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Improved Cotton Press.

Our engraving represents a cotton press constructed upon a new principle, for which are claimed several advantages over presses hitherto constructed. The nature of the advantages claimed will better appear after a glance at the details and operation of the press.

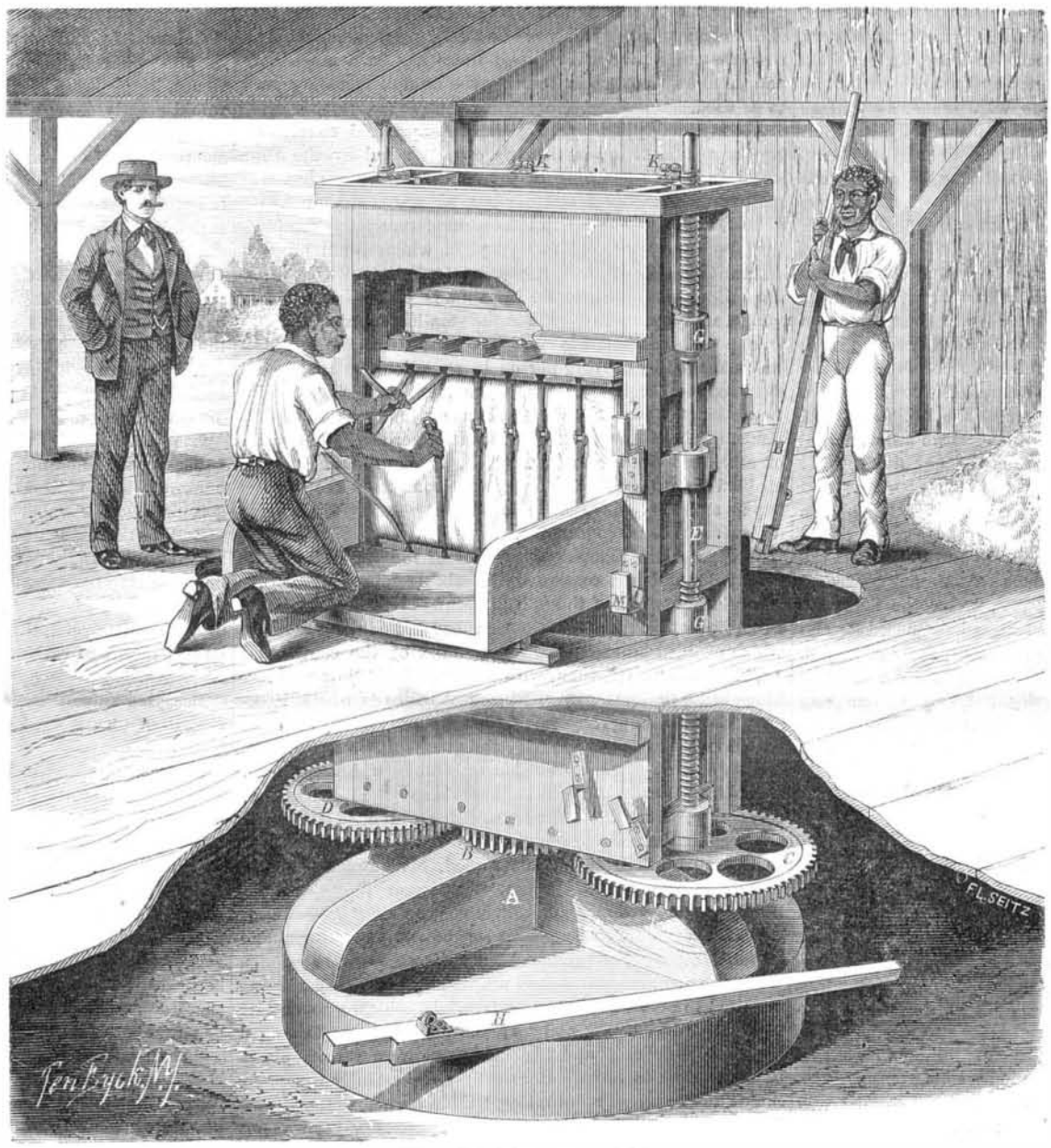
A, in the engraving, Fig. 1, is a pedestal having a central pivot, upon which the entire superstructure turns during the compression of the bales. Fixed firmly to the pedestal is the toothed wheel, B, which gears into both the toothed wheels, C and D. The latter wheels are keyed to upright screw shafts, E and F, each shaft having two screw threads—one a right-hand thread and one a left hand thread.

