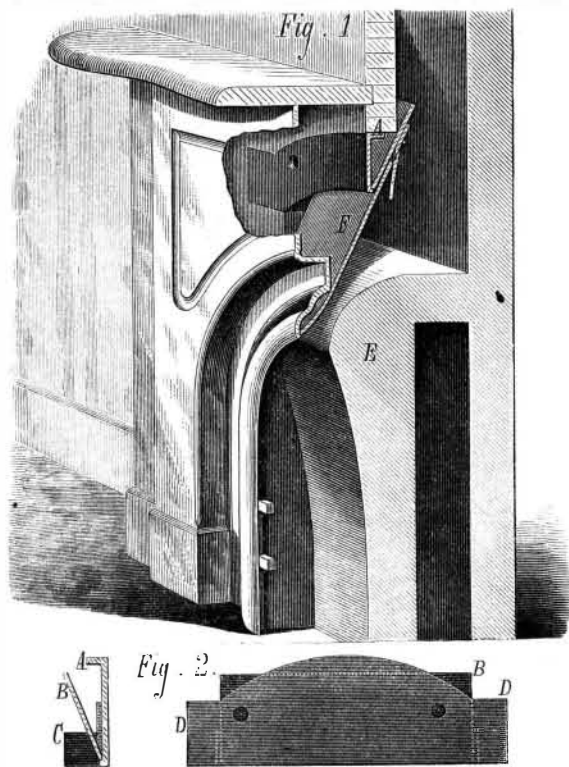


WICKERSHAM'S FIRE PLACE ARCH BAR.

The usual support for the brick arch of chimney fireplaces is a flat iron bar, made either straight or slightly curved. To this, the principal objection is the liability of obstruction to the passage of the smoke by reason of the thickness of the superincumbent brick arch or wall. In order to obviate this, the inventor of the device herewith illustrated employs an



arch bar of improved construction, and combines therewith a plate for directing the smoke. The front part of the bar has a horizontal flange, A, on its upper edge, which is turned inward and made sufficiently wide to support the brickwork above. To the lower edge of the plate, A, is united the back plate, B, which extends upward and inward at an angle of about 25°. An inwardly projecting foot, C, Fig. 2, on plate, A, centers recesses in the fireplace jambs, and thus firmly secures the arch bar. The ends of the latter, D, also project laterally and enter recesses in front of the jambs.

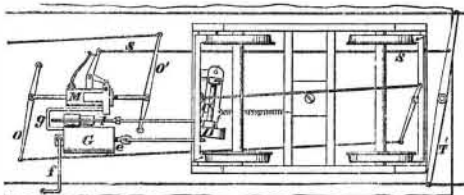
It will be perceived that, by reason of the thin lower edge of the arch bar, and also the inclination of the back plate and the smooth surface of the same, no obstruction is offered to the passage of the products of combustion into the flue. The back plate has also the additional function of turning any downward-setting current of cold air, and thus creating a whirl, which is claimed to aid the draft instead of impeding it. Another result of the employment of this arch bar is that the back wall, E, of the fireplace may be extended three or four inches higher and at least two inches forward, thus increasing the heating and reflecting surface. In practice a supplemental flange or plate, F, Fig. 1 (which has the same form and inclination as the back plate, B), is supported by a tongue pivoted on the latter, while its lower edge is attached to the framework of the grate. Holes are formed in the front plate, A, to allow of the escape of heated air into the flue. The arch bar may be cast in a single piece if desired. It appears well calculated to improve the draft of chimneys and the heating capacity of grate fireplaces, besides affording some incidental protection to mantels from the action of smoke and heat.

Patented through the Scientific American Patent Agency, May 9, 1876. For further information address the inventor, Mr. Isaac Mc'own Wickersham, Harrodsburg, Mercer county, Ky.

A NEW AUTOMATIC CAR BRAKE.

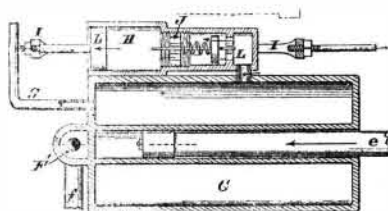
Mr. Alfred James, of Seymour, Jackson county, Ind., has patented (July 6, 1875) an automatic brake for cars, operated

Fig. 1.



by compressed air and embodying some novel and interesting mechanical features. Larger drawings than we are here able to present are necessary to convey a complete idea of its construction, but the annexed diagrams will suffice to give a general notion of the new points.

