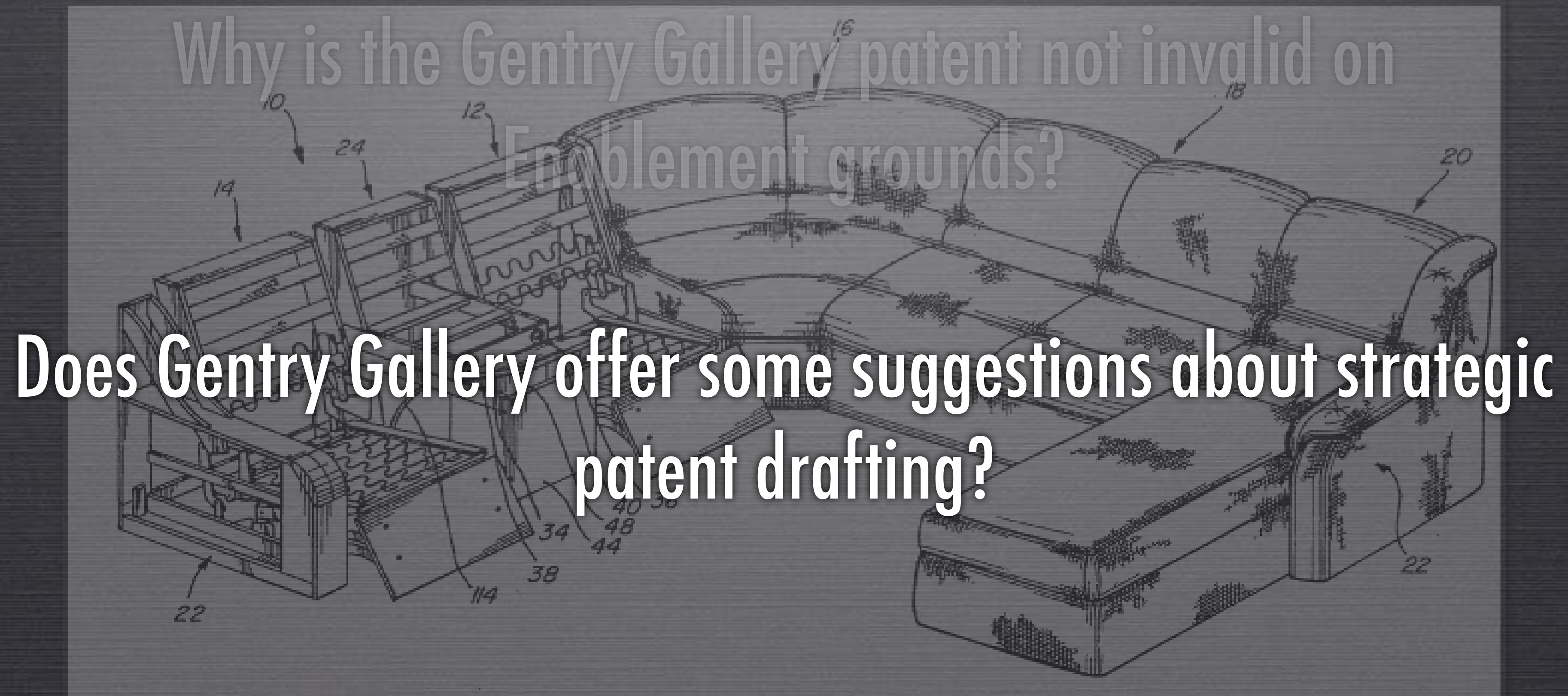
controls. Accordingly, when viewed in its entirety, the disclosure is limited to sofas in which the recliner control is located on the console.

Gentry Gallery v Berkline (Fed. Cir. 1998)

Why is the Gentry Gallery patent not invalid on Enablement grounds?



Gentry Gallery v Berkline (Fed. Cir. 1998)



Enablement vs Written Description

- What is the difference between Written Description & Enablement?
(or ... What is the purpose of Written Description?)
 - Doctrine: W/D requires “description of the invention” or proof of “possession of the invention”
- Is this meaningfully distinct from Enablement?
- In what cases would this be useful?
- Written description might apply differently to different technologies.
(Is this a good thing?)

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