New Inventions.

Improved Shuttle.

Two patents have been granted this week for improvements in the shuttles of power looms, one to E. P. Marble, of New Worcester, Mass., and the other to Laroy Litchfield, of Southbridge, Mass. The two are entirely dissimilar in character, although they relate to the same instrument—the simple shuttle.

The patent of Mr. Litchfield embraces a novel method of applying a spring to keep the shuttle cop in place, and which admits of the repeated raising and replacing of the spindle to renew the yarn, without causing such wear as to throw the spindle out of place. It also embraces a regulating screw, to bring the spindle at once to a proper position in the shuttle. A spring catch is also employed in such a manner as to confine the bobbin (when one is used,) so that without changing the position of the spindle, or rendering it unsteady, a large or small bobbin may be secured in the shuttle.

The invention of Mr. Marble relates to an improved mode of applying the spring catch that is employed to confine the bobbin in shuttles, by which it adapts itself to varying sizes of the heads of the bobbins, and whereby it is drawn square off the bobbin heads with the spindle, so as not to drag upon and split the heads—a fault common to shuttles now in use. The improvement also enables the catch to be conveniently applied to the cop shuttle, to confine the tube of the cop, or the cop itself if spun without a tin tube. The catch to confine the cop is made with a small notch to receive the collar of the tin tube, and it has a point to catch and confine the cops which are made with paper tubes.

Railroad Ticket Register.

The claims on another page, of the patent granted to Wm. Apperly, of Louisville, Ky., embrace improvements in railroad traveling, the object of which is to overcome the objections raised by railroad companies and travelers, relating to the reception of fare from passengers by conductors, after the cars have left the various station on the route.

The present regulations are not good, for there is always a disagreeable crowd around the office when the tickets are being distributed. This machine is intended to cure these evils, and introduce a pleasing reform to the managers of, and those who travel on our railroads.

The invention consists of a neat machine provided for each car, which holds a sufficient number of tickets, and which can discharge them at the will of the conductor, and register them as discharged. The distribution of the tickets is under the control of the conductor, but that is all. It is a tell-tale and ticket clerk which gives up its account to the proper officer (who keeps the key) when the train arrives at the end of its route. The tickets placed in each machine have the names of the place and fares printed on them, and the machine registers these against the conductor.

Improved Horse Power.

