

a light but stiff spiral spring, which presses against the top of the tube. To the point of the index a very flexible piece of aluminum foil is attached, which projects in a horizontal direction, and can be raised or lowered by a thread which passes up the center of the tube and round a pin fixed in the end of the box, B.

These three components of the motion are written on a band of smoked paper, wound around a drum, D, which is kept continuously rotating by a train of clockwork, W. The ends of the indices are arranged to lie in a line parallel to the axis of the drum, so that the corresponding vertical and horizontal components can be easily detected. The pressure of the point of the indices, which write the horizontal components on the paper, can be adjusted by means of threads attached near the ends of the indices, and passed over studs fixed in the pillar which supports the pendulums.

The clockwork, W, is driven by means of two weights acting on separate driving wheels, one on each side of the first pinion, thus, at the same time, giving a pure couple to the pinion, preventing excessive weight on the bearings of the weight barrels, and avoiding the necessity for maintaining power to keep the clockwork in motion during winding. The clockwork is governed by means of a governor in the form shown in section in Fig. 2, where *g* is a light cylindrical box, partly filled with glycerine or some such liquid, and mounted on a vertical axis, *a*, which in this instrument works in jewels at top and bottom. By means of the pinion, *p*, and the crown wheel, *w*, the box, *g*, is geared to the clockwork. The governing action is obtained by causing the liquid to come in contact with a fixed vane, *v*, which can be turned to different distances from the side of the box so as to vary the speed.

The action of the apparatus is as follows: Suppose that the earth moves in a direction at right angles to the plane of one of the deflected pendulums, then, since that pendulum is very free to move around a vertical axis, the inertia of the bob of the pendulum causes it to turn relatively to the remainder of the apparatus, and, consequently, the point of the index attached to it will move across the drum through a distance depending on the length of the pointer, and the distance of the instantaneous axis of the bob from the knife edge. There will not, however, be any motion of the other pendulum. The same is true of motions at right angles to the other pendulum, or to the lever, *l*; and hence if the motion be inclined to all of these, each one will indicate its own component, thus determining the nature, magnitude, and direction of the movement.

The duration of the earthquake is obtained from the known rate of motion of the drum, D, and the length of the record on the smoked paper.

The time of occurrence is obtained by means of the time piece, T, and a system of magnets and circuit-closing apparatus. The circuit-closer is shown at E, and consists of a small pendulum, the bob of which is made to turn a light metallic tube, *r*. This tube is carried on a point resting in a conical hole in a rod rigidly attached to the framework, and it is pivoted to the pendulum by a point resting in a conical hole pierced in a small block on the end of a fine spring, so attached to the bob of the pendulum that the conical hole is under its center of inertia. The lower end of this tube hangs in the center of a dimple formed by capillary attraction in the surface of a cup of mercury, over a thin iron pin fixed in the bottom of the cup.

When the framework of the apparatus is slightly shaken, the point of the tube cups into the mercury, and thus closes the circuit of the electro magnets, *e*, *e*. The electro-magnet, *e*, attracts an armature, to the end of which is attached an index, the point of which is in the same line with the ends of the indices for writing the motions on the drum, D, and thus makes a mark on the smoked paper, which shows at what part of the shock the circuit was closed. The magnet, *e*, at the same time relieves a catch, and allows the weight, *m*, to fall, turning a shaft which passes through behind the dial of the clock. This shaft is provided with two small projecting wheels, which push the dial suddenly forward on the hands. The hands are provided with ink pads, and thus leave a mark on the dial indicating the time at which the circuit was closed. Immediately after the circuit is closed through the mercury, it is again broken by means of a simple circuit-breaker, thus preventing useless waste in the battery.

#### Presence of Mind in a Dog.

The Boston *Journal* says that on Jan. 23 last, Elmer Wier, aged ten, while skating on the mill pond at Salem, Mass., ventured out too far on the thin ice, near the lower sluiceway, where there is a powerful current, and fell through. A Newfoundland dog, who had followed the little fellow to the shore, at once perceived the lad's danger, and ran to his assistance. The boy, in the mean time, had been drawn under the ice. The dog made a large space of open water, and diving quickly, brought the boy to the surface, dragging him thence to the shore. Some men in the vicinity who witnessed the accident attempted to rescue the lad, but were unable to reach him on account of the thinness of the ice, and he would have been drowned but for the dog. The animal was a waif recently adopted by the family."

#### Hydrophobia from Skunk's Bite.

Several New Jersey farmers have lately lost a number of cattle and hogs, hydrophobia showing itself in an unmistakable manner, and their conclusion is, that the bite of a skunk was the origin in several cases.

