

**THE MANUFACTURE OF HORSESHOE NAILS.**

[Continued from first page.]

another. The beams, girders, and stairways are entirely of iron. It is, as a whole, an example of the most approved fireproof construction.

The machinery is driven by two Corliss engines of 150 horse power each, one of which appears in the rolling mill in the lower portion of the front page view, the other is employed in driving the nail machinery shown in the other views. Only the best Swedish iron is used in the manufacture of these nails. It is reduced to the required form in the rolling mill, being first heated in the furnaces shown in the background, and afterward passed between a succession of rolls, which reduce it in thickness, elongate, and shape it for the operation of punching. On finally leaving the rolls the iron is conveyed to the press room, shown in the upper left hand view on the title page, and is automatically fed to power presses, which cut the nails from the strip with uniformity and accuracy. Being worked in oil through the several processes of manufacture and finishing, the iron is not liable to rust while in store or in transit.

From the presses the nails go to the tumbling cylinders where they are smoothed by attrition, after which they are pointed, and stamped with the Globe Nail Company's trade mark in the finishing room shown in the upper right hand view in the title page engraving. The machines here employed are attended by girls. After this operation the nails are again tumbled, and are finally conveyed to the assorting room, where each nail receives individual attention. Those having

wearing out and destroying what this establishment is trying to supply. In all times and seasons horseshoe nails, like staple articles of food, are in constant demand.

The nails made by the Globe Nail Company have been steadily growing in favor since their introduction ten years ago so that it has been necessary to enlarge their works and increase their facilities from time to time, having now attained such proportions as to entitle it to the highest place in the front rank among the similar industries of the world.



**Fig. 2.—ASSORTING ROOM.**

As an evidence of the public appreciation of their goods the company point with commendable pride to the fact that at every World's, National, State, County, and Industrial Fair, where their horseshoe nails have been exhibited, they have received the highest awards. At the recent Exhibition at Paris, this company received two gold medals, being the only gold medals ever awarded for horseshoe nails.

The marked success of this concern is due to a careful selection of material, scrupulous care in manufacturing and assorting, and the adoption of improved labor-saving machinery, by which the product is not only cheapened, but made better.

**PNEUMATIC REGULATOR FOR CLOCKS.**

The pneumatic clock regulator represented by the accompanying engravings is the invention of Mr. E. J. Murybridge, of San Francisco. It is intended to regulate with accuracy a certain number of clocks located in different parts of large cities.

The pneumatic regulator may be applied to any ordinary clock operated by weights, springs, or other motive power. It consists of a series of hollow bells, plunging into and emerging alternately from vessels filled with a liquid; by this means the air within the bells is compressed and forced through tubes into a second vessel filled with the same liquid, where the tubes end just below a second series of bells corresponding in number to the clocks to be regulated. From here the air acts directly on the gearing

of the second and minute hands of the clocks. The further details are easily understood from the engravings. Fig. 1 represents the clock combined with the regulator, which acts on the clock, represented by Fig. 2, which may be situated at any distant point.—*La Natura*

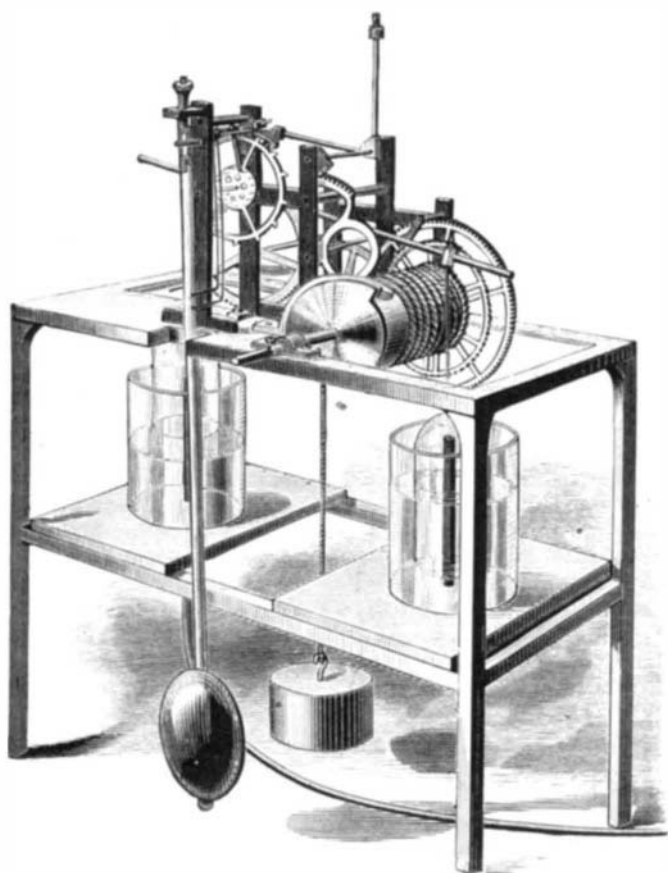
**A FAST FIRE ENGINE.**—Switzerland exhibited at Paris a self-propelling fire engine, which traveled to the Exhibition, a distance of 250 miles, in eighteen hours. This was a very good performance, being over 14 miles an hour.

