

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XXIII.—No. 20.
[NEW SERIES.]

NEW YORK, NOVEMBER 12, 1870.

{ \$3 per Annum.
[IN ADVANCE.]

Automatic Damper Regulator.

A simple and reliable damper regulator for steam boilers, sensitive to slight variations of pressure, and durable in all its parts, has long been sought. Various devices have been introduced at different periods since the invention of the steam engine for the purpose of controlling and regulating the draft of the fires, which have failed to effect the desired purpose on account of friction, rigidity of parts, etc. The rubber diaphragm answered the purpose in all respects, except that the protection of the rubber diaphragm, in its changes of form and motion, offered difficulties which it is claimed the invention herewith illustrated has fully obviated.

We are assured that it has been fully tested, both as a constant economizer of fuel and a positive security against explosions or damage from excess of pressure, and that for both these purposes its operation is satisfactory.

It is simple in construction, apparently not liable to derangement, practically frictionless in all its parts, and entirely protected from the obstructive effects of dust and dirt. The operation of the machine is as simple as its construction.

The rubber diaphragm, B, Fig. 1, being protected by triangular flat metal plates, C, hung on knife-edges communicating motion to the lever by the same means as shown in Fig. 1 at D and E, makes the machine sensitive to the slightest variation of pressure, and at the same time the diaphragm is relieved from any undue strain whatever through its extremes of motion. The lever, F, with its counterpoise, H, has a knife-edged bearing, shown at G. Steam is admitted under the diaphragm at A.

When the machine is attached to the boiler, and connections made with the damper-rod, the weight on the lever is placed at the point that will balance the required pressure, the position of the damper in the pipe being partially closed.

Any additional pressure will of course close the damper entirely, thereby shutting off the draft and preventing the heat from escaping out of the smoke pipe, until the steam pressure decreasing the weight gradually descends, and opens the damper, admitting sufficient draft to the fire to keep the steam at the required pressure.

Thus whatever the irregularities of demand upon the boiler, this automatic damper regulator would, without doubt, control the consumption of fuel more perfectly than even a careful engineer could do it, acting independently of steam gage or safety valve, and, at the same time, adding to the economy in the use of steam, and safety from explosions.

Patented, October 4, 1870, by James H. Murrill, assignor to himself and Lewis B. Keizer. Address, for further particulars, Murrill & Keizer, 44 Holliday street, Baltimore, Md.

Important Patent Decision.

The case of *Whitely vs. the Commissioner of Patents*, recently decided by the Supreme Court of the District of Columbia, is of general interest.

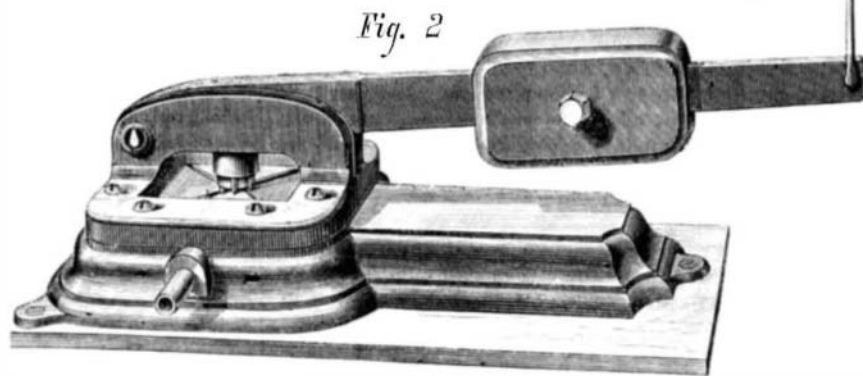
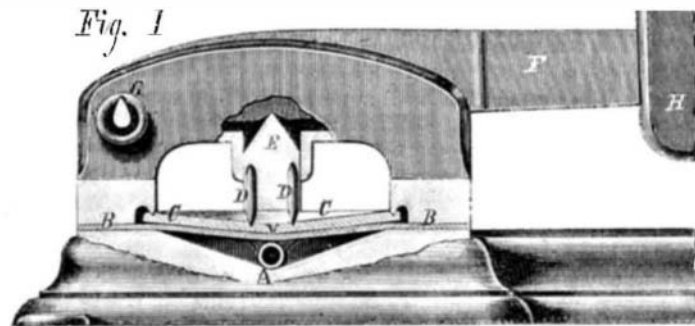
One Bethea made application for a reissued patent, which was duly allowed and issued; when, after the patent had gone out, Whitely appeared and produced an assignment of the invention to him, executed before the issue of the patent to Bethea, but not recorded until afterward, and demanded that a second patent should issue to him as assignee. The Commissioner of Patents refused, and Whitely appealed to a Judge of the Supreme Court, who ordered the Commissioner to issue the second patent as prayed, antedated to the date of surrender. The Commissioner refused to obey the order, and Whitely brought suit against him for \$50,000 damages. Upon full hearing by all the Judges, it was decided:

1. That the patent could not be issued or antedated as prayed for.
2. That the jury had no jurisdiction of the question upon appeal, and that his order to the Commissioner was null and void, and
3. That the Commissioner could not be sued for refusing to issue a patent, as he was not the issuing officer under the law. Even if a cause of action existed it was not against him, but against the Secretary of the Interior.

This disposes of a similar suit brought by the same party, under the same circumstances, against the Commissioner, in which the damages are laid at one million dollars.

Ague Poison.

