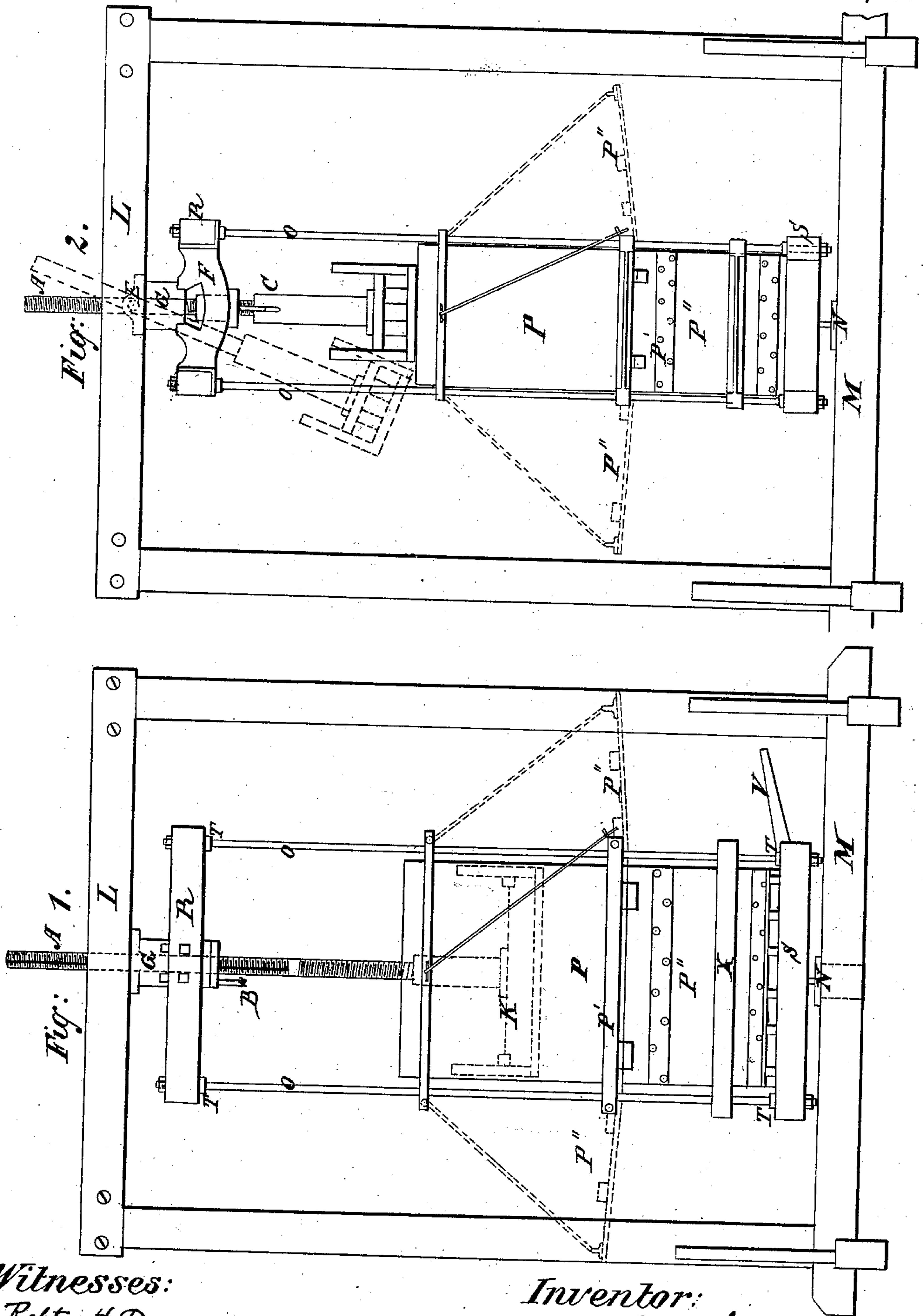


C. B. CHURCHILL,
Press for Baling Cotton, Hay, &c.