**Dangers of Arsenic.**

In a series of samples of glazed and plated papers examined for the Massachusetts State Board of Health, and intended to be used largely by children, Professor E. S. Wood has found arsenic present in dangerous amount in all but one of the greens, one scarlet, and one red, and a small quantity in one blue and one chocolate brown.

The Denver (Col.) *News* publishes the following: "For some weeks past a local physician has been attending a young lady who has exhibited every possible indication of arsenic poison. Her appetite failed her, and her face became of a ghastly pallor, while the features were bloated and her eyes watery, with swelling of the lower limbs. Day by day her body was racked with intense pain, and finally her condition became so unendurable that she almost longed for death to put an end to her sufferings. The physician was satisfied from the beginning that she was afflicted with some disease produced by arsenic poison. But the most rigid investigation failed to reveal in what possible way it could have been administered to her. Her food was inspected, the water she drank was most carefully selected from the wells, where no impurity by any means could find its way

into it. By the merest accident in the world the cause of this remarkable condition was discovered. The doctor happened to be present when the young lady's clothes were brought home from the wash. The singular luster of the linen struck him as remarkable. He inquired who did that washing, and was told that an old negro woman whose great skill in polishing linen made her very popular with the girls. The doctor thought he was now on the road to the discovery, and concluded for the nonce to play an amateur detective. He visited the old woman, and soon learned that her "polish" was produced by the use of arsenic in the starch. Then the whole case was plain. The girl was

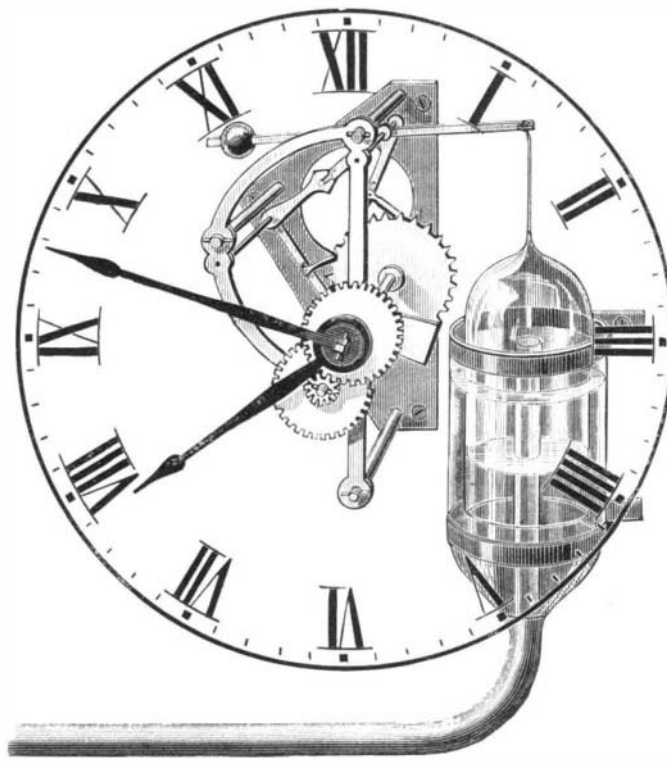


**Fig. 1.—PNEUMATIC REGULATOR FOR CLOCKS.**

the least imperfection are rejected, and only the absolutely perfect ones are packed for shipment.

These nails are far more perfect than hand-made nails, and as they cost but very little more than the iron from which they are made, it is obvious economy for every horseshoer to use them.

The nails made by this company not only find their way into all parts of this country, but are sent to Europe in large quantities, where they successfully compete with those of English manufacture. Millions of horses are constantly



**Fig. 2.—PNEUMATIC CLOCK.**

afflicted by arsenic poison produced by absorption. Being of a peculiar temperament and organization, she incurred a danger which others might have escaped. Respiration aided it, and her bodily susceptibility to the fatal drug conspired to produce the dangerous condition which has just been detailed.

