

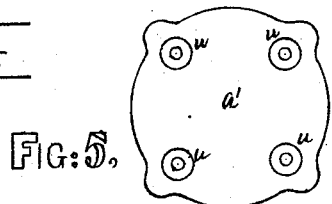
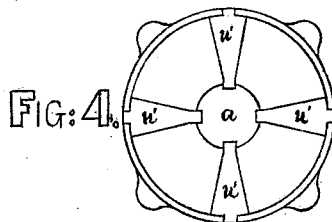
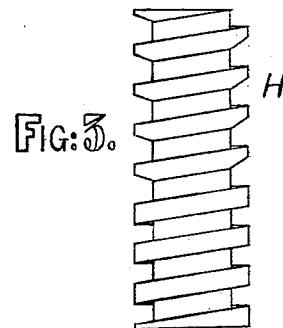
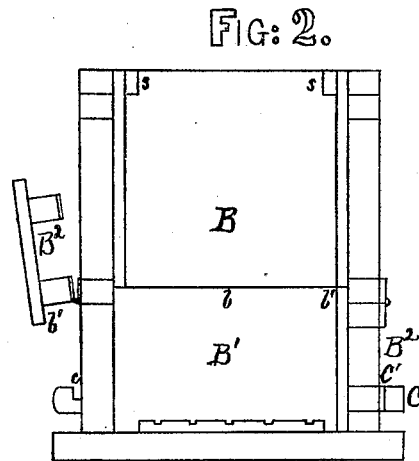
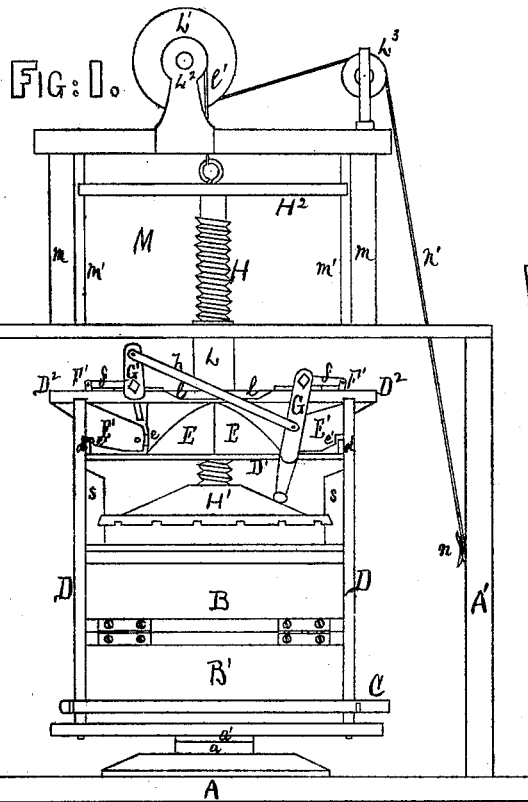
2. Sheets, Sheet, 1.

C. K. Marshall,

Cotton Press.

No. 113,901,

Patented Apr. 18, 1871.



WITNESSES.

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Charles K. Marshall.
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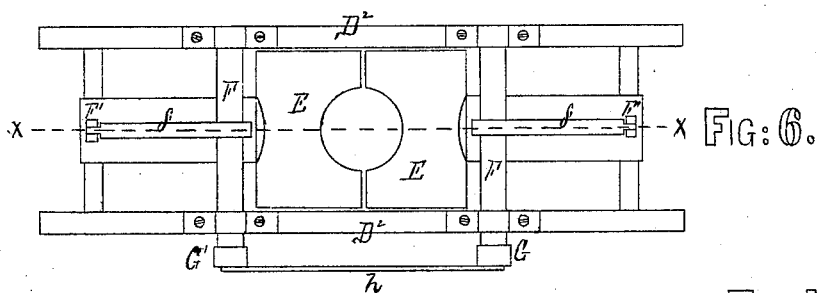


FIG: 6.

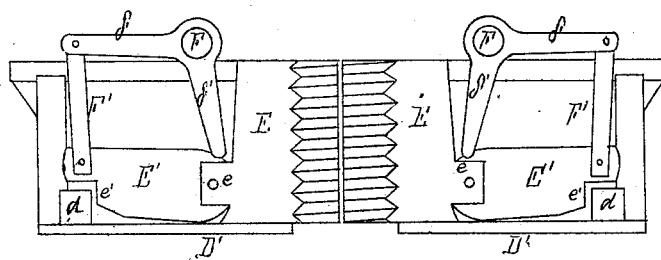


FIG: 7.

