New Inventions.

Rewarding a Military Inventor.

The London *Mechanics' Magazine* is justly severe on the British government for its disgraceful treatment of Capt. J. Norton, whose inventions have been noticed in our columns. It says :—" It seems a remarkable fact that while our governing classes have hearts so accessible to charitable emotions, and find so much time for 'labors of love' they should be sadly insensible to that, which in our plain way we prefer to charity, viz., justice and right. We say with as much confidence as sorrow that there is no civilized country under the sun in which the public administrators are more callous, more dead to honor, not to say common honesty, than they are in England. Especially is this true in respect to their conduct towards that class of men to whom this country owes far more of its material greatness than any other—the inventors and improvers of the mechanic arts." This is noble and independent language in our cotemporary and as true as it is noble. It states that the Minie ball in its best forms, the concussion fuse, the liquid fire shell, lead-coated balls for rifled cannon, and several other useful military inventions were first invented by Capt. Norton several years ago, and brought to the notice of government officials, but he neither received honor nor remuneration for them, nay, his inventions were ignored, were rejected by such officials, until years afterward when they were received from the hands of others as great and new improvements.

New Steam Boiler.

To obtain the full heating effect of any fuel, all the combustible gases, as well as the solid matter, must be allowed to meet and combine with their proper proportion of oxygen while in an intensely heated state. A considerable proportion of the effect of coal is usually lost in steam boilers by the escape of unburned hydrogen, and of the several compounds of which it forms a part.

Aside from the loss of volatile matter, properly so called, the solid carbon, when intensely heated and imperfectly supplied with air, is liable to absorb but one equivalent of oxygen and to escape as carbonic oxyd, instead of absorbing the two which are necessary for complete combustion. The change to carbonic oxyd evolves only one half—some experiments indicate but little more than one quarter—as much heat as a change to carbonic acid, and it therefore becomes important with all fuels to supply enough fresh air to completely burn these gases.

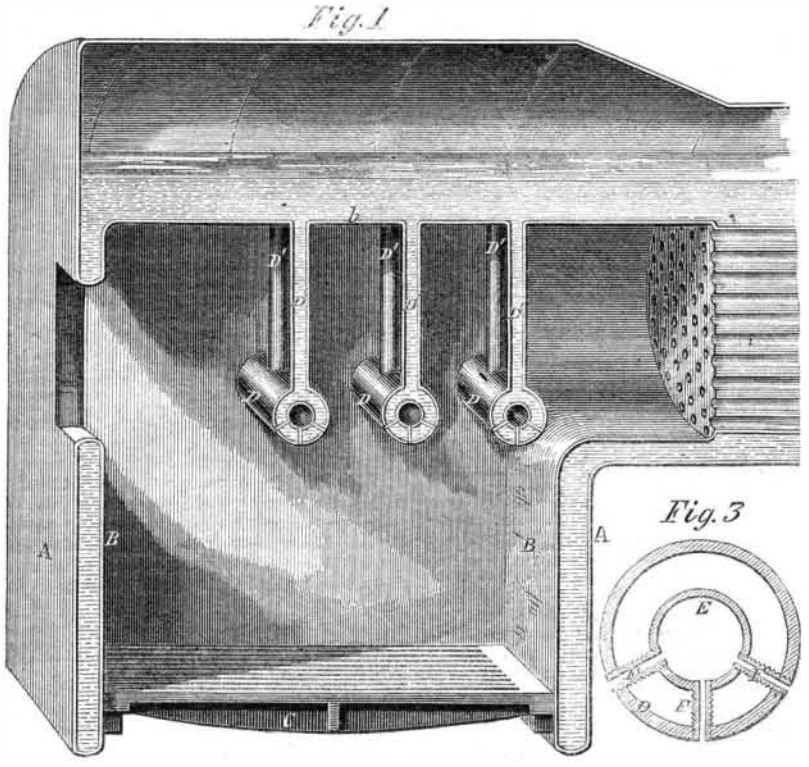
Small streams of air admitted above the grate become luminous and appear somewhat like jets of gas, but if the air is admitted in large, instead of finely divided currents, it seems to cool the furnace and produce more evil than good. The doors of furnaces have been frequently perforated, and tubular stays have, in some instances, been extended through the water-legs or sides of furnaces; but the small streams thus admitted extend inward only a little distance, and the great mass of the gases rising in the center of the fire escape unaffected and unconsumed into the chimney.