**A RICH** growth of sponge has been found in the harbor of Key West, Fla. One man with a few small boats lately secured \$10,000 worth in two days.

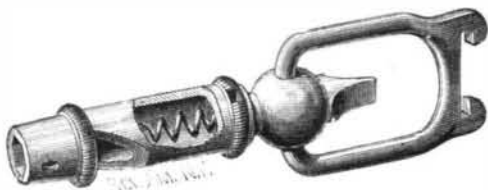
**Starvation in the Nursery.**

The London *Lancet* asserts as a fact of daily experience by physicians in that city, that large numbers of persons occupying decent positions in society, systematically starve their children in respect to that article of food which is most essential to their nutrition. We have reason to fear that the practice is not unknown in the nurseries of well-to-do people here. So far as our observation goes, however, the practice is attributable wholly to popular ignorance of the needs of growing children, or children that ought to be growing, but are not. The *Lancet* is of opinion that the stint is a simple meanness, a pitiful economy in respect to matters not open to the observation of observant friends. Instead of giving children their unstinted fill of milk, even though the dairyman's bill should come to nearly as much as the wine merchant's, such persons give their children cocoa with water, and not always a suspicion of milk; corn flour with water just clouded with milk; tea, oatmeal, baked flour, all sorts of materials, indeed, as vehicles of milk, but so very lightly laden with it that the term is a sham. The consequence of this misplaced economy is that there are thousands of households in which the children are pale, slight, unwholesome looking, and, as their parents say in something like a tone of remonstrance, "always delicate." Probably in nine cases out of every ten the "delicate" child is simply a child that is or has been starved.

**A NEW GUN TOOL.**

The novel little tool shown in the accompanying engraving comprises a whistle, screwdriver, socket wrench, shell extractor, and corkscrew combined in compact and usable form.

The tube which forms the body of the whistle is also the protector or casing of the corkscrew. The mouth of the whistle forms a socket wrench, the opposite end the screwdriver. The pendant is sprung into the bulb at the end of the whistle, and has two hooks which span the base of a center fire shell, and may be used to withdraw it from the gun should the shell retractor fail to work. A hole is drilled in the mouth of the whistle to slip over the pin of a pin fire shell when it is required to draw it from the gun. When the device is used as a socket wrench, the pendant is unscrewed



**BARTHEL'S GUN TOOL AND WHISTLE.**

from the whistle and reversed, the straight portion being placed in the notches in the end of the whistle tube.

This tool is a fair example of the ingenuity of Americans in economizing space and materials.

**A NOVEL DOOR CHECK.**

The door check shown in perspective and in section in the accompanying engraving is designed to prevent the violent shutting and slamming of doors; it is especially intended for doors that are frequently opened and closed, but may also be applied to rolling shutters, hatchway covers, etc. In this device an air cushion is employed as a means of arresting the motion of the door, and its resistance may be varied according to requirements.

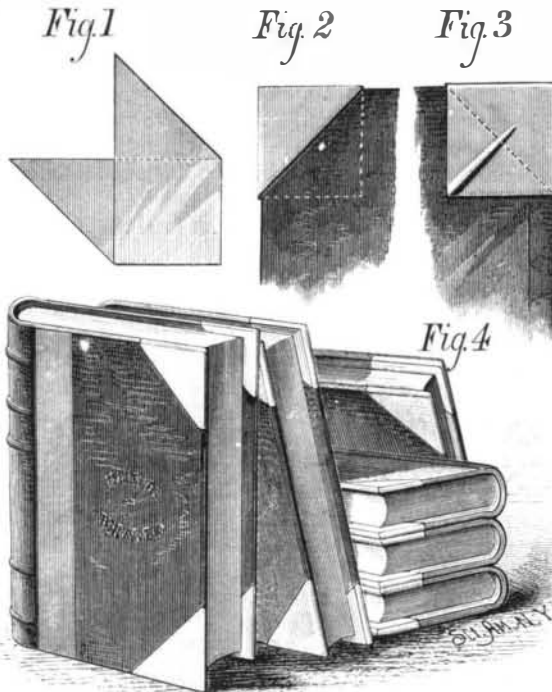
A cylinder, D, containing a piston and valves, is secured to the door casing at the hinged side of the door, and a cord which is connected with the piston rod runs over a pulley, f, at the top of the door, and is connected with a pivoted sector, G, supported by a bracket, K, projecting from the casing.