Fig. 2.



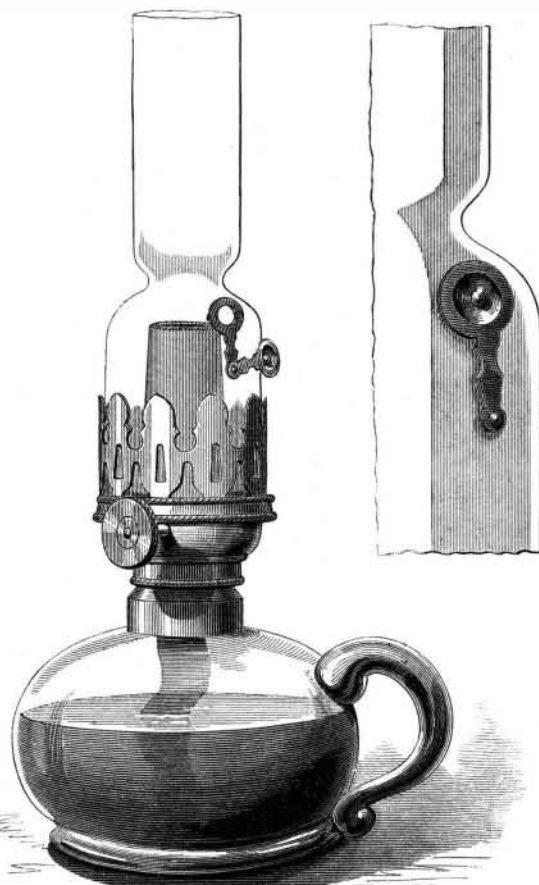
Under the car is arranged an auxiliary shaft, C, Fig. 1, carrying a friction wheel, D, which, by the action of a coiled spring, is drawn against and rotated by the car axle when the vehicle is in motion. A pitman on the wheel, D, con-

nects with the rod, e, Fig. 2, which draws in air through the opening, F, whence a pipe leads to the roof of the car. This air is compressed in the annular chamber, G, beside which is a cylinder, H, in the larger bore of which is a plunger, A, which acts on a yoke, I, which last connects with the swinging frame in which the shaft, C, is mounted. The small bore of the cylinder, H, has an adjustable nut, J, and a valve acted upon by a spring, which valve, when opened, allows access of air from cylinder, G, behind the plunger, A. At M, Fig. 1, is the brake cylinder, in which are two pistons, moving in relatively opposite directions so as to act on the brake levers, o o'.

The air pressure at which it is required to operate the brakes is regulated by adjusting the valve in H. As soon as pressure is generated in G, the air passes to the brake cylinder, M, and shuts the inlet valve there located. As soon, however, as the desired point is exceeded, the valve in H opens, the air enters behind the plunger, A, acts on the yoke, I, and so pulls the friction wheel out of contact with the axle, thus stopping further storage of compressed air. Now when the brakes are to be applied, the engineer pulls a cord so as to swing the lever, T, as shown in Fig. 1. A rod connected to this moves a bell crank on the brake cylinder, to close a discharge valve thereon. By suitable mechanism, the inlet valve is then opened, the compressed air forces the pistons outward, the brake levers are acted upon, and the brakes applied. The brakes can be thus thrown into action on any single car or any number of cars. No special engine is required to compress the air, as the power is obtained by the advance of the train. The accidental uncoupling of the cars is sufficient to throw the brakes into action, and injury to the brake system under one car has no effect on the rest of the train. The inventor may be addressed as above.

TOLMAN'S IMPROVED LAMP CHIMNEY.

We illustrate herewith another simple patented household convenience, from which no doubt a considerable sum will be realized. It consists of the ordinary lamp chimney with a hole through it, by which the necessity of removing the



same in order to light the wick is avoided. The device is shown in full size in Fig. 2, and the chimney attached to the lamp in Fig. 1. The hole has an eyelet fitted in it, from which extends a shank downward, to form a support for the cover, the stem of which is pivoted. The shank and stem are set so as to spring the cover slightly into the aperture, which is tightly closed by the convex side of the cover pressing against the eyelet. Simple as this invention may seem to the general reader, it belongs to that class of patents which often produce to the inventor much more money than greater inventions on less used machines.

Patented through the Scientific American Patent Agency, May 30, 1876. For further information address the inventor, Mr. Elijah Tolman, Jr., P. O. box 48, Taunton, Bristol county, Mass.

William D. Russell.

