IMPROVED COTTON PRESS.

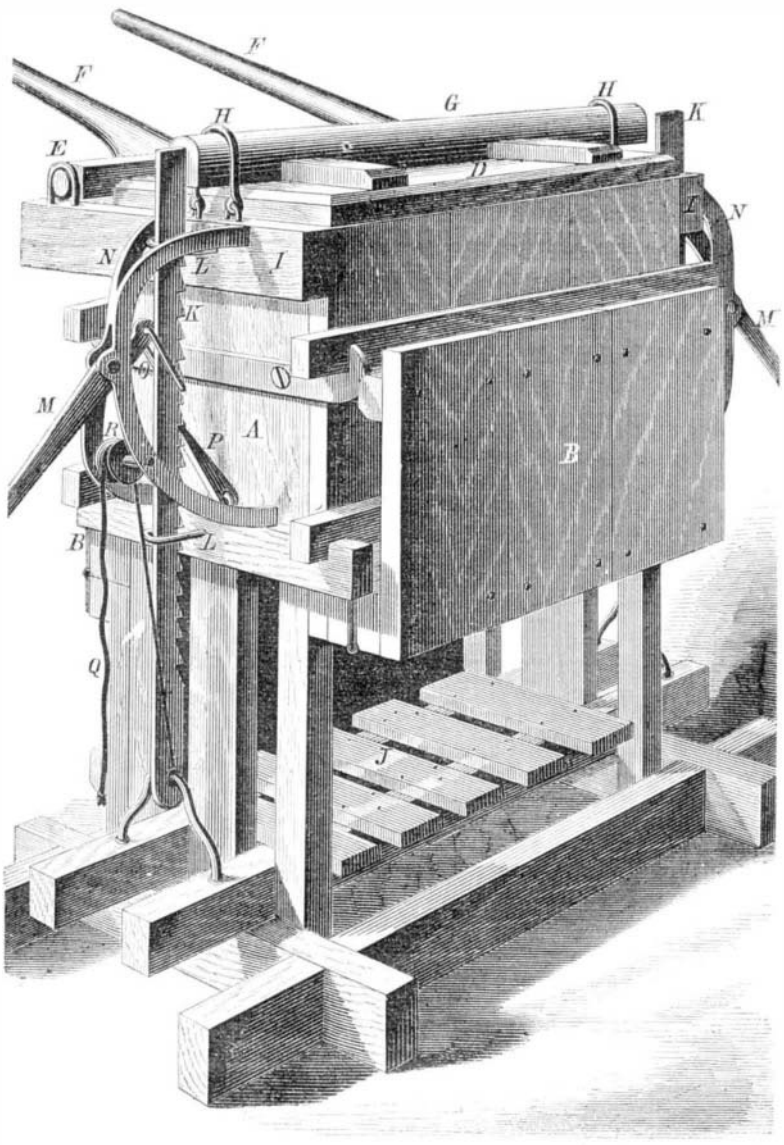
In this cotton press, the follower is moved from bottom upwards, forcing the cotton into the upper part of the machine, by the action of hand power applied through the ingenious combination of mechanical devices below described.

The engraving shows a perspective view of the apparatus with the follower at its lowest position. A is the press case. Hinged thereto on either side, and opening from the top downward, are two doors, B, one of which is represented as open and raised, and the other as shut. A cover, D, closes the top of the press case. This opens upward on the pivots, E, and is moved by the hand levers, F F. When shut it is firmly fastened by the bar, G, the extremities of which are held in the metal links, H, attached to the beams, I. J is the follower, constructed as shown, attached to which, on either side of the press, are the notched bars, K, which are confined in suitable guides, L L. The cotton being placed in position, the lower doors, B, and the cover, D, closed, the bars and, at the same time, the follower, are raised by means of the levers, M. These are pivoted to supports, N, and to their short arms are attached links, O, which, passing over the bars, engage in their notches, thus lifting them, when the outer ends of the levers are forced down. P shows one of the holding pawls, which retain the bars when the links go back to engage a lower notch after lifting the bars to the hight of their range. Also attached to each end of the follower are ropes, Q, which, passing over pulley, R, on the supports, N, serve to lower the follower readily when the press is to be filled, the links, O, and the pawls, P, being lifted out of the notches.

There is an absence of complication of parts about this press which renders it both economical in first cost and easy of repair. Its effectiveness in pressing, which depends upon the increased power gained by its mechanical arrangement, may be readily determined by simple calculation based upon the length of the lever arms and the amount of force to be applied thereto, friction being considered. The arrangement of ropes and pulleys for lowering the follower is a novel improvement, and the general mode of raising the latter by the notched bar and lever is claimed to be specially advantageous.

The top cover, on which the greatest strain is brought to bear, is fastened in the firmest manner by the transfer bar and links, so that if the machine be properly constructed of strong material there is no possibility of its giving way. It may be noted, as an interesting point regarding this device, that it is the invention of Gus. Falkner, formerly a slave, but now a free citizen in North Carolina—although, we may add, it is by no means the first patent granted to a colored man.