A rubber covered roller, L, turns on a stud projecting from a bracket attached to the top of the door, and rolls on one of the radial edges of the sector, G. The cylinder, D, contains a piston, E, and has at the top a valve chest inclosing two valves, M P. The valve, P, is pressed upward by a spiral spring against an adjusting screw in the cylinder head; it is designed to close the passage between the upper and lower ends of the cylinder, so as to control the escape of air from the upper to the lower end of the cylinder through the longitudinal passage shown in Fig. 2, and thus regulate the motion of the piston, E. The valve, M, is contrived so that it rises as the piston descends, and opens communication between the upper and lower portions of the cylinder. When the door is opened the piston, E, drops of its own weight, compelling the sector, G, to follow the roller, L. When the door is closing the roller moves along the curved side of the sector and turns it on its pivot. The piston, E, is, by this means, raised against more or less air pressure, offering more or less resistance to the closing of the door. The resistance of the air may be varied by opening or closing the valve, P, by means of the adjusting screw.

This invention was recently patented by Mr. G. S. Perkins, of Hartford, Conn., from whom further information may be obtained.

**A NEW PROTECTOR FOR BOOK COVERS.**

The device shown in the accompanying engraving is for the temporary protection of the corners of books during handling, packing, and shipping. It is made of any thin sheet metal in the form shown in Fig. 1, and it is applied by binding the part B down over the part A, along the dotted line, and bending the part B' over it so as to



**WAY & RANKIN'S CORNER PROTECTOR FOR BOOKCOVERS.**

form a triangular pocket over one half of the surface of the plate, A, as shown in Fig. 2. This pocket is placed on the corner of the book cover, when the ears, B B', are pressed down firmly, completing the protector and at the same time fastening it to the book cover. The plate, A, has a diagonal stiffening rib, a, formed in it in the process of manufacture. The advantage of this device will be apparent to those who have the handling of quantities of books. A corner once injured can never be restored; the book is damaged and must be sold at a discount. The device shown in the engraving is effective, simple, and cheap, and is well calculated to protect book corners so that they cannot be injured by ordinary handling.

This invention was recently patented by Messrs. Way and Rankin. Mr. B. G. Way may be addressed at New Lisbon, O.; W. A. Rankin, at Cleveland, O.

**Revolution in Tanning.**

Professor Knapp proposes the use of a basic ferric sulphate instead of oak bark or other tanniferous material. He adds to a boiling solution of copperas the quantity of nitric acid requisite for the peroxidation of the iron, and after the reaction is over adds more copperas. The hides are suspended in the cold solution at a suitable degree of concentration, and are ready in from two to four days.

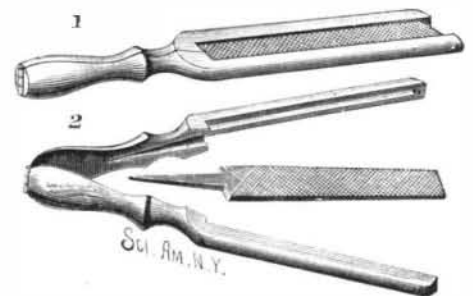
**How Oysters are Freshened at Baltimore.**

A new system of treating oysters is now practiced at Baltimore, by which their value is very much increased. The oysters obtained from Tangier Sound, Lynnhaven, and the kind called "seaside oysters," are rather small, although inclosed in large shells. These oysters when dredged and brought to the Baltimore market, are sold there at about 60 cents a bushel, but when freshened their value is enhanced at least 150 per cent. The manner of proceeding is somewhat different from the common practice of "floating" oysters at the East.

The oysters are transferred from the pungies on to the decks of covered scows that will each carry a deck load of about 600 bushels of oysters. The scows are then towed to a point in the Patapsco River where the water is quite shallow, and then sunk by letting water through a valve into the hold. The scows are left in this position during two flood tides, when the water is pumped out and they are then towed to the city again. The change from the salt to the fresh water swells the oysters until what were originally comparatively insignificant oysters, worth but 60 cents a bushel, become plump and luscious, fill entirely their immense shells, and command in the market from \$1.50 to \$1.60 a bushel. Two of the largest packing houses in Baltimore are engaged in this business, keeping 12 scows constantly employed. The whole operation is under the supervision of one man, who undertakes the freshening for a consideration of 10 cents a bushel, the packing houses referred to finding all the appliances.