No. 168,557.
Patented Oct. 11, 1875.



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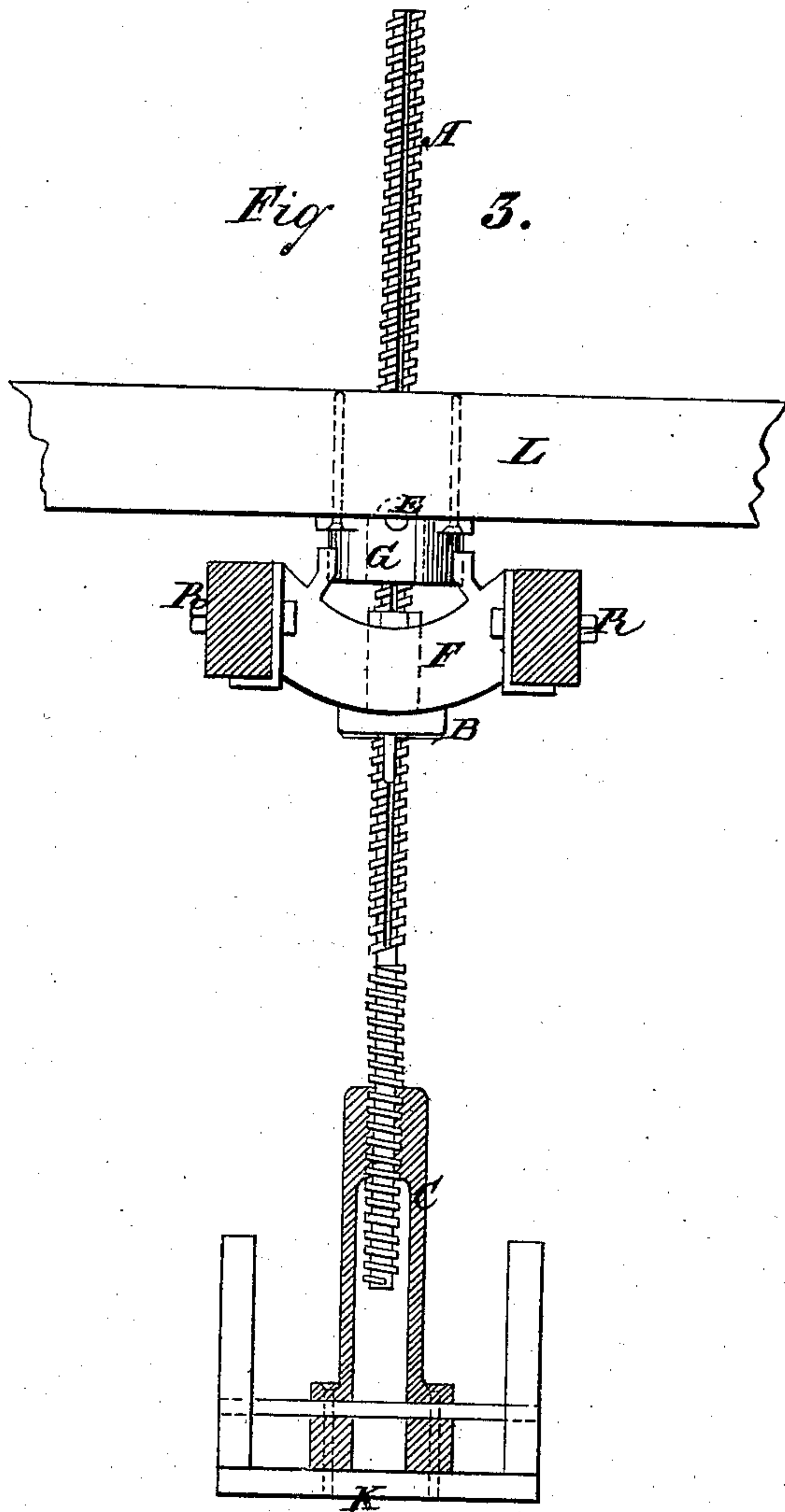


Fig 3.

