

## NEW INVENTIONS.

## Spike-Making Machine.

A machine of the above description has been lately invented by H. B. George, of Nashua, N. H., who has taken measure to secure a patent. It consists of a pair of jaws furnished with a knife, for cutting the heated bar of iron to a proper size, the distance for inserting the bar being regulated by a stop, which is attached by a pivot to the table or platform, on which the whole apparatus rests. These jaws are curved, so that when the front ends are open the inner ones are closed, and vice versa. To operate them a crank is turned, which moves back and forth by means of a slide and toggle-joint, an action block connected with the jaws and also with the header. The action block, when drawn back its full distance, allows two springs attached to the table to throw inwards the inner ends of the jaws, and consequently to distend the outer ends, the bar is then inserted, and the movement of the crank being reversed, the action block is forced forwards and opens the inner ends of the jaws, and closes the outer ones. The header, which consists of a vibrating arm, is also moved forward at the same time, and forcing aside the stop forms the head of the spike by compressing the end of the iron bar against the inner side of the jaws in a small recess. While the jaws are closing the cutting edge of the knife, which works on a pivot on the upper surface of one of the saws, is moving outward, and coming in contact with the bar, cuts it off with a bevel. On reversing the movement, the action block is drawn back, the jaws are again opened and the spike now complete, falls out from between them.

## Plastering Machine.

A machine for the purpose of superseding manual labor in the operation of plastering walls, has been invented by Isaac Hussey, of Harveysburgh, Ohio, who has taken measures to secure a patent. It consists of a movable frame upon rollers that can be adjusted to suit any height, and of a smaller frame sliding within it. The latter serves to support a mortar box containing the trowel, which is raised and lowered by means of a drum and endless chain. When in operation the trowel is supplied with mortar by a rod and follower, which are worked by a lever, the quantity being regulated or shut off, as required, by a slide that covers the opening in the box. For plastering ceiling it is only requisite to raise the mortar box to the top of the frame, and for side walls it is adjusted accordingly by turning it to a proper position. For this last-named operation the box is shifted by the sliding frame, which is moved back and forth for that purpose by means of the already-mentioned lever. There are also various cords and pulleys attached to the machine for facilitating the operations of the different parts, which are included in the invention and form a part of it.

## Improved Clover Thresher.

In order to obviate the inconvenience at present experienced in threshing clover and other small seed, a new arrangement of the machine has been invented by Sanford Mason and Seth M. Eastman, of Millport, N. Y., who have taken measures to secure a patent. It consists in employing a cylinder with projections or teeth on its periphery, and two additional sets of teeth, one above fixed to the frame, and the other below on a fast bed; the former are used for threshing the straw, and are of a shape corresponding to that object; the latter are made concave, so that the projections on the cylinder fit into their recess, and thus act as a rasp, by which the seed are cleaned from the heads.

## Improved Straw Cutter.

David and Lyman Clinton, of North Haven, Ct., have taken measures to secure a patent for an improved Straw Cutter Cylinder. The improvement consists in attaching a wrought-iron shaft to the cast-iron cylinder holding the cutters; this latter may be either cast around the former or cast separate from it, and afterwards secured by pins. The object proposed is to render the cylinder more durable, as cast shafts, which is the ordinary method generally break at the points where the knives are attached to the flanges.

## Coupling Shafts and Axles.

A very ingenious contrivance for the above purpose has been invented by Safford E. Sturtevant, of Hartford, Vt., who has taken measures to secure a patent. It consists in securing the shafts of vehicles to the axle or the axle to the shafts, by means of an eye or collar with taper or conical ends, which fit in sockets attached to the shafts. A screw-bolt is inserted longitudinally through the eye or collar and the sockets to keep the ends firmly secured. To obviate any inconvenience from the wearing of the eye or collar, so that the ends would not fit tight, the shanks in which the sockets are sunk, can be brought nearer together by means of a nut on the bolt. The apparatus, although simple, will be found very efficient for the intended purposes, and it is a useful improvement on the ordinary method of uniting together the axle and shaft.

## Counterfeit Coin Detector.

Harry G. Robinson, of Schuylkill Haven, Pa., has taken measures to secure a patent for an improved Coin Detector, which, from its portability, can likewise be used as a receptacle for coins and bank bills, thus superseding the employment of a port-monnaie. It consists of an outer cylindrical case, containing a likewise cylindrical gauge box, which is fitted with an aperture at one end of the proper size, to receive a genuine coin, so that if the counterfeit be larger it cannot pass through. For testing by weight, the outer case is made to serve as a balance, for which purpose a pair of clamps that are kept inside are withdrawn, and the small points inserted in fulcrum holes one on each side, which latter are placed at such a distance that the case will be in equilibrio when balancing the gauge box and a genuine coin.