M. P. Bolestra has communicated to the French Academy some observations on ague poison. He says, that in examining marsh water he always finds, in proportion to its degree of putrefaction, a granular microphyte, somewhat resembling in form the *Cactus Peruvianus*. It is always accompanied by a considerable quantity of small spores $\frac{1}{1000}$ of a millimeter in diameter, greenish yellow and transparent, and also by sporangia or vesicles containing spores from $\frac{2}{300}$ to $\frac{3}{300}$ of a millimeter in diameter, and of very characteristic form. This plant grows on the surface of the water; when young, it is rainbow-like in tints, and looks like spots of oil.

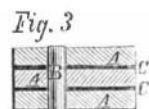
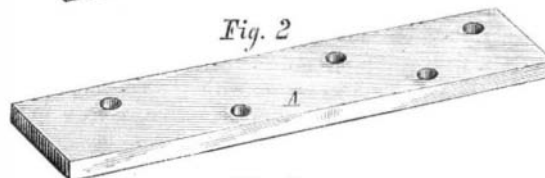
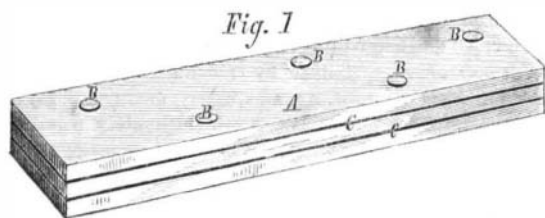


MURRILL'S AUTOMATIC DAMPER REGULATOR.

At the low temperature of cellars and in water containing no vegetation, it develops slowly, but in contact with air and exposed to solar rays, it grows fast, disengaging small gas bubbles. A few drops of arsenious acid, sulphite of soda, or, still better, neutral sulphate of quinine, stops its vegetation at the surface of the water, the spores become thin and transparent, and the sporangia alter so that they would not be recognized. These changes may be seen under the microscope. M. Bolestra states that these spores can be found in marsh air. He caught agues twice during his researches—once after having been exposed to air from water in fermentation covered with fresh algæ in full vegetation, mixed with an extraordinary quantity of spores. He thinks these spores constitute the ague poison.

TRIPLER'S RAILROAD TIE.

The railroad interests of this country have assumed such colossal proportions that any improvement relative thereto is



looked upon with interest. One of the most important features in the construction of a railroad is the cross-tie, upon the quality of which depends much of the speed and safety of travel.

The accompanying engraving represents a new feature in the construction of ties, known as the "Tripler" tie, which introduces, so far as we are aware, a novel form of construction, for which the inventor claims many advantages.

This tie is constructed in sections or slabs, A, fastened together with dowel pins, B. Each slab is coated with a vulcanite antiseptic compound, making, when united, antiseptic division walls, C, between each slab, rendering it indestructible. It presents a perfectly even surface for the rail. The antiseptics used are claimed to prevent the rust of the rail as well as the spike, while the dowel pins, being also coated with the antiseptic, the tie is claimed to be as compact as a solid one.

The tie being in sections, gives an elasticity which lessens the jar on locomotives and carriages, reducing wear and tear of the rolling stock, besides giving greater comfort to the traveler.

It is claimed that in an economical point of view these ties, on account of the durability alone, are worthy of general adoption. There are now in use one hundred and eighty millions of cross-ties, which have to be replaced every six to ten years, at a cost of \$90,000,000. The claims for durability in the Tripler tie is, therefore, if substantiated, a matter of great importance, especially as it is claimed that the expense of construction is but little over those now in use. Each tie is made to the exact measure, requiring no fitting or dressing to receive the rail, and can be laid in a much shorter time than is required for the ordinary hewn tie, thus making a saving, it is claimed, of more than their additional cost.

The Tripler tie is now manufactured in the South, and we are informed that a number of roads are adopting the improvement.

This invention is protected by patents in the United States and foreign countries. For further information address Up-

perman & Johnson, Washington, D. C., S. Marx, New Orleans, La., or F. B. Kenner, Philadelphia, Pa.

Importance of Patenting Trade-Marks.

Watches manufactured in the United States bear certain trade-marks known to the trade, and having a definite value protected by statute laws, the infringement of which is severely punished. Imported watches, however, may still be brought in with these trade-marks, the law which severely punishes the native forger being powerless against the foreign offender. Our people are thus largely swindled by cunning inferior imitations of American watches by foreign manufacturers.—*N. Y. Tribune*.

There is a remedy against such infringers in the Statute on Trade-marks, enacted July 8, 1870, which manufacturers of all kinds would do well to heed. Letters patent for trade-marks are now issued for thirty years, and may be extended thirty years more, on expiration of the first term, at a small expense. A few patent-medicine compounders and others, have already availed themselves of the privilege extended them under the new law, and obtained patents on the name, vignette, or emblem used to distinguish their manufactures from those of others. But large manufacturers of fabrics familiar to the trade, like "New York Mills" and "Wamsutta Shirts," "Merrimack Prints," etc., seem slow to avail themselves of the advantages of the protection offered them under the new law. Full particulars in writing, and copies of the law on trade-marks, may be had gratuitously on application to this office.—EDS.

THE SURRENDER OF METZ together with the army of Bazaine amounting to 173,000 men, has left the French without an organized army. Paris is so closely besieged that no supplies can reach its inhabitants, and the cry of distress is already heard. The case of France is utterly hopeless, yet, notwithstanding all this, Gambetta and his associates, who are unable to stay anywhere very long for fear of being caught by the Prussians, are urging the people to rise *en masse* to expel the invaders; but when asked for arms these crazy leaders are obliged to confess that they have none. Such folly and madness the world has not often witnessed.

KNOTS AND SPLICES.—A correspondent says: "The issue of this week of your paper, containing the drawing of various knots, is worth the yearly subscription price. Will you, or some of your readers, favor us with the different kinds of useful splices. The subject is equally interesting."

The universe never loses material nor energy.