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#### Contents.

(Illustrated articles are marked with an asterisk.)

Acid, boracic, its sources.....	65	Latch, locking*.....	66
Aquatic spiders.....	70	Lathe, crank shaft*.....	68
Artificial ivory.....	71	Life saving appliances at sea.....	68
Aspects of planets for February.....	68	Lithographic stains.....	67
Bee farming in New South Wales*.....	70	Machine for cutting paper*.....	66
Beet sugar.....	73	Mechanical work, delicate.....	69
Bone, propeller, the*.....	67	New books and publications.....	74
Box, ice, cheap.....	67	Notes and queries.....	75
Bread recipe.....	69	Patent bills, recent.....	65
Business and persons.....	74	Patent saw, Switzer.....	64
Car tracers, duties of.....	71	Patent laws, nullification of.....	64
Crank shaft lathe*.....	68	Patterns, care of.....	65
Deafness by press, on ears.....	67	Pipe tongs*.....	72
Dog, presence of mind in.....	64	Planets, aspects of for Feb.....	68
Earthquake recorder.....	65	Psychical research.....	70
Electric jewelry.....	71	Recent patent bills.....	65
Emery, substitute for.....	67	Recorder, earthquake*.....	65
Engine, steam, present practice.....	69	Science, sanitary, essay on.....	72
Fire extinguishing apparatus.....	73	Scratch gauge*.....	70
Fireproof starch.....	65	Spiders, aquatic.....	70
Gauge, scratch.....	75	Stains, removal from cotton, etc.....	72
Horses, balky, treatment of.....	73	Stations, signal, ocean.....	72
Hydrophobia, from skunk's bite.....	74	Stones, lithographic.....	67
Ice box, cheap.....	67	Sugar, beet.....	72
Inventions, agricultural.....	74	Sugar industry, beet.....	69
Inventions, engineering.....	74	Sunsets, brilliant, cause of.....	69
Inventions, index of.....	75	Tongs, pipe, Strait's.....	72
Inventions, mechanical.....	74	Tornadoes, how to annihilate.....	69
Inventions, miscellaneous.....	74	Vessels of light draught.....	65
Ivory, artificial.....	71	Vessels, propulsion of.....	65
Jewelry, electric*.....	71	Wood, built up.....	65
Knife, brick box, etc.*.....	67	Wounds, sudden, how to treat.....	71

#### TABLE OF CONTENTS OF THE SCIENTIFIC AMERICAN SUPPLEMENT No. 422,

For the Week ending February 2, 1884.

Price 10 cents. For sale by all newsdealers

I. CHEMISTRY AND METALLURGY.—Manganese Bronze.—Paper read by P. M. PARSONS before the British Association.—Treating of the alloys used by different inventors.—Effect of manganese on bronze.—Uses of different qualities of manganese bronze.—Tables giving tests by tensile strain, by transverse strain, etc.....	6732
Reduction of Metallic Solutions by means of Gases, etc.—Several experiments.—By Dr. G. GORE.....	6735
II. ENGINEERING AND MECHANICS.—The Sun Motor and the Sun's Temperature.—With description and engraving of the motor.—By J. BRICSON.....	6721
The Abraham Four Cylinder Engine.—Several figures.....	6728
Improved Type Machine.—With engraving.....	6738
Steam Car for Street Tramways.—With full description and two engravings.....	6729
H.M.S. Imperieuse, and Some of the Newest Types of Ships of the British Navy.—With two full pages of engravings.....	6729
III. TECHNOLOGY.—To Detect Flour made from Sprouted Wheat.....	6735
Manufacture of Charcoal in Kilns.—Conical Kilns.—Statistics of conical furnaces.—Several figures.....	6736
Rearing Oysters from Artificially Fertilized Eggs, together with Notes on Pond Culture, etc.—A valuable paper by JOHN A. RYDER.....	6737
IV. ASTRONOMY.—Solar Surroundings.—Nature of the corona.—By RICHARD A. PROCTOR.....	6733
V. DECORATIVE ART.—Old English Furniture.—With several engravings.....	6734
Ancient Tiles.....	6734
VI. NATURAL HISTORY.—Nordenskjöld's Greenland Expedition of 1883.—Report of Baron Nordenskjöld to Mr. Oscar Dickson.—Giving description of the country traversed, minerals and dust found, etc.—With sketch map of the inland journey.....	6740
VII. HORTICULTURE.—The American Agave, or Aloe.—Origin of the plant.—Uses of the same, etc.—With three engravings.....	6739
VIII. MISCELLANEOUS.—The International Exhibition Buildings at Nice, France.—An engraving.....	6735
Discovery of an Ancient Lens.....	6742

#### NULLIFICATION OF THE PATENT LAWS.

The House of Representatives passed January 22 two bills which seriously affect the value of all patents or inventions not directly used for manufacturing purposes.