## Forcing Down Lids of Boxes.

A new contrivance for the above-mentioned purpose has been invented by George W. Wight, of New York City, who has taken measures to secure a patent. It is an apparatus intended for the use of packers, to force down the lids of boxes when they are to be fastened by screws or nails. It consists of a vertical screw working in a nut, which is formed in a cross-piece. Attached to this latter are a couple of bent arms which swing freely, and to the end of the screw is fixed an iron plate which bears on the top of the box, or rather on a stout board that rests on the lid. It will be perceived that, by turning the screw, the cross-piece will commence to rise, when the bent arms will catch on the sides of the box, and the screw will consequently be forced against the lid, and the latter yielding to the impulse will close on the box.

## COMPRESSED-AIR RAILROAD BRAKE---Figure 1.

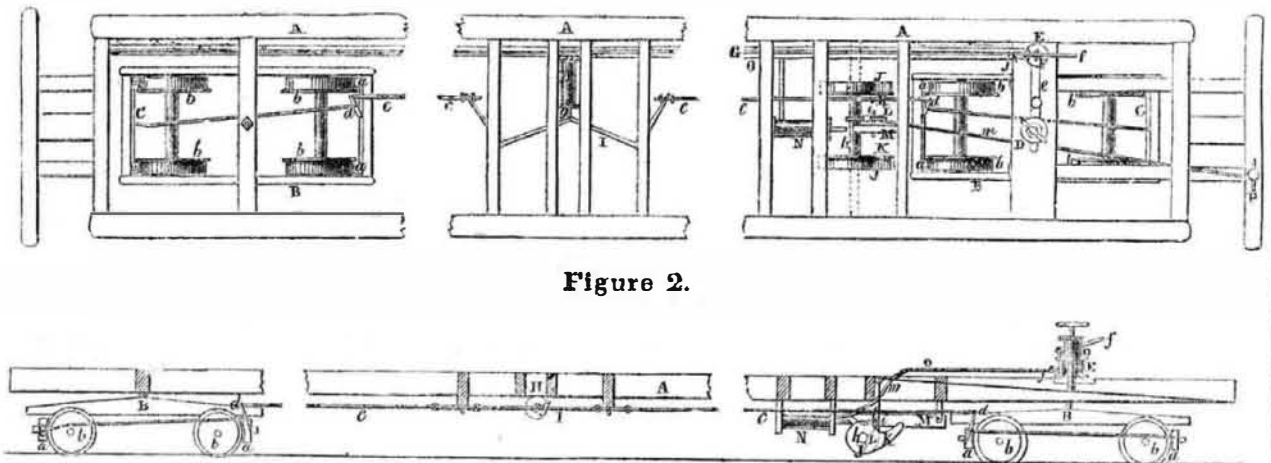


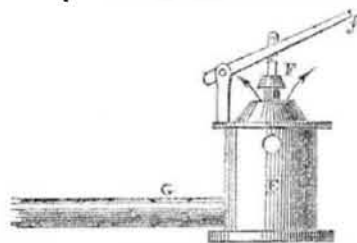
Figure 2.

The annexed engravings represent an improvement on Railroad Brakes, invented by Abner Cutler and Jackson A. Rapp, of the city of Buffalo, N. Y., who have taken measures to secure a patent for it.

Figure 1 is a plan view of a car truck with the improvement applied to the brakes. Fig. 2 is a side elevation of fig. 1, the side of the truck being removed. Figure 3 is a detached view of a receiver provided with a valve. The same letters refer to like parts.

An air pump is employed to be worked by the locomotive, which forces air through tubes the whole length of the train, and operates pistons in cylinders, which act upon levers that operate the usual brakes. A is a car bed and B B are trucks attached to it. C C are common brakes on the trucks; they have shoes, a, which are made to bear against the face of the wheels, b, by means of the rods, c,

FIG. 3.



and levers, d. D is an air-pump placed in any convenient position, and worked constantly by the locomotive when it is in motion. A tube, e, fig. 1, passes from the air-pump and leads into a receiver, E, which is provided with a valve, F, at its upper part, as shown in fig. 3; this valve is operated by a lever, f. A tube, G, passes from the receiver, along the whole length of the train; the tubes of the several cars are connected by joints of some flexible material, such as vulcanized india rubber; each car has a separate tube; the several tubes, when united, form a continuous one the whole length of a train. H is a cylinder communicating with tube, G; there is a like cylinder for each car. Each cylinder has a piston inside, which is moved to one end, when air is admitted; g is the piston rod; I is a system of jointed levers, the piston rod, g, acts against them. A toggle joint is placed under the centre of each car bed, and is connected to the ends of the rods, c, of the brakes. The manner in which the brakes are operated will be readily understood by what has been said.