The object of the present invention is to supply such streams to the very center of the furnace. The chief difficulty in the way is to prevent the destruction of the apparatus by the intense heat. The inventors, Messrs. Samuel Pierce, of Troy, N. Y., and B. L. Griffith, of Hazleton, Penn., overcome this by enclosing air-tubes within water-tubes and providing for a very active circulation of the water, so that the double purposes are effected of protecting the parts and increasing the heating surface of the boiler.

Fig. 1 is a longitudinal section of a locomotive furnace with this improvement, Fig. 3 is a section of one of the air-pipes and its water-envelope on a larger scale, and Fig. 2 is a transverse section. A is the exterior shell, B *b* is the interior fire-box, and C is the grate. D is a tube of some six or seven inches diameter, connecting the two sides of the internal fire-box. D′ D′ are branches thereof, connecting this at several points with the crown sheet, b. E is a smaller pipe, some three inches in diameter, located within D, and extended out so as to connect the sides of the exterior fire-box or shell, A, and to form a free communication with the external atmosphere. Hollow stays, F, are inserted to connect D and E, and through these the external air received through E is allowed to

PIERCE & GRIFFITH'S STEAM BOILER.

Fig. 1



flow into the furnace. The annular space between D and E communicates with the water of the boiler, which circulates actively through, coming in from each side and ascending, mingled with steam, through the vertical pipes, D'.

The metal of all these parts, being always in contact with water, is kept sufficiently cool for their complete preservation. It might seem a disadvantage to introduce the streams of air at so moderate a temperature instead of allowing the particles to become intensely heated; but there is probably a gain rather than a loss therein in consequence of

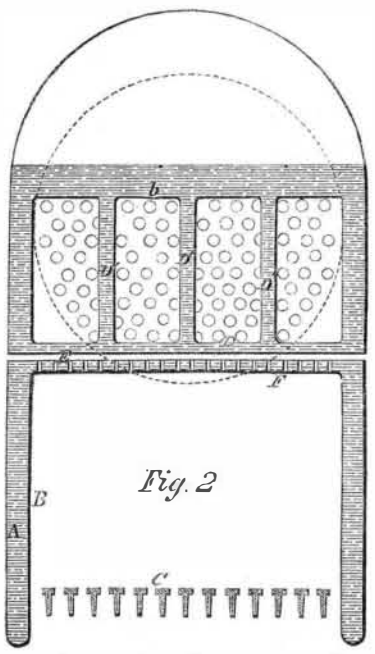


Fig. 2

the superior density of the fluid, and the invention in practice supplies the air in the very heart of the furnace and diffuses the streams uniformly throughout the whole area so as to fill the space with an intensely hot flame.

A crude and imperfect form of this invention has now been in use several months in a stationary boiler in Messrs. S. H. Ransom & Co.'s stove foundry at Albany, N. Y., and the result of its introduction has been very largely to reduce the daily consumption of fuel.

Letters patent for this invention were granted to Mr. Griffith Dec. 22, 1857, and to Mr. Pierce April 5, 1859.

For further information address S. H. Ransom & Co., Albany, N. Y.

Smith's Trace Buckle.

This trace buckle, designed as it is with a view to ensure greater security and beauty than the common one, fills a space which has long been vacant for such an invention, and will, we have no doubt, meet with a general reception by harness-makers and others.

Fig. 1 shows the buckle, and Fig. 2 the same when fastening the trace.