Patented through the Scientific American Patent Agency, April 30, 1872. For further particulars regarding rights, licenses, etc., address Col. W. J. Green, Box 610, Baltimore, Md.



FALKNER'S COTTON PRESS.

IMPROVED HOSE COUPLING.

The invention illustrated herewith is designed to provide a means of readily and securely coupling hose without having recourse to the ordinary and disadvantageous method of screwing the two parts together. Fig. 1 is a perspective

Fig. 1.

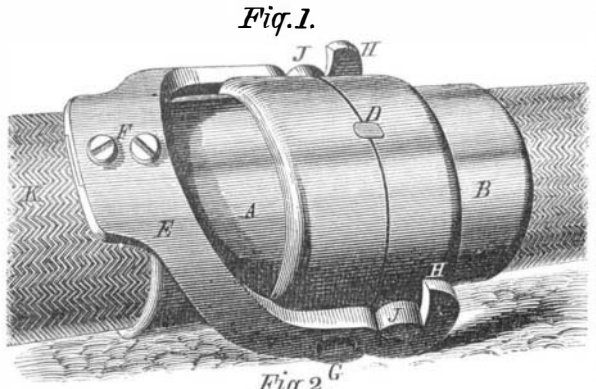
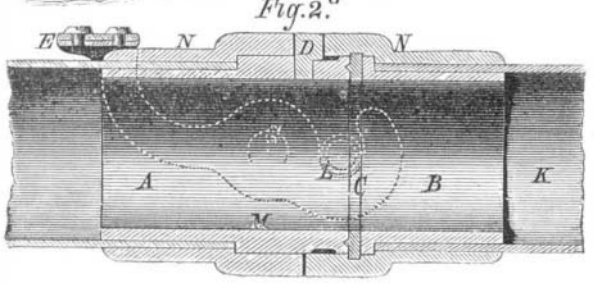


Fig. 2.



view of the coupling fastened, and Fig. 2 shows a vertical section of the same. It will be seen that the device is constructed in two portions—that on the left, A, being the male, and that on the right, B, the female part. In order to render the joint perfectly water-tight, a packing ring of india rubber, C, Fig. 2, is confined in a groove on the female part, while, entering a recess on the same portion, a guide, D, on the male part, retains the coupling in proper relative position.

The mode of fastening is at once simple and effective. E is a steel or iron double cam hook lever made in the form of a stirrup, in two pieces, which are halved together as shown and joined by screws at the point, F. Its fulcrum pins are represented at G, on the male part of the coupling, while the cam hooks, H, in which the short ends of the lever terminate, engage the fastening pins, J, on the female portion.

Friction rings on these fastening pins, shown by the dotted lines at L, Fig. 2, render the separate parts easily joined. The hose, K, is confined by means of the interior rings, M, and the shoulders, N, in the ordinary manner.

The mode of operating this device is to bring the two parts together, bearing down the male portion with one hand and moving the lever so as to cause it to hook on the fastening pins with the other. In view of the simplicity of this invention, it is hardly necessary to recapitulate advantages which are clearly apparent. The rapidity with which the joining of the sections can be effected at times when every moment is of value, and the non-liability of its working parts to get out of order, render the device especially adapted for the purpose for which it is designed, and well worthy of the examination of members of fire departments or others having frequent occasion to use extended lengths of hose.

Patented through the Scientific American Patent Agency, August 13, 1872. Further information may be obtained by addressing Mr. J. W. Magill, Little Falls, N. Y.

Polishing and Painting Floors.

Dissolve three ounces of potash and four drams of catechu in four pounds of boiling water, in an earthen pot. When these ingredients are dissolved, add two pounds of water and boil again, stirring in four ounces and a half of yellow wax with a wooden rod. Continue boiling until all the lumps of wax disappear. Let cool, and add three pounds more of water. In this condition, it is ready for use. By boiling the wax and potash together, a soluble wax soap is formed, so that a floor waxed with this preparation may be swept, but cannot be washed with water, for that would dissolve off the soluble wax soap. For this reason an oil paint is preferable to wax polish, the only advantage being that it dries quickly while other paints require a long time, during which the room cannot be used.

For painting floors, says the *Building News*, the mineral paints are exclusively used. Paints which contain white lead are too soft, and wear off very easily. If a floor painted with oil colors wears off unreasonably fast, it is sure proof that the paint contained white lead. This generally happens because such colors cover better and are more easily applied. Even the use of varnish boiled with litharge is to be avoided, and one boiled with borate of manganese preferred. As a rule, it should have two coats, but the greatest care should be taken that the first be perfectly dry before the second is put on. After the floor has been painted, in order to give it a polish and make the surface more permanent it is coated with what is called "floor lac" which may be made thus: Dissolve one ounce of shellac in a quarter pound of 80 per cent spirits, and add to the solution one dram of camphor, and strain out the lees in a linen cloth. This lac is used after the paint is dry, and gives more tenacity to the surface. A fresh coat of lac may be applied from time to time as it wears off, and you have always a fine polished surface which can be washed.

