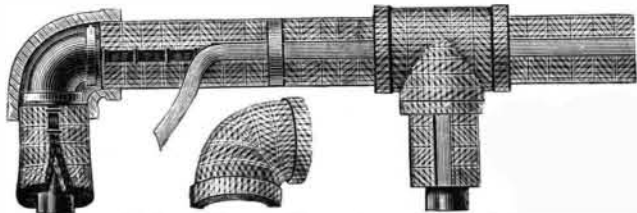


INSULATED COVERINGS FOR PIPES, BOILERS, ETC.

The saving effected by jacketing boilers and steam pipes with an insulating covering is a point very frequently neglected in establishments where the steam plant is only a small one, or of moderate size, although justly deemed an elementary consideration whenever the consumption of fuel is large. The careful insulation of pipes is also of vital importance in every case where it is desired to convey steam to a distance, either for purposes of power or heating, without regard to the direct cost of fuel. Engineers and inventors have, therefore, given much study and made many experiments, to the end of making the best possible and most easily applied coverings for pipes and boilers, to save fuel and insure a supply of hot and dry steam at a distance from the boiler. Such a covering, as manufactured by the Shields & Brown Co., of New York and Chicago, is illustrated herewith, being a sectional cov-

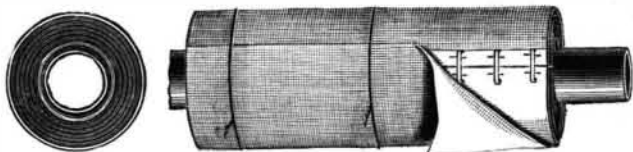


ering which can be readily put on and quickly removed and replaced by an ordinary workman, while it is adapted to every shape of steam surface and every bend and angle in a job of pipe fitting.

These coverings are made on the principle of employing two or more layers or sheets of felt, or other non-conducting material, held together longitudinally by being fastened or cemented on the edges where the sections are divided, confined air being contained in larger proportion throughout the covering by the use of corrugated sheets of felt.

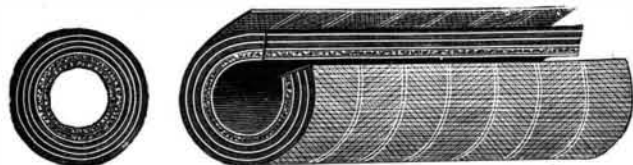
These coverings are made in sections three feet long, and are composed throughout of alternate layers of asbestos sheathing and corrugated soft-wool felt. The layers are secured together by being stitched longitudinally of the section with two rows of small wire staples, and then the sections are cut open between the two rows of staples. By this combination of asbestos, wool felt, and air in combined cells, a sectional covering is produced that is not only neat and attractive in appearance, but one which can be applied with the utmost facility by ordinary workmen, while it is unsurpassed as a non-conductor for steam-heating surfaces. The large amount of asbestos sheathing used in these goods makes them more durable than any other felt coverings, and their use has been approved by insurance underwriters in all the leading cities.

The adaptability of these coverings to special uses is perhaps best shown in their employment on recently introduced systems of steam heating on railroad trains. In such uses it is especially important to protect the exposed pipes running under or between the cars, while the covering must be strong, compact, and durable, to stand the jarring of the train. For such purposes the



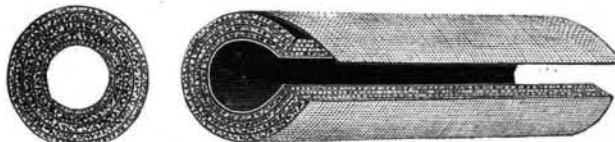
company make a covering of a heavy wrap of asbestos next the pipe, then three-quarters of an inch of wool felt, then a wrap of asbestos on the outside, and a canvas jacket over all. The different layers of felt and asbestos are held together by being stitched with wire, and are easily applied, taking but little time to put them on and make a neat and complete job. The company has recently made a large contract with one of the leading trans-continental lines for the supply of these coverings on pipes to be used on steam-heated trains.

The company also make a union sectional covering, made of asbestos sponge (a combination of asbestos fiber and sponge) with asbestos sheathing and wool



felt, and adapted to stand a steam pressure of 80 to 100 pounds. It is very light and porous on the inner side, next to the pipe, while the outer half of the covering is made more solid and compact by the use of asbestos sheathing and wool felt. The outer surface is of corrugated wool felt, the goods being stitched with wire, and put up in such shape that they possess a high degree of durability as well as the best non-conducting qualities.