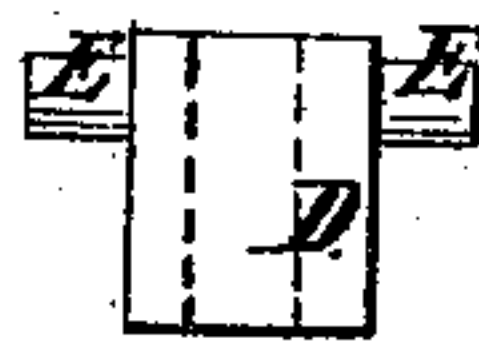
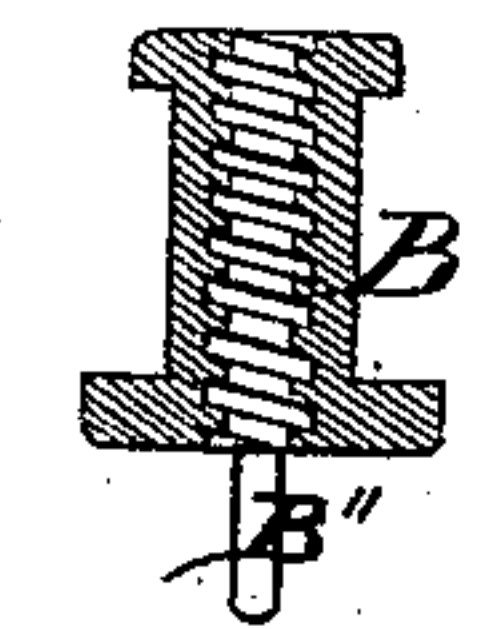