The first, No. 3925, to regulate practice in patent suits, throws the burden of costs upon the plaintiff in all suits for infringement by purchasers "in good faith," where the damages recovered are not \$20 or over; and further compels the plaintiff to give bond at the beginning of the suit to pay all costs that may be adjudged against him, and also a sum not exceeding \$50 for the defendant's counsel fees, in case the defendant prevails.

The second, No. 3934 (submitted by the Patent Committee as a substitute for bills numbered 311, 419, 1134, 1250, and 1956) provides that the use of a patented article, purchased in open market for personal benefit, and not for manufacturing purposes, shall not be liable for damages or profits, but in all cases the manufacturer and vender only shall be held liable. It further provides that when the infringement lies in the use of an article made by the defendant or his employee, for his own benefit and not in the manufacture of an article for sale, the measure of recovery shall be a license fee, to be fixed by a jury in case no license fee has previously been established.

The effects of a law, of the nature of the bill first mentioned, have been fully considered in recent issues of this paper. The number of valuable patents that would be practically nullified by it is very great, and would include a majority of all patents on household conveniences, stoves, lamps, and other articles of domestic utility and ornament; agricultural tools and implements; mechanics' and machinists' tools; electrical batteries and appliances; carriage trimming and saddlery hardware; "notions" of every sort, toys and so on almost endlessly.

Should the second bill pass the Senate and become a law, it would by its first section make it extremely difficult for a patentee to protect himself against infringement in connection with any article of easy manufacture and wide utility. He could not reach the market of the fraudulent manufacturer or vender, for the purchasers and users would be "innocent"; and as a rule he would find it equally hard to discover the actual trespasser, or collect from him if found.

By its second section the proposed law would take away from the patentee all real control of inventions that anybody might choose to manufacture for his own use, and express, when sued, a willingness to pay a "reasonable" license fee for the privilege; a provision that would cover all devices used not only by individuals but by all corporations, as railway companies and the like, where it would be to the user's advantage to manufacture the article for himself.

We will suppose an improvement in railway appliances. To one having the exclusive right to manufacture the device the patent might be of great value in providing an assured and stable business, even if no special charge were made for the use of the invention as such. If every railway company could manufacture the article for their own use in their own shops, the inventor's business would be ruined. If, on the other hand, the article were one on which a royalty could be charged, the forcible substitution of a license fee therefor would not recompense the inventor, for after all it would ultimately lie with the companies who might wish to manufacture the article to fix the license fee.

The Patent Committee seek to justify the bill by referring to the complaints of annoyance arising from the practice of persons owning patents or pretending to own them, in allowing the use of an article for a term of years, and then demanding damages.

That there have been annoyances of this nature is not denied; nor is it questioned that Congress could properly provide means for stopping such abuses. Inventors and owners of property under patent rights may well protest, however, that the alleged wrong should not be corrected at their cost.

The large vote in favor of these obnoxious bills (ayes 114, nays 6) would indicate a small membership in the House familiar with the condition and needs of our manufacturing industries, or favorably disposed toward inventors as a class.

Under these conditions it devolves upon owners of property under patent rights, and all those directly employed or interested in industries based on such rights, to seek the protection of their property and interest, as far as they may, by addressing remonstrances to the Senate against the concurrence of that body in legislation of this character. Action in this direction must needs be prompt, and it can scarcely be too urgent, as powerful interests are clearly at work in Washington to incite and encourage legislation which cannot be other than disastrous to all honest patentees.

We give elsewhere the text of the two bills that have been passed by the House.

#### ANOTHER MOVEMENT FOR A SWISS PATENT LAW.

In July, 1882, by a majority of 5,000 in a total vote of 295,000, the people of Switzerland refused to amend their constitution so as to provide for the enactment of a patent law. This result was in part attributed to the fact that on the ballots provided was a proposed highly unpopular law on an entirely different subject. There is now, however, another earnest movement on foot for again bringing the question of a patent law before the people. At the Swiss National Exhibition, held last summer at Zurich, the matter was actively canvassed, and an impromptu convention held, at which the need of furnishing protection of law to Swiss