These screws run in nuts, G, attached to the followers, of which there are two, one above and one below the bale. The upper follower descends and the lower one ascends simultaneously, leaving the bale, when pressed, in the position shown in Fig. 1.

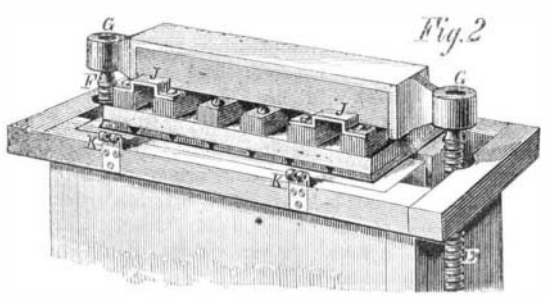
The screws are worked by inserting the levers, H, into the space between angular lugs, I, and the side wall of the press, and by their aid turning the entire press, with its contents, about the central pivot. The toothed wheel, B, being fixed, the turning of the press causes the wheels, C and D, to turn with their screw shafts, and run down the upper follower and run up the lower one, to compress the cotton. Reversing the motion runs these followers back to their first position—the position of the upper one when run up being shown in Fig. 2. Angular metal straps, J, Fig. 2, then receive the ends of the levers, H, which are then hinged at K, the counterpart of the hinges being upon the levers themselves. The depression of the outer ends of the levers opens the follower like a lid on its hinges, and *vice versa*.

The bale, when pressed, is taken out of a door in the side of the press, as shown in Fig. 1. The door, when closed, is held together by a strong bar, engaging with lugs, L, and another strong bar pivotedor hinged at M.

The advantages claimed for this press are, that the use of two screws always keeps the bale of uniform size at both ends, that the double screws and arrangement of gearing give great strength to the press, and rapidity in pressing, that the press can be afforded at a cheap rate, that it possesses no complications liable to get out of repair, and that it is adapted to be driven by horse or steam power if desired, through the addition of suitable appliances.



BOOTON'S COTTON PRESS



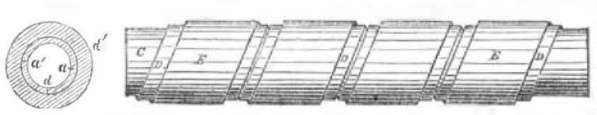
Patented, through the Scientific American Patent Agency, Oct. 18, 1870, by Sinclair Booton, whom address for further information, care T. D. Johnston, San Antonio, Texas.

Boring Machines at the Mont Cenis Tunnel.

Prof. Ansted says that it is a curious and instructive sight to see a workman connect an elastic tube of about half an inch diameter with one of these machines, and watch the result when a small tap is turned. A piston-rod, working in an exceedingly small and short cylinder, immediately files backwards and forwards with wonderful rapidity, regulated by a small but rather heavy fly-wheel. Immediately a ponderous chisel, 6 or 7 feet long and more than an inch in diameter, is set in motion, and, having been previously placed in position, strikes a succession of heavy blows against the stone. Fragments begin to fly in all directions. Each time that the chisel strikes it is withdrawn a little way, very slightly turned, and immediately strikes again in the same hole. The stone experimented upon being of the hardest and toughest kind, the effect is not seen for several strokes; but within two minutes, during which the writer watched the experiment, a steel chisel was completely blunted and rendered useless, and there was a hole made about two inches deep in the mass of quartzite placed to operate upon. It is evident that nothing can resist such an attack; and, indeed, holes are bored in this way in an hour that would formerly have taken a day. The machines occupy very little space, and are by no means cumbrous. They can very easily be moved when and where they are needed. As many as seventeen are at work together in the end of the tunnel where the advance is being made. As the power is compressed air, they not only add no heat to the interior, but render it cooler by the absorption of heat during expansion. The air, when it escapes, is available for ventilation. It would be quite impossible to carry steam at a high pressure through pipes four miles long, but little diminution of force is experienced in working with the air, although all the engines and condensers, as well as the cylinders for storing the air, are outside the mouth of the tunnel. The length of pipe at present on the Piedmont side is about four and one fourth miles. The pressure of air commonly employed is about six and a half atmospheres, or nearly 100 lbs. on the square inch.