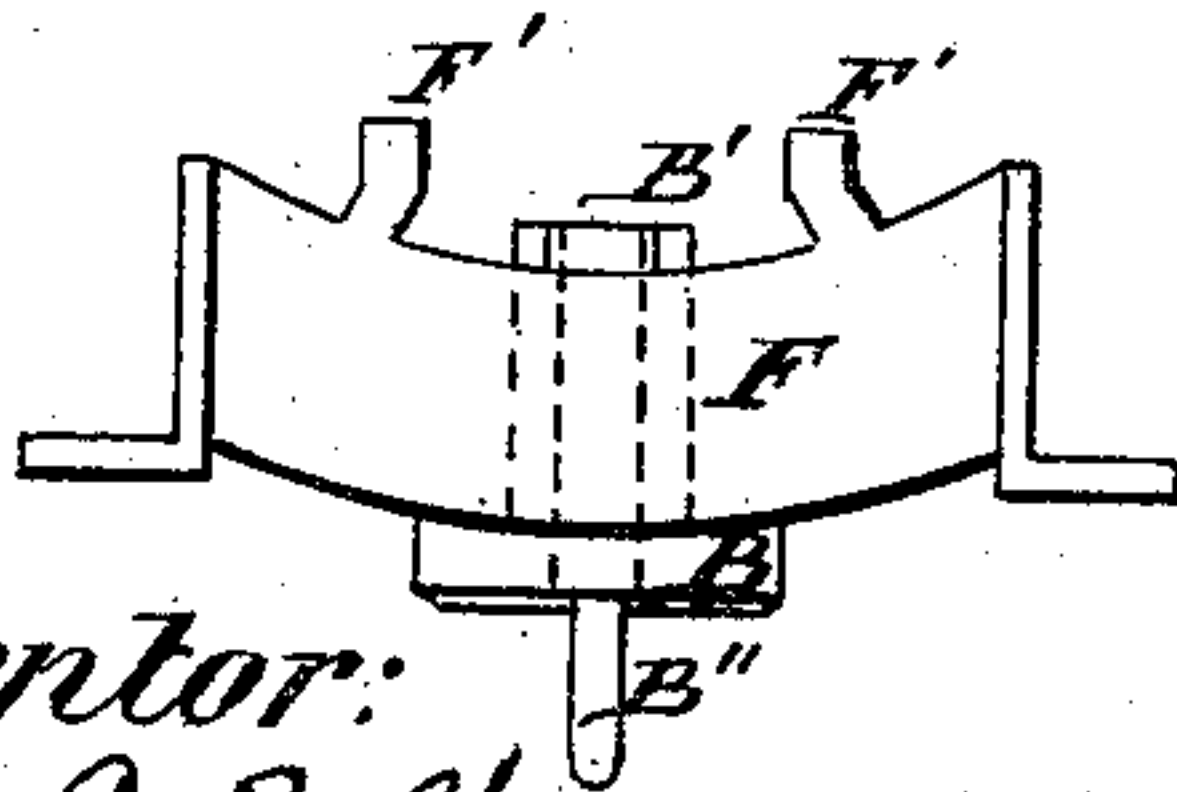
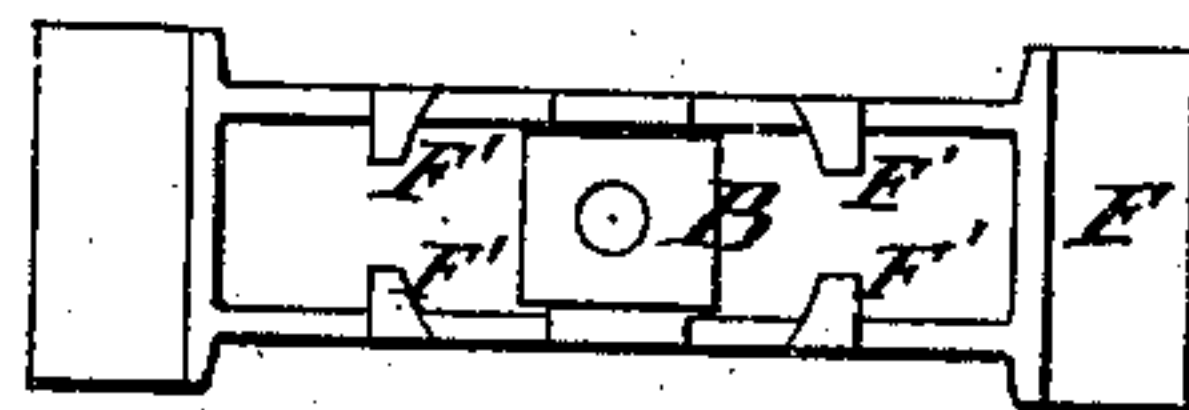
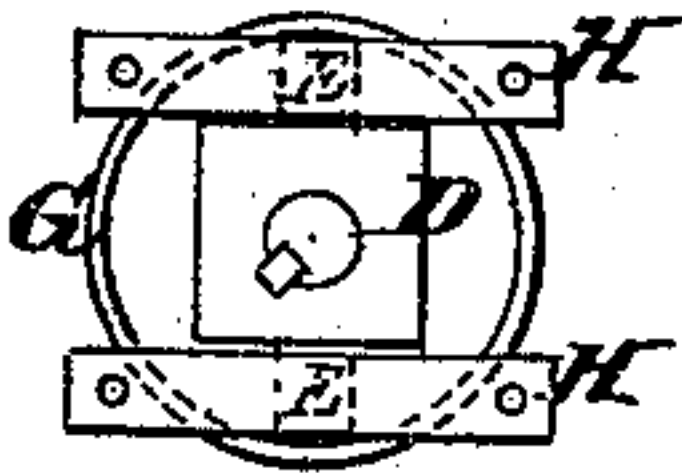