Fig. 1

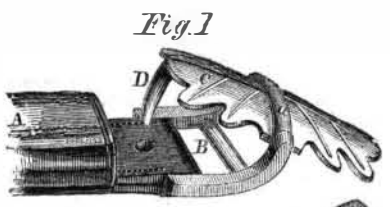


Fig. 2

A is a loop, on the end of which the buckle, B, is secured, carrying between its ends by a center, *a*, the plate, C, that has a projection or tongue, D, attached to the inner end. This tongue, D, passes through the strap, D (Fig. 2), when the trace is secured, and into a hole in the lower part of A, the plate, C, lying flat upon the top of the strap, and thus preventing any shaking out by the motion of the horse or vehicle, and causing it to become more secure as the strain increases; it can only be unfastened by bending D (Fig. 2) over the crossbar of B, seen in Fig. 1, as a fulcrum, and then pressing on the end of C to draw D, Fig. 1, out of the buckle-hole.

The inventor of this simple and secure device is O. B. Smith, of Monticello, N. Y., and he will be happy to furnish any further information upon being addressed as above. It was patented Dec. 21, 1858.

Trade-marks at Law.

Any person who devises a new name for an article and sells the article under that name, is protected by law in it as his property, which is called his trade-mark. A case of this kind was recently tried in the Superior Court of this city before Judge Pierrepont, wherein Messrs. Burnett & Co., dealers in perfumery, prayed for an injunction to restrain Phalon & Son from selling a hair-lotion under the name of *Cocoine*, which they asserted was essentially an imitation of their trade-mark "Cocoaine," which had acquired a high reputation and extensive sale.

The Judge decided in favor of the plaintiffs, and ordered an injunction to issue. The substance of his decision delivered on the occasion will be of great interest to our manufacturing readers.

The plaintiffs, Burnett & Co., contrived a new name (Cocoaine) unknown in any language, and adopted it as their trade-mark for a hair-lotion. It was advertised extensively in every important journal in this city; it attained a large sale and an established reputation, when the defendants commenced the sale of their mixture under the designation of " Phalon & Son's Cocoine." Was this contrivance calculated to mislead the bulk of unwary purchasers, and thus benefit the defendants while it injured the plaintiffs, and deceived the public? An honest answer must be in the affirmative. Every man has a right to the reward of his skill, energy and honest enterprise, and when he has appropriated as his trade-mark letters combined into a word unknown before, and has used that word and published it to the world as his adopted trade-mark, he has acquired rights which the Courts will protect. No one can appropriate a word in general use as his trade-mark so as to restrain others from using it; but the word "Cocoaine" is not a common word, and it was no hardship to restrain defendants from its use as a trade-mark. They can adopt another designation for their mixture, and there is no necessity for a close imitation of another's trade-mark. When a person adopts the similitude of another's trade-mark, he does it for the purpose of deriving advantage from the toil and invention of another to which he has no right. These legal opinions will serve as a restraining guide to those who are too ready to take advantage of the enterprise of others, to which they have no claim.

Revenue of the Patent Office.

The financial condition of the Patent Office was never in a more healthy state than at present. This is about the only department under government which is not dependent upon the income derived from our custom-houses for its support. But the Patent Office —thanks to the Inventors of our country—is not only a self-supporting institution, but is actually getting rich. We do not know what the exact receipts at the Patent Office are; but judging from the amount paid into the Treasury from *this* office, we presume the receipts must be over $4,000 per week. During the last week ending May 21, there was paid into the Treasury, to the credit of the Patent Fund, from the home office of the SCIENTIFIC AMERICAN alone, the sum of *eighteen hundred and thirty dollars.*

Steam navigation has begun with great activity on the New York & Erie Canal, this season, and the old horseboats are threatened with annihilation. The steamboats not only propel themselves but tug three or four others behind them at the same time. The steam-tug, *Beemis*, ran from Buffalo to Schenectady, last week, in five days and eight hours, towing three other boats nearly as large as itself.