

## New Inventions.

### Nail Machine.

H. Green and W. J. Gordon, of Philadelphia, Pa., have invented and patented an improved method of turning the rods in nail machines, which enables all sides of them to be hammered upon by a single, or one of a series of hammers, moving in the same direction, and of moving the rods laterally at the same time as they are turned, namely, between the successive blows of the hammer or hammers upon a properly arranged anvil to cause the operation of forging nails to commence near the head, and gradually proceed towards the point, thus imitating the operation of forging by hand. There is also a certain arrangement of the anvil relatively to the lateral motion of the nail rods for the purpose of drawing the nails from head to point in the forging operation.

### Improved Oscillating Pump.

Our engraving is a side sectional elevation of this improved pump, the advantages of which will be apparent to the reader as we proceed in our description. The pump is one of that kind which have a rocking or oscillating piston, the water being discharged through the central shaft.

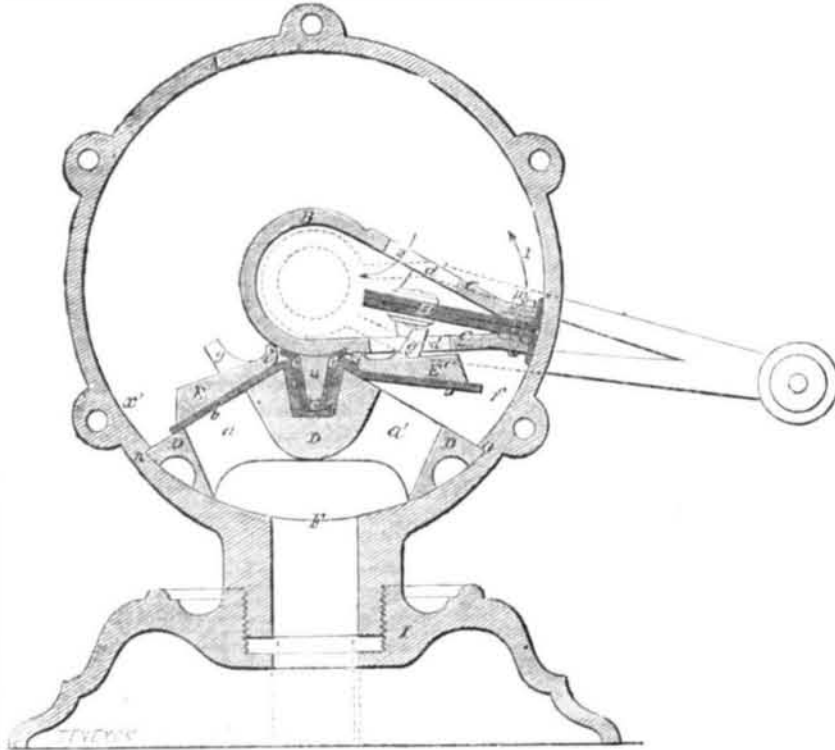
A is a cylindrical shell, through the center of which a hollow shaft, B, passes, this shaft being fitted so as to oscillate. C is a hollow piston attached to, and forming part of the shaft, B. The extremity of the piston, C, nearly touches the inner periphery of the shell, and when the shaft, B, is oscillated, the piston sweeps the shell from  $x$  to  $x'$ . D is a permanent valve seat, upon which the flat valves, E E', rest ( $a a'$  being the openings of the valves). F is the induction port, communicating with the openings,  $a a'$ .  $b$  is a leather hinge or flap, to which E E' are attached, the middle of  $b$  entering a cavity in the center of D, where it is secured by a wedge-shaped block of wood, G, an additional packing or strap of leather,  $c$ , being interposed between the wedge and the flap,  $b$ . The under side of the shaft, B, touches the top of the wedge piece, G, which thus forms a packing for the oscillating shaft, B. The wedge piece, G, is of the same length as the width of the interior of the shell, A. The wedge piece thus performs the double function of packing the oscillating shaft, and keeping the flaps,  $b$ , with their valves, E E', in place. Several important advantages arise from this arrangement.