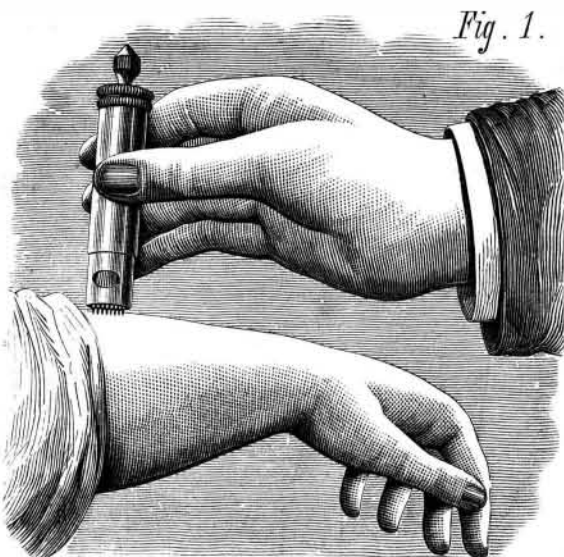
By the death of Mr. William D. Russell, president and business manager of the Baxter Steam Engine Company, Newark, N. J., loses one of her most energetic and prominent citizens. On Friday evening, June 16, Mr. Russell returned to his home from Philadelphia, and at about ten o'clock was taken ill. A physician was at once summoned, and pronounced his attack one of paralysis. Shortly after midnight he fell into a stupor, and died in the morning from affection of the brain. His disease is supposed to have been caused by mental strain, in view of pressing business engagements, and possibly from being overheated while at Philadelphia. Mr. Russell was for many years engaged in the rubber business in New York city, but some years since became a large stockholder in and president of the Baxter

Steam Engine Company. He was also interested in the Baxter Steam Canal Company.

We have known Mr. Russell for many years, and can attest his many good qualities. He was genial and pleasant in his intercourse with men, and will be missed by a large number of personal and business acquaintances.

ELLIOTT'S APPARATUS FOR APPLYING CROTON OIL.

Croton oil and other substances possessing similar qualities are used by physicians as counter irritants to subdue and destroy internal or deeply seated diseases and to induce or substitute therefor a superficial inflammation. The external application of this medicament is attended with very



beneficial effects; and in order to admit of said application in an easy and expeditious manner, to avoid unnecessary suffering to patients, and to insure a proper deposition of the irritant, the present device has been contrived. Fig. 1 shows the method of its manipulation, and Fig. 2 its internal construction.

The apparatus consists of a case or tube containing at one end a reservoir for the reception of the irritant. At the bottom of the case a roller is pivoted, the whole periphery of which is studded with needle points projecting a short distance from the surface. The position of the roller within the case is such that a portion only of its diameter projects beyond the lower open end. The irritant is conveyed to the roller by means of a peculiarly constructed tapering stopper, the lower portion of which is contained within a circular brush, the featherends of which rub against the needle points.

The operation of the instrument is as follows: The croton oil is conveyed to the roller by slightly loosening the taper stopper in its seat, an application which is greatly facilitated by the double milling on its flanged head. The oil runs down the brush, and is evenly spread upon the needle points as they pass through the brush, each point being entirely and freshly coated with oil at every revolution of the wheel; thus, as the roller is passed up or down on the surface upon which the counter irritant is to be applied, no needle point enters the skin without leaving a deposit; and a peculiar advantage that this mode of applying the oil has over the ordinary method is that the needle point enters and leaves the skin at different angles, thus enlarging the hole at the bottom of the puncture and causing the oil to be deposited therein. Another advantage is that, on tender or particularly painful spots, the roller can be applied with the utmost delicacy of touch, in a striking contrast to the application of the pounding instrument now in use. And lastly, a large amount of surface can be perfectly, as well as expeditiously, covered or acted upon.

The invention was patented in Canada, February 1, 1876. For further information address the inventor, Dr. J. W. Elliott, Box 76, Toronto, Ontario, Canada.

Or-Moulu.

The or-moulu of the brass founder, popularly known as an imitation of red gold, is extensively used by the French workmen in metals. It is generally found in combination with grate and stove work. It is composed of a greater portion of copper and less zinc than ordinary brass, is cleaned readily by means of acid, and is burnished with facility. To give this material the rich appearance, it is not unfrequently brightened up after dipping by means of a scratch brush, the action of which helps to produce a very brilliant gold-like surface. It is protected from tarnish by the application of lacquer.