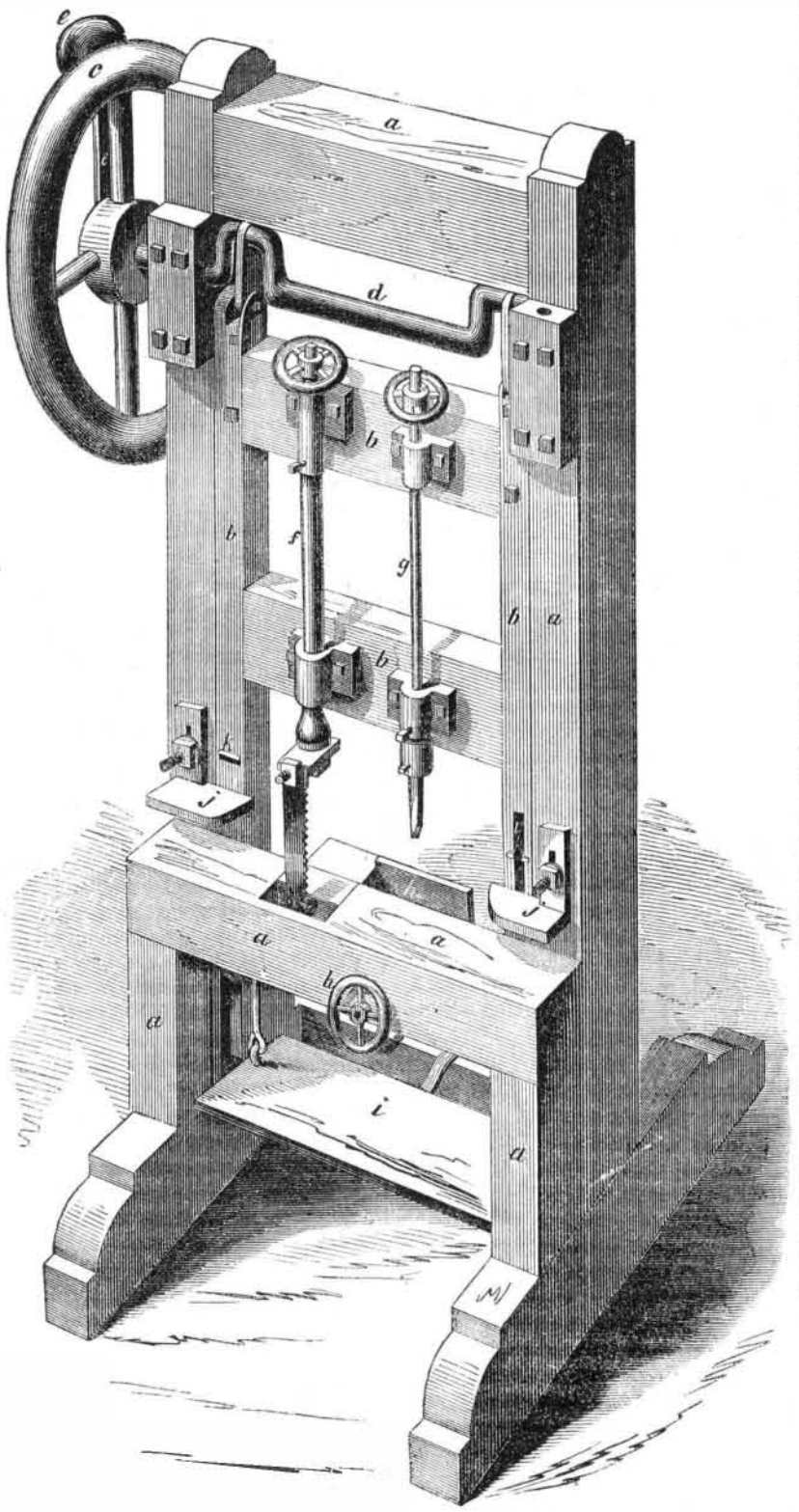
Quite a number of patents have been granted for horse powers, and for improvements on them, but the patent granted this week to C. Russell, of Ohio, as set forth in the list of claims, affords proof that improvements on such machines are not ended. The improvement of Mr. Russell relates to double geared horse powers having an annular internal cogged driving wheel, and two transmitting pinions. Its object is to keep the axis of the driving wheel steady, and to provide for the perfect gearing of the pinions with the driving wheel, to obviate an evil incident to such horse powers. The axis of the driving wheel is fitted snugly in a self adjusting box, which is made in two parts, and fitted in an oblong slot formed in the bridge, and in which it can slide freely back and forth, preventing the axis having any vertical play, (up or down,) also any lateral play, thereby rendering its action very steady, even though there may exist some imperfection in the fitting of the gearing, from shrinkage of the castings or other causes.

Fire Engines.

The patent granted this week to John R. Adams, whose claims will be found on another column, embraces a fire engine having a number of cylinders placed radially in a ring, and encompassed by a cam ring, which works loosely around them. These cylinders are provided with pistons and valves, the former of which are operated by rotating the cam, which has a zig-zag or cam groove in it, into which rollers attached to the ends of the piston rods fit. By rotating the cam ring, it will easily be understood how the zig-zag groove will give a reciprocating motion to the pistons.

The cam wheel may have a number of levers secured in it, like the hand-spikes of a windlass, and by being set horizontally, a horse may be harnessed to each and driven in a circle, so as to make it a very powerful pump for mines on high elevations, where fuel is expensive to get up, for operating a steam engine. It is also adapted for manual or steam power.

MORTISING AND TENONING MACHINE.