Both the wedge, G, and leathers,  $b c$ , swell slightly when moistened. This swelling tends to press the wedge piece tightly up against the shaft, B, but the pressure is, to a certain extent, elastic, owing to the nature of the materials. The ends of the strip,  $c$ , are also projected up against shaft B, and act as a packing. H is a pendulous valve, suspended from the extremity of C, and extending down through the central part of it. The valve, H, swings alternately against the inner surfaces of piston B, and then alternately opens and closes the apertures,  $d d'$ , the outer ends of the leather, H, serving as a packing for C against A, being kept in position by the screw bolt,  $m$ . When the piston is moved in the direction of the arrow, 1, the resistance of the water above the piston presses down the valve, H, so that it closes the aperture,  $d$ , leaving  $d'$  open. The water above or in front of the piston also closes the valve, E, and it is, therefore, forced to make its exit through  $d'$ , into B, as shown by arrow 2, whence it emerges by a nozzle attached to one side of A. The advance of piston C, in the direction of arrow 1, produces a vacuum behind the piston, which opens valve E', and inducts the water through the passage,  $a'$ . When the motion of the piston is reversed the valve E' is closed, and  $d'$  is opened, and the water is passed into the shaft in the opposite direction to what it was before. The tripping of the valves in order to permit all the water to

escape when desired, is done in the following manner:—Upon each of the valves, E E', is a projection or pin,  $g g$ , and the back end of the valve is turned up a little, so as to form projections,  $i i$ . If the piston, C, be made to oscillate sufficiently far, its lower sides at the end of such movement will come in contact

with one of the projections,  $i i$ , and the valve, E', will be tripped or lifted, and the projection,  $g$ , will pass through  $d$ , and strike against H, lifting that also. A similar operation takes place at the opposite side, and no air is allowed to pass in, and thus spoil the vacuum of the pump. The shell, A, is notched at  $n$  to

## RACE & MATTHEWS' IMPROVED OSCILLATING PUMP.



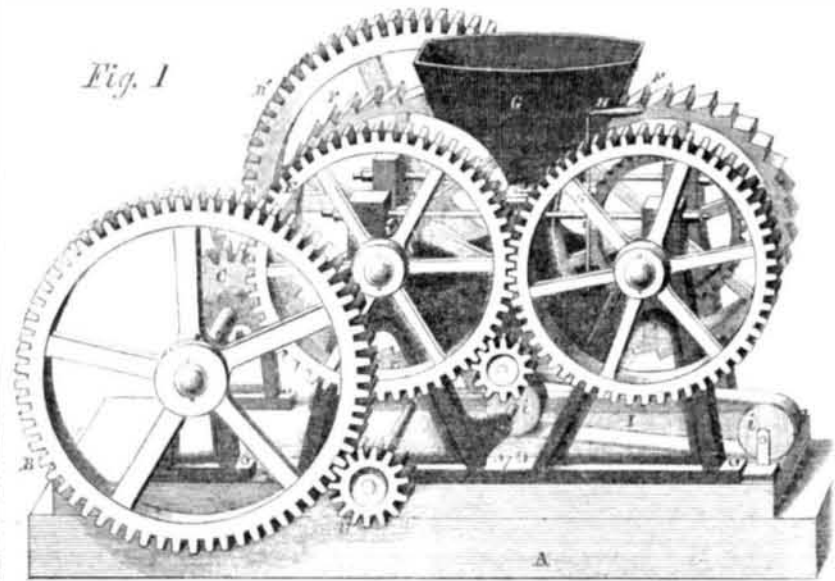
admit of the seat, D, and is mounted in a stand, I.

This pump can be worked by hand for wells, &c., or by power, as it is peculiarly adapted to be worked by an oscillating engine, no gearing being necessary, and as a fire engine it would be valuable. They can be

placed any distance from the surface in wells, and so are applicable in ships.

The inventor is Washburn Race, of Seneca Falls, N. Y. Any further information can be obtained by addressing Race & Matthews, of the same place. It was patented November 24, 1857.