STOW'S NON-CORRODING WATER AND GAS PIPE.

Our engraving, which accompanies this article, illustrates a new water and gas pipe, in which the materials are coiled



strips of sheet metal or wire, paper, and pitch, or coal-tar varnish. The pipes thus made, specimens of which have been submitted to us, seem strong, and they are not only much lighter than metal pipes designed to sustain the same pressure, but are totally free from objection in a sanitary point of view.

The pipes are made by coiling around a mandrel, C, a strip of pitched paper, D. Outside of the paper coil is then wound the sheet metal or wire coil, E, which is cemented to pitched-paper coil. If wire is used pitched paper is interposed between the layers.

The partially formed pipe is then covered with single or double roofing pitched paper, and the inside thoroughly coated with hot pitch or coal-tar varnish, which fills all the interstices and gives a smooth interior surface, preventing any contact of water with the metal, and consequent oxidation.

It is claimed that the compound material of which the pipe is mainly composed, being a very slow conductor, the water in the pipe is protected from the effects of frost. For very cold climates or exposed situations the thickness of the outer coating of paper and pitch may be increased to any desired degree, to render the protection from frost perfect; or a coating of pitch and sawdust may be added to increase the thickness. We are informed that it has been proved by experiment, that a pipe of this kind, of three fourths inch caliber, and five sixteenths of an inch thick, will withstand a pressure of five hundred pounds to the square inch. The strength of the pipe may be increased indefinitely by applying more spiral strips of metal, interposing pitched paper between them.

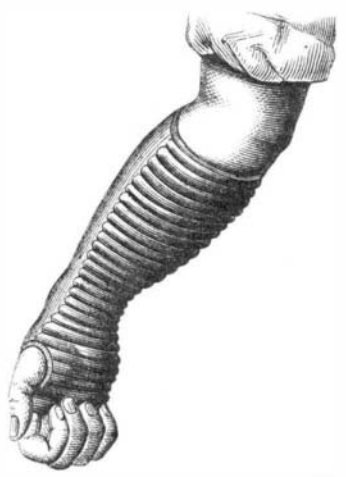
It is further claimed that these pipes are cheaper, stronger, and more durable, than metal pipes, and that they are not affected by acids generally found in water.

For gas mains the pipes are coated on the inside with an acid proof composition. The pipes can be made of any required size, for gas or water mains.

For right to manufacture, address the patentee, Henry M. Stow, New York city.

WASHING SHIELD.

In the rubbing of clothes by the hands, the skin is liable to be abraded from the mechanical action, which is greatl aided by the softening of the skin from the effect of the free alkali in the soap employed. To protect the hands from this abrasion the device shown in our engraving has been invented. It was patented by C. F. Lewis, of Washington, D. C., February 5, 1867.



The device consists in a corrugated shield or armor, which protects the person and forms an effective surface for rubbing the clothes.

THE Chesapeake Bay oysters, which last February were transferred to the Pacific coast, and planted in the Bay of San Francisco, have increased to a wonderful size, and, as the journals of San Francisco assert, are much superior in flavor, grow more rapidly, and thrive better than the oysters in the beds on the Atlantic coast.