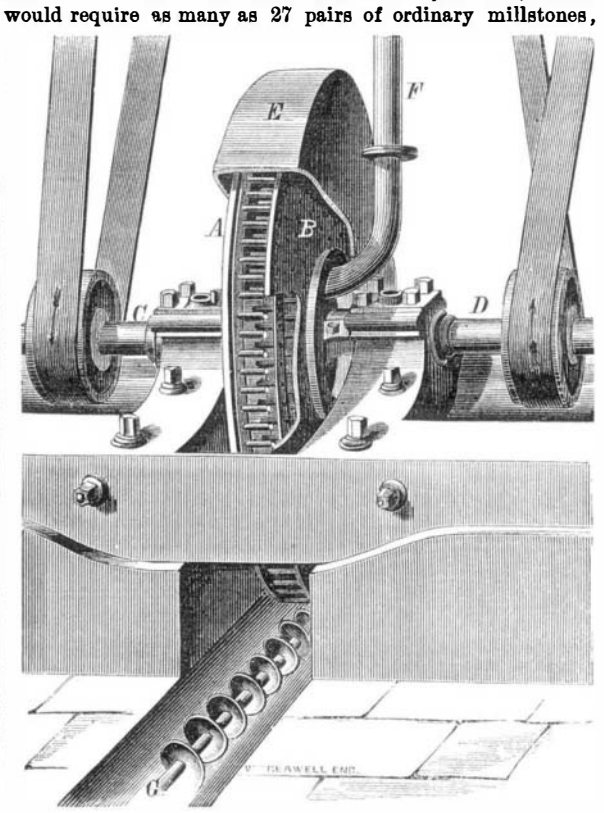
THE DISINTEGRATING OR CENTRIFUGAL FLOUR MILL.

Mr. Thomas Carr, of Bristol, England, is the inventor of the disintegrating mill, heretofore referred to in the SCIENTIFIC AMERICAN, which is stated to have been applied in practice with success for various purposes. Percussive instead of grinding force is employed, and the most novel use of the apparatus is the manufacture of flour from wheat. We are indebted to Leffel's *Mechanical News* for the main points of the following description. Our engraving gives a general view of a seven-foot disintegrating flour mill, various portions being represented as broken away in order to show the interior arrangement of the working parts. A and B are circular metal disks, which rotate in contrary directions upon the shafts, C and D, which are situated in the same line. On the inner surfaces of these disks are concentric rings of projections, called beaters, the rings on one disk intervening alternately with those on the opposite disk and moving in a contrary direction. Several concentric rings of beaters may be thus made to operate conjointly.

The revolving beaters are inclosed in a casing, E. The grain is delivered down the fixed shoot F, through the orifice in the outer casing, into the innermost cage, from which it is instantly projected by centrifugal action through the machine and delivered, in a shower radiating from every portion of the circumference, into the outer casing, in the form of a meal similar to that thrown out by the ordinary millstones; to this state the grain is reduced almost instantaneously by being dashed to the right and left alternately by the bars of each of the successive cages revolving in opposite directions at a very high rate of speed. As it falls to the bottom of the casing, the meal is continually removed by the ordinary rotating screw, G, used in flour mills; it is then passed through the usual bolting machines to separate the bran, and subsequently through silk dressing machines to separate the fine flour from the semolina. The latter is then winnowed by an exhaust current of air in a machine for that purpose, so as to free it from all finely powdered bran, and is afterwards ground between millstones, of which three or four pairs are kept for the purpose; the flour resulting from it is added to the fine flour produced at the outset by the disintegrating flour mill, and to insure perfect intermixture, the two are then passed through the silk dressing machines together.

The machine is driven at a speed of about 400 revolutions per minute; and the outermost ring being 6 feet 10 inches diameter, the last beaters have a velocity of 140 feet per second, or about 100 miles per hour.

Foreign substances which would prove of great injury to millstones are readily thrown out by the centrifugal force in this machine. The work accomplished by a machine of this description, of 6 feet in diameter, is stated to amount to 160 bushels of wheat per hour, which would require as many as 27 pairs of ordinary millstones,



THE DISINTEGRATING FLOUR MILL.

taking the average duty of each at 6 bushels per hour. The Bonnington Mills, of Edinburgh, Scotland, report a difference in favor of the disintegrator of £9, or 5½ per cent in the item of the marketable value of flour. As this grain is equivalent to an extra profit of £16 on each 100 quarters of wheat (a sack being 280, and a quarter 496 lbs.), and the rate of produce being 20 quarters per hour, no inconsiderable gain is effected. The repairs, it is stated, on one of these mills, working 22 hours per day for twelve months, were practically nothing.