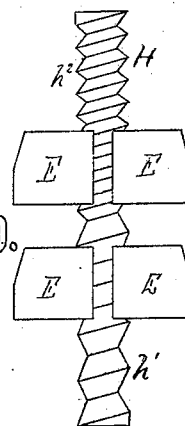


FIG: 10.

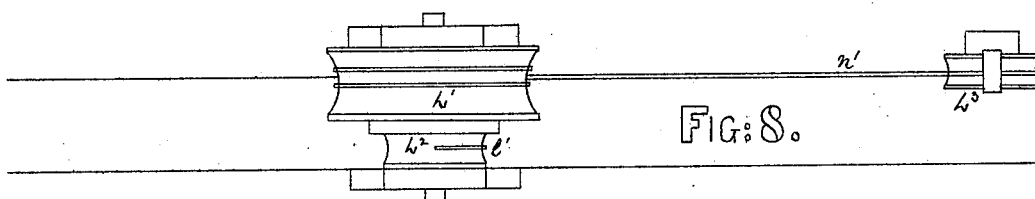


FIG: 8.

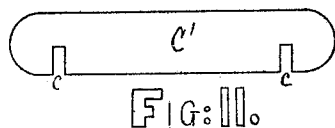


FIG: 11.

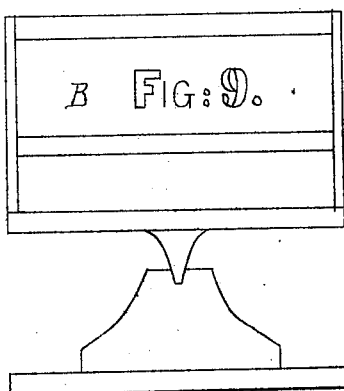


FIG: 9.

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UNITED STATES PATENT OFFICE.

CHARLES K. MARSHALL, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN COTTON PRESSES AND TRAMPERS.

Specification forming part of Letters Patent No. **113,901**, dated April 18, 1871; antedated April 10, 1871.

To all whom it may concern:

Be it known that I, CHARLES K. MARSHALL, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Cotton Presses and Trampers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a front view of the press. Fig. 2 is an interior view of the box, one entire side being removed and one of the end doors being raised. Fig. 3 shows the bevel-threaded screw which it is proposed to use. Fig. 4 is an interior view of a modification of the friction-box. Fig. 5 is a top view of a modification of the friction-box. Fig. 6 is a plan view of my improved nut and its operating mechanism. Fig. 7 is a vertical sectional view on the line *x x*, Fig. 6. Fig. 8 is a top-plan view, showing the arrangement of pulleys by means of which the screw-shaft is elevated. Fig. 9 shows the box supported and working in spindle and socket instead of friction-box. Fig. 10 illustrates the screw cut with threads of different gradations, and operated by double nuts. Fig. 11 is a view of one of the interlocking bars of the box.

The object of my present invention is to combine in a single machine a trumper and press, to be used in the baling and packing of either cotton or hay.

My improved trumper and press is so constructed as to be entirely free from all complicated mechanism, and will, consequently, not only recommend itself to the planter and others familiar with the practical working of such machines on account of its strength and the effective manner in which it accomplishes its work, but also on account of its cheapness and extreme simplicity.

My improvement is principally and chiefly designed for that style of press generally known as the "vertical screw-press," and of the class in which the screw rod or shaft which carries the follower-head is caused to descend by means of the revolution of the box; but the nut which I use, and which constitutes one of the most, if not the most, prominent feature

of my invention, is of such a character, as will be seen when the same is hereinafter fully described, as to be admirably adapted to, and one that can be most advantageously applied and used on, the "horizontal" and all other styles of screw-presses.

The nature of my invention consists in imparting the motion caused by the revolution of the box to the screw rod or shaft that carries the follower-head by means of a halved or sectional nut, and thus dispensing entirely with the close nut now generally used. This improved nut I propose not only to securely lock on and free from the screw-shaft at pleasure, by means of chocks and their operating mechanism, as fully shown in the accompanying drawing, but also by springs, levers, cams, or any other equivalent and suitable device.

Instead of the single nut, two may be used, having their female threads cut of different pitches or gradations, in which case, of course, the different sections of the screw-shaft upon which these several nuts are designed to act are cut or provided with a thread of corresponding pitch.