The annexed engraving is a perspective view of an improvement in the above named machines, for which a patent was granted to Elihu Street, of Montville, Ct., on the 20th of March last. The nature of the invention consists in the combination of certain tools used by carpenters in the manufacture of doors, sash, and blinds in such a manner as to avoid loss of time occasioned by removing the work from one machine to another.

a represents the parts of a stationary frame, and *b* a slide frame. *c* is the fly wheel, and *d* a crank shaft connected to the slide frame by joints. *e* is a counter adjustable weight to balance the slide frame, and *f* is a rod attached to a saw, and connected to a hand wheel for tension, to adjust the saw. *g* is a rod attached to the chisel socket, having also a hand wheel to adjust it; *h h* represents a sliding gauge operated by a hand wheel. *i* is a foot board attached to the slide frame, to set the machine in motion. *j j* are movable stops. *k* is a plane iron for jointing the ends of boards, &c. *l* is a plane iron for tenoning.

The saw is fastened by screw bolts, and it can be taken off when not required, or be reversed, or turned out of the way when using other parts of the machine, and it can be set to cut at different widths. When using the chisel the saw should be reversed, and when using the saw the chisel should be removed or raised upwards and fastened by one of the set screws. The counter balance, *e*, gives effect to the working of the tools at the particular point desired. When using the smoothing plane, *k*, a board should be run forcibly against it; when it will be smoothed and jointed. The plane, *l*, for tenoning should be used in the same manner. The movable stops, *j j*, are for fastening down the lumber to the action of the tools. The hand wheel, *h*, in front of the bench, is attached to the gauge by a rod having a screw; the rod runs through the bench, and by turning the wheel, the gauge is moved backward and forward by the screw. This gauge is used in mortising and sawing. The footstep, *i*, is attached with rods to the slide frame. By pressing with the foot downward upon it, the machine is set in motion—it is the stirrup for the foot to operate the machine.

The claim is for "mortising, tenoning, sawing, and smoothing, by combining certain tools together (in one machine) used by carpenters in the manufacture of doors, sash and blinds."

More information may be obtained by letter addressed to Mr. Street, at Montville.

Clothes Pin Machine.

The three claims, on another page, embraced in the patent just granted to H. and M. Blake, of Hartland, Vt., relate to the employment of a holding wheel and circular saw, arranged and operating conjointly, for cutting the slots in the pins; also for the means used to hold or feed the pins to the saw; also for the combination of the saw and bevel cutters, whereby the slots or grooves in the clothes pins are finished at one operation. The saw used has a number of radial slots cut in it, and one edge of each slot is beveled and made with a cutting edge to form side cutters at each side, for smoothing and finishing the grooves. The pins are fed in by hand into the rotating feed wheel, into concave holders, and they are carried along, operated upon by the cutters, and discharged, when finished, from the machine; none of the parts of the machine are stopped, and no adjustment of them required during the whole operation.

New Bullet Mold.

The improved bullet mold for which a patent is granted this week to Wm. Ashton, of Middletown, Conn., is for casting the Minie bullet, the chamber of which is a hollow cone. The object of the mold is to cast such bullets with greater facility than by any of the molds heretofore used. To form such bullets, the mold must be made with a core. Those now used open longitudinally and have a fixed core; this new mold has a movable core, and opens transversely. It is so made as to allow air to escape when running in the molten metal, and to cut off the surplus when the mold is full. It makes very perfect bullets with great rapidity.

Boot and Shoe Stretcher.

The patent granted this week to Warren Holden, of Philadelphia, relates to the stretching and fitting of boots and shoes by an adjustable last. The last is divided into a number of parts, and these can be operated by a lever and screw when put into a boot or shoe, so that any part of it (the boot or shoe) may be stretched and made to fit the foot exactly—a good improvement.

Fees under the Patent Law of 1790.

Under the good old law of 1790, our Government charged the following fees:—For receiving and filing the petition, *fifty cents;* for filing specifications, *ten cents* for each hundred words; for making out the patent, *two dollars;* for affixing the great seal, *one dollar;* for endorsing the day of delivering the same to the patentee, including all intermediate services, *twenty cents.* Total $3,80.

Fall of a Suspension Bridge.

A new suspension bridge erected over the Passaic river above the Falls, at Paterson, N. J., fell on the 3rd inst., when a test of twenty tuns was applied. Some persons who were on it when it fell were severely injured. This was the second suspension bridge erected at the same place within one year. There must have been bungling calculations made by somebody.

The *New England Farmer* states, that potatoes are selling in Boston for $1.20 per bushel; 80 cents less than in this city. Nova Scotia has sent great quantities to Boston this spring.