The air-pump, D, it will be recollected, is

kept constantly working while the locomotive is in motion, and air is forced through the tube, e, into the receiver, E. The lever, f, of the valve, F, is arranged by any suitable means, so as to be kept elevated, and the air then passes out. When it is necessary to apply the brakes, the lever, f, is depressed by a brakeman or engineer, and the valve is then closed, consequently the air is forced by the air pump, D, into the tube, G, and as the cylinder, H, communicates with the tube, G, the piston in the cylinder is forced out, and the rod, g, acts against the toggle joint, I—the toggle joint drawing the ends of the rods, c, nearer to each other, and forces the brakes, a, against the faces of the wheels, b. When the brakes have been applied a sufficient time, the brakeman or engineer withdraws his hand from the lever, f, which rises, and the air then passes from the receiver through the valve, and the springs of the brakes throw the toggle joints back.

Another brake arrangement is represented in the front trucks of figures 1 and 2, to cause instantaneous stoppage of the cars; J J are two shoes on an axle, h. The shoes are in line with wheels b b, and directly over the rails; they are of circular shape and have horns, K. There is a half pulley, L, attached to the middle of axle h; it has a pin, i, passing through it, which, when the horns, K, are elevated catches into a recess, l, on a lever, M, directly over the half pulley. By means of the half pulley and pin, the horns are prevented, when not required, from falling upon the rails. These shoes are operated in the same manner as the brakes previously described. N is a cylinder provided with a piston, and communicating with the tube, O, which is connected with the receiver. The tube, O, has a stop-cock, j, in it near the receiver; this cuts off communication with the receiver, when the brakes, C, previously described, are applied. But when it is necessary to stop the cars instantaneously, in case of obstructions on the rails, the stop-cock, j, is turned to let the air into the tube, O, the lever, f, of course being depressed at the same time. The air then acts on the piston in cylinder, N, its rod, is forced outwards, and the lever, M, frees the pin, i, from its recess, l; the horns, K, then drop down upon the rails, and by their great friction arrest the progress of the cars. The tube, O, may be continued the whole length of the train in the same manner as tube G. These shoes are elevated by a chain, m, the end of which is attached to the periphery of

the half pulley, and the other to the winch P. By turning the winch, the half pulley is turned, and the horns, K, are elevated, the pin, i, catching into the recess, l, in lever, M. When the horns are elevated, the winch is reversed and the chain slackened, when the shoes are ready for instantaneous operation.

More information may be obtained by letter addressed to the inventors.

## Register for Clocks.

P. M. Stutzell, and J. L. Kucker, of Philadelphia, have taken measures to secure a patent for several improvements in the Watchmen's Register Attachment for clocks. This is a contrivance to render more efficient an apparatus which is used in many large establishments where a night watchman is employed. The system generally adopted is to have a clock so arranged that the watchman, by pushing a pin or by some other similar operation, acts upon a dial, which, upon examination next morning, exhibits a record of his vigilance. The instruments in general use are open to many objections, of which the chief is their liability to be tampered with by an unfaithful officer. To supply a more efficient register, which cannot be altered, is the intention of this patent, and for this purpose several improvements have been introduced. The first is the registering apparatus, which consists of a dial divided into 24 equal parts, corresponding to the half hours, which are all marked by a numeral, one of which will always be visible through an aperture in the clock dial. The motion of the registering dial is regulated by a ratchet wheel and spring pawl, which are acted upon by a contrivance connected with the clock-work, and so adjusted that at the end of each half hour it assumes a vertical position and on a lever being moved by the watchman, it imparts motion to the ratchet-gear and registering dial, which is thus made to rotate and exhibit another numeral through the aperture already mentioned. Should the watchman have neglected to visit the clock at any of the half-hours, it is possible that, to avoid detection, he might seek to turn the register more than one division at his next visit, this fraud is prevented by an arrangement, which holds the ratchet click in its place (after it has passed over one tooth of the ratchet wheel) until the watchman's lever can no longer affect it. Another improvement is in the manner by which it is rendered impossible to shift the hands of the clock except by the authorized person