The great advantage of this nut is not only found in the fact that the operator is enabled, by means of pulleys, to instantly elevate the shaft and follower-head the moment the bale is hooped, and by this means save the tedious operation of rewinding the shaft, but he is also enabled to use his shaft and follower-head as a trumper.

The tramping of the loose cotton in the box, in order to properly distribute, and, in some degree at least, to render the same, in a measure, sufficiently compact for the action of the follower and plunger, is now performed by the laborers or hands entering the box. This operation is not only most injurious and positively unhealthy to those so employed, but exceedingly dangerous.

By my arrangement the entering of the box by the laborer to tramp the cotton is rendered entirely unnecessary, as the same work is accomplished in a shorter time and in a more thorough manner by the direct force and repeated action of the follower or plunger.

My invention also consists (and it is a feature intimately connected with the operation

of my improved nut) in beveling the threads of the shaft or rod at its lower section, the point at which the nut is usually thrown in contact with the shaft. This greatly facilitates the operation of coupling the nut and the reuniting of its half-sections. Instead of beveling the thread of the shaft, the female thread of the nut may be beveled.

My invention also consists in providing the box with guides, whereby the movement of the follower is governed and its direct and proper action insured, and all danger of its impinging on the top of the box is securely guarded against.

My invention also consists in providing the doors of the box with an inside rubber, secured at their top to retain the same in proper position, and to guard against all danger of their being pressed out while the bale is being formed under the powerful action of the follower or plunger, and also in fastening the door by means of interlocking iron bars.

My invention also consists in supporting and revolving the box on friction-rollers when the same are secured in a double-cup box, one freely revolving in the other, and the lower section of the box resting on rubber or other suitable springs.

The advantages of this arrangement are, first, all dust and dirt are excluded; and, second, the springs break the jar in tramping, and thus prevent all friction between the box and base of the press if the former should not always be perfectly level.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

A is the base, and A' A' a rectangular frame, which is firmly seated and braced thereon.

The base A and the frame A' A' are constructed in the usual manner, and may be made of any suitable material.

At the center of the base A is firmly secured a block, on which the lower cup, *a*, of the friction-box rests.

a' is the upper cup, which enters the cup *a* and revolves freely therein, resting and working on friction-balls, said balls being retained in proper position by angular or tapering flanges on the under face of the cup *a'*. This arrangement of friction-box excludes all dust and dirt, which practical experience has shown to be of the greatest advantage.

B is the box, which rests and works on the friction-cup *a'*. This box is of the ordinary form, and is constructed of any suitable material. It is provided with side doors, B¹ B¹, and end doors, B² B². These doors B¹ B² are provided with rabbets *b b'* at their top. These rabbets assist much in retaining the doors in position, and prevent the same from being forced out by the heavy pressure of the follower when the necessary power is applied to form the bale.

C C' are metallic plates, having at their ends slots *c c*. When the box is closed these plates interlock, securely fastening the same.

The posts D D, which form the upright supports of the box B, extend some distance beyond its upper surface, and support the platform D¹, on which rests and works the nut, and also the frame D², which furnishes the bearing for the rock-shafts and the operating mechanism through which the sectional nut E E is coupled and uncoupled.

The metallic nut which operates the screw-shaft that carries the follower-head is cut vertically through its center, so as to form a halved or sectional nut, E E. This nut is supported and travels on the platform D¹.

F F are two rock-shafts, and have their bearings on the frame D². These shafts are provided with lateral arms *f f* and vertical arms *f' f'*. The former are attached to the outer ends of the chocks E' E' by coupling-bars F' F', the coupling-bars being so connected as to form hinge-joints. The vertical arms act on the inner face of the chocks.

F' E' are chocks, and are slotted at their inner ends, so as to receive the tongues *e e* of the sectional nut E E, as clearly shown in Fig. 7, the same also being attached by pivot, so as to form a hinged joint, and where it will also be observed that the lower face of the nut is formed with a curved recess, so as to allow of the free movement of the rounded end of the chocks E' E'. To one of these rock-shafts F is attached a lever-handle, G, and to the other a short arm, G'. This handle and arm are so connected by a coupling-bar, *h*, that the movement of the lever-handle imparts a like motion to both rock-shafts F F, and, through them and the coupling-bars F' F', to the chocks E' E', and consequently to the sectional or halved nut E E, moving the same to and fro on the platform D¹, and coupling or uncoupling the nut at pleasure.

When the nut is coupled it firmly grasps the screw rod or shaft H, that carries the follower-head, the nut being locked in position by means of the brace-bars *d d* on the platform D¹, the brace-bars entering the recesses *e' e'* of the chocks E' E', as clearly shown in Fig. 7.