## WAGNER'S BRICK MACHINE.



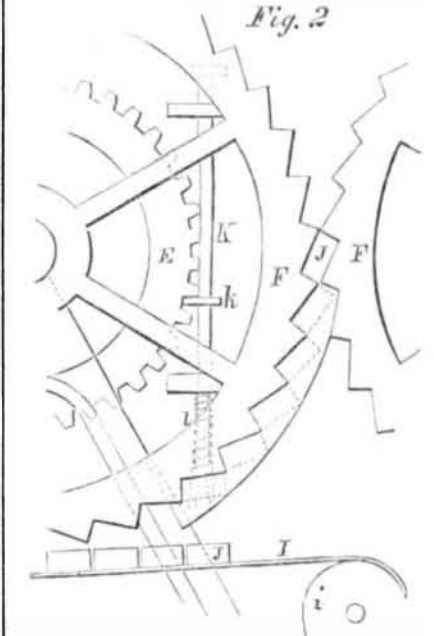
The manufacture of bricks is one of the most important changes of raw material into a useful product, and as an art it is almost the oldest known. In Egypt, bricks have been used in the construction of buildings for more than three thousand years, and the making of bricks was entrusted to captives taken in war. Thus we learn that the Israelites in their captivity made bricks, and one of their complaints to Pharaoh was that they were allowed no chopped straw to prevent them cracking. The clay or mud of the Nile from which these bricks were made was of a very friable character, and they required some substance such as hair or straw to mix with it to bind the bricks. It is not many years ago since bricks were first made by machinery, but in that time very much has been done, and we now illustrate a machine—the inven-

tion of I. Z. A. Wagner, of Philadelphia, Pa.—which makes a very perfect brick, and with great rapidity. This is an entirely new invention or rather an entirely new method of making bricks, as there are no plungers, mold-boxes, or stampers employed, but simply two mold-wheels and the requisite gearing.

Fig. 1 is a perspective view, and Fig. 2 a section of the molding wheels of the machine. A is a base, on which the machine is erected, and B, B', C and D are gearing wheels that give the necessary motion, in the proper directions, from a prime mover, either horse or steam power, to the gear wheels, E. These wheels, E, have on their axles or shafts two mold-wheels, F, having their peripheries indented in the manner shown, and these axles run in journals mounted in suitable frames. G is a hopper into which the tempered clay is

put, and as the two mold-wheels, F, revolve within it, they take up a portion of the clay and when they meet, mold a perfect brick, as indicated by J.

As the bricks would be liable to stick to one of the mold-wheels, F, a device is provided for freeing them from it, which is better seen in Fig. 2. On one of the axles a small toothed wheel, E, is placed, and by the side of this there passes down a rod, K, provided with a



projection,  $k$ , and working up and down in suitable bearings; there is also a spring,  $l$ , which has a tendency to force the bar, K, up and keep it from the bricks.

When the machine is in operation, the wheel, E, catching against  $k$ , depresses it, and forces out a brick upon I, when it is again free, the spring,  $l$ , brings the rod, K, up, and ready for the next brick. The bricks pass on to an endless delivery belt, I, that passes over two rollers,  $i i$ .

It is a most simple and perfect machine, and will, we have no doubt, operate satisfactorily. A patent was granted this week, and the claim will be found on another page. The inventor, if addressed as above, will be happy to furnish any desired particulars.

### Improved Wagon Seat.

G. J. Lucas, of Poughkeepsie, N. Y., has invented and patented a new way of arranging the seats of wagons, so that they may readily be converted from a one to a two seated vehicle and vice versa.

### Improved Card Press.

With this invention, by the simple revolution of a driving crank shaft, the inking roller is moved forward and made to ink the form and the card at the same time, is carried forward and left upon guides or supports of the platen, said inking roller and card feeder returned to their original positions, and at the same time the printing form is brought up with a heavy pressure, and caused to print the card which was left upon the supports of the platen. The cards are fed to the form singly, and the hopper in which they are placed is made so as to accommodate all sizes. This is an exceedingly simple press, and very perfect in its operation. It is the invention of W. W. Clarkson, of Baltimore, Md.

PATENT CASES.—Besides the reaper case, two other important suits have been decided in the United States Circuit Court sitting at New Haven, viz.:—Burr vs. Copperthwaite, for using Taylor's patent for forming hat bodies. Judge Ingersoll decided that Taylor's patent was not an infringement of the Wells' patent owned by Burr & Co. A decision was also rendered in an important sewing machine case, namely, Wheeler & Wilson and Grover & Baker against parties for using rough surface and spring pressure feed. Decision rendered for plaintiffs.

We are compelled for want of space to omit the "points" involved in these cases, but will endeavor to give them next week, as they are very important.