**AN IMPROVED FILE GUARD.**

The accompanying engraving represents an improved file guard intended for use in mints where coins are reduced to a uniform weight by filing. It is customary to place a file on a table and remove the surplus metal by rubbing the edge of the coin on the file. As the files used in this operation must be new and sharp, the fingers are unavoidably brought into contact with the file and are soon skinned and sore. The guard shown in the engraving receives the file between its



**FILE GUARD.**

two halves, and, being raised a little above the surface of the file, prevents injury to the fingers.

When a file becomes worn and dull it may be readily removed and replaced by a new one.

This simple but useful device is the invention of Mary P. Ayers, of San Francisco.

**RECENT ENGINEERING PATENTS.**

A boiler furnace, capable of consuming smoke and gas evolved from the burning fuel, is the invention of Mr. Cyrus Smith, of Irwin's Station, Pa. It is stated that it will utilize all of the fuel and the heat generated from it.

Mr. G. T. Snyder, of Natrona, Pa., has devised a novel boiler, in which the main cylindrical portion is supported in a hollow casing or water leg, which forms the fire box. The two parts of the boiler are connected by inclined tubes.

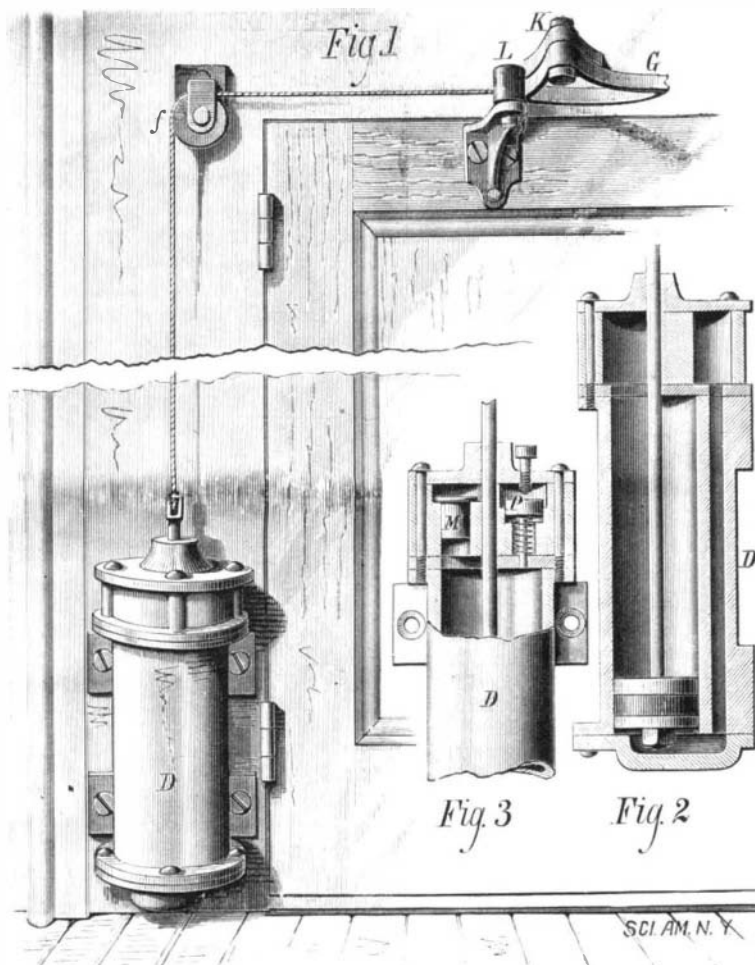
A rotary valve for steam engines, consisting of two cylindrical valves placed upon a common stem or shaft which is revolved by connection with the engine, is the invention of Mr. C. A. Knowlton, of Kankakee, Ill. The valves have a plurality of ports, and are made tapering to admit of adjustment to compensate for wear. A simple and novel reversing gear is attached.

An improved tool for cutting flues out of boilers has been patented by Mr. J. H. McGraw, of Oswego, N. Y. The tool head carries revolving cutters, and may be inserted in the tube and expanded by a wedge pin while it is turned by a wrench to cut the flue.

Mr. C. Schirrmeyer, of Brooklyn (E. D.), N. Y., has invented an improvement in sewers which is designed to prevent the back flow of sewage, and in this way to prevent the driving out of noxious gases.

An improvement in angloimeters, devised by Mr. J. V. Capeck, of New York, N. Y., consists of a series of proportional wheels, having pointers and dials. The wheel train is connected with a wheel upon which a telescope or pointer is mounted.

Mr. P. Bardou, of Galveston, Texas, has patented a water tank which is formed of wood, with cleated seams and corner strips, the whole being coated with asphaltum, so that the wood is not affected by moisture.



**PERKINS' DOOR CHECK**