H is the screw shaft or arm that carries the follower-head H'. This may be an ordinary screw; but I prefer to use one with a beveled thread, as shown in Fig. 3, which greatly facilitates the coupling of the nut. When the nut is square-threaded it will come in contact only at certain points; but with the beveled thread it can readily and instantly be coupled at any point.

I also propose to cut the screw with threads of different pitches or gradations, as shown in Fig. 10, the thread being so regulated that it shall be exceedingly coarse, as at *h¹*, at which point but little power is required, and finer at *h²*, where the immense power and force are required that forms the bale.

Of course, with this style of screw more than one nut is required, and, as is shown in Fig. 10, nuts with threads corresponding to the different pitches or gradations of the screw must be used.

To the lower end of this screw-shaft H is pivoted the follower-head H¹, while its upper end enters the mortised guide-plate H².

The screw-shaft H is also guided in its upward and downward movements by the tube L. This tube L rests on the frame D², being firmly secured thereto by means of the grasping-flanges l l, and extends a slight distance above the top bar of the rectangular frame A' A'.

M is a rectangular frame, and is firmly mortised or otherwise secured to the top bar of the frame A' A'.

The upright timbers m m, that form the frame M, are provided with vertical guide-rails m' m', over which pass and work the recessed ends of the plate H², which, in connection with the tube L and the guide-plates s s for the follower-head H¹, between the box B and platform D¹, control and insure the proper fall of the follower or plunger.

Secured to the upper cross-piece of the frame M are sheaves or pulleys L¹ L² L³. L¹ L² is a double pulley, the larger, L¹, acting as a windlass when the follower or plunger falls, while to the pulley L² is attached the cord or chain v, that elevates the follower during its action when used as a trumper, and also to raise the same when the bale has been hooped.

By this arrangement, it will be observed that the tedious and laborious work of rewinding the screw to elevate the same is not only entirely avoided, but the greater advantage of enabling any one to use the screw-shaft as a trumper is accomplished.

When the screw-shaft and follower-head are to be used as a trumper the nut E E is uncoupled, when, its female thread no longer meshing with the thread of the shaft H, the utmost freedom of movement of the latter in its fall, when released by freeing the cord n' from the button n, is attained. This instantaneous freedom of movement of the screw-shaft is indispensably necessary to its success in tramping the cotton, as its effective force and power are received from and belong to its own gravity.

In Figs. 4 and 5 a modified form of the friction-box is illustrated. The double cup is used, as already described; but, instead of balls, tapering friction-rollers u' u' are used, and the upper cup is provided with rubber-block springs u u. This last feature is found to be of great value, as it not only breaks the jar in tramping, which is very important, but it also prevents friction between the box and base when the latter is not exactly level.

I have described and distinctly illustrated the mechanism by means of which the halved

or sectional nut is to be operated. This mechanism may, however, be dispensed with, and the nut worked by levers, cams, springs, or other similar device.

From the foregoing description the operation of the combined press and trumper will be readily understood.

The nut E E is uncoupled and freed from its contact with the screw-shaft by simply moving the lever-handle G. Cotton having been placed in the box, the same is tramped by the fall of the screw-shaft and follower-head. More cotton is then supplied to the box and the operation of tramping repeated. This is continued until the desired amount of cotton is in the box, when, by the reverse movement of the handle G, the nut E E is again coupled. The box is then revolved, which causes the screw-shaft and follower to descend, which furnishes the necessary power and force to form the bale.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. In the press herein described, the combination of the halved or sectional nut E E with the screw-shaft H, shafts F F, coupling-bars F' F', chocks E' E', and platform D¹, all constructed and arranged substantially as shown and described.

2. The screw-shaft H, with or without the varying pitch and operated by the nut E E, constructed as described, in combination with the follower-head H¹ of a cotton-press, when constructed and arranged substantially as shown, for the purposes set forth.

3. The arrangement of the pulleys L¹ L² L³, cords or chains, screw-shaft H, sectional nut E E, and follower H¹, when constructed and operated as herein shown and described, for the purpose set forth.

4. In the cotton-press herein described, the doors B¹ B², constructed with rabbets b b', and provided with interlocking bars C C', arranged substantially as shown, and for the purpose set forth.

5. The combination of the upper cup, a, provided with friction-rollers u' u', with lower cup, a', provided with springs u u, when constructed and arranged as shown, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. K. MARSHALL.

Witnesses:

EDWIN JAMES,
FRED. KOONES.