Another variety of the same goods made by this



company is their indestructible sectional coverings, made entirely of asbestos and sponge, incased in a can-

vas jacket. They are very light in weight, while strong and flexible. They are made in sections three feet long, to fit all sizes of pipe, and a full line of fittings is also made of the same material. They are intended to cover pipes carrying the highest pressure of steam, being absolutely fireproof, and can be supplied with an asbestos waterproof jacket if desired.

All of the coverings of the Shields & Brown Co. are adapted to be fitted to pipes and boilers in such way as to provide an air chamber between the pipe or boiler and the covering if desired. For this purpose asbestos rope collars are supplied, to be placed on pipes at intervals of about a foot, small clamps being furnished with each collar, by which they are readily attached. By applying sectional coverings in this way, the covering is raised above the rivets and bolt heads, making the outside surface symmetrical, while affording a confined air space which makes the best of all insulators.

The Shields & Brown Co. also manufacture a special quality of covering largely used by gas companies for covering service pipes, as well as supplying complete coverings for all steam surfaces, in such shape that any ordinary mechanic can apply them. The offices of the company are at 143 Worth Street, New York, and 240 and 242 Randolph Street, Chicago, Ill.

Willow and Willow Wares.

The willow ware industry has been slowly increasing in our Eastern States of late years, but is as yet in its infancy. The immense unutilized areas of land along our many rivers, portions of the sea coast, and of some uplands and prairies not suitable for any other agricultural pursuit, invite capital and energy to invest in the production of osier, chiefly for the manufacture of basket ware. According to the census of 1880, there were in the country 304 willow ware establishments, with a capital of \$1,852,917, engaging 3,119 hands, paying annually the sum of \$657,405 for wages, and producing \$1,992,851. The value of materials consumed was \$867,031, of which, however, but a portion was produced here. The importation of both raw and manufactured material will be greatly reduced, and the demand for willow ware materially increased, if the profit to be derived from a systematic production of osier becomes once better generally understood.—*Insect Life*.

AN IMPROVED SPEED INDICATOR.

An extremely simple speed indicator, which can always be readily applied, is shown in the accompanying illustration. By simply pressing the point against the end of a shaft, the dial will indicate the speed at which the shaft is running, an extra-hardened point being made for use on dynamo machines that will indicate up to 5,000 revolutions per minute. It will indicate either a right or left hand motion, and is so simple in construction that it is not liable to get out of order. The index point can be put at zero with the finger, instead of turning the dial all around. The owners and manufacturers of this speed indicator are Messrs. Chandler & Farquhar, No. 179 Washington Street, Boston, Mass.

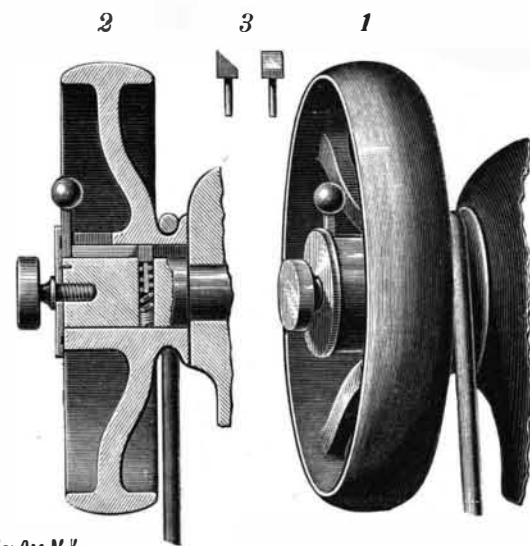
A Successful Inventor.

We wish all American inventors could reap as bountiful a harvest of fortune as Hiram Maxim, of New York, who has received \$850,000 for his last production, the quick-firing gun, in England. The first Maxim essay, the small one-barreled mitrailleur, has not been a success except in theory, the tremendous discharge of 1,000 shots per minute soon being too much for any single bore, however excellent of design or material. Maxim may be fairly accounted a prospective millionaire, having previously to his ordnance inventions received some \$100,000 in the United States for his electric lighting patents. He is still a young man, and resides at Thurlow Lodge, which he has purchased, about twenty miles from London. The old mansion, surrounded by very fine grounds, is one of the historical English houses, having been the property and home of Lord Thurlow, the great English Chancellor.—*Army and Navy Jour.*

AN IMPROVED FLYWHEEL CLUTCHING DEVICE.

An automatic loose and fast attachment for sewing machines, whereby the flywheel may be made to revolve with the shaft in one direction and independently of it in the opposite direction, and may be virtually disconnected therefrom, to turn independently of the shaft in either direction, is illustrated herewith, and has been patented by Messrs. J. A. Romano and Ernest A. Barton, of Celaya, Guanajuato, Mexico. The portion of the driving shaft on which the flywheel is hung has a diametrical aperture, mostly rectangular, but circular at one end, in which is held a latch, shown in Fig. 3, surrounded by a spiral spring. The hub of the flywheel has a horizontal groove on its inner face, and an opening in its outer surface intersecting the groove, a locking bolt being held within the groove and opening, a horizontal member of the bolt sliding in the groove, while the vertical member is adapted to the opening. The lock bolt has, at the extremity of its

horizontal member, an inclined or beveled surface adapted to engage the inclined surface of the latch head. When the flywheel is turned from right to left, the shaft is rotated, as the side wall of the groove in the flywheel then engages the perpendicular face of the latch head; but in turning the flywheel the other way the groove comes in contact with the beveled sur-



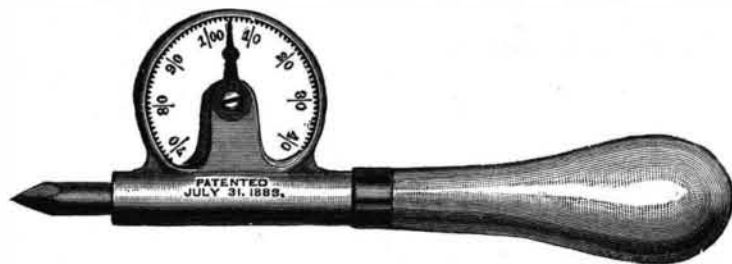
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ROMANO & BARTON'S FLYWHEEL CLUTCH.

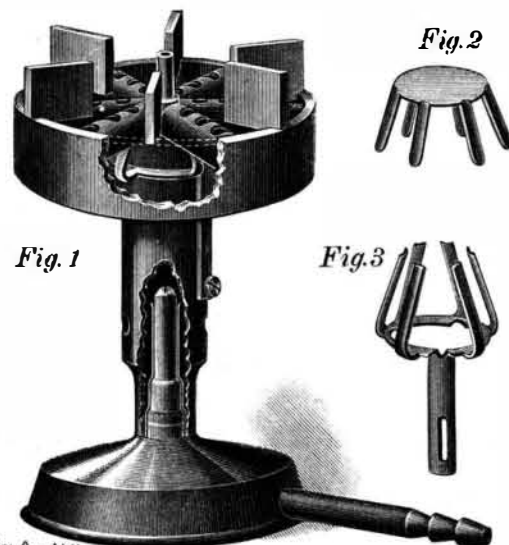
face of the latch head, pressing the latch downward against the spring into the shaft, so that the flywheel revolves free of the shaft. By passing the locking bolt to the inner extremity of its groove, the latch in the shaft will be held in its aperture to permit the flywheel to revolve freely in either direction without operating the machine.

AN IMPROVED GAS STOVE.

A gas stove which can be readily regulated to burn a small flow as well as a large, full flow of gas is illustrated herewith, and has been patented by Mr. Clarence L. Bisbee, of No. 198 Seventeenth Street, Brooklyn, N. Y. A cylindrical chamber, having draught openings in its lower portion, is made to fit upon the gas jet tube, and cast with this chamber, as one casting, are hollow arms, with a surrounding flange, and upright pieces rising

**FWLER'S SPEED INDICATOR.**

from the upper edge of the flange, so that the whole stove is made in one piece. There are upper and lower openings in the hollow arms, the gas burning at all the upper openings when fully turned on, and when the gas is partly turned on it is burned at the inner openings only, being cut off from the outer openings by the air passing therethrough. The regulator, shown in Fig. 3, may be attached to the circular chamber by a slotted arm and set screw, and has upwardly projecting plates, slightly concave, to fit against the inner edges of the upper apertures in the hollow arms, to impede the flow of gas to the outer ends of the arms, but will be burnt mainly, when turned down, at the angles of and between the arms, insuring a perfect combustion within a small limit. In Fig. 2 is shown another form of regulator, to be placed upon the cylindrical chamber, when the side plates project down into the openings of the hollow arms to effect the purpose of a regulator.



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BISBEE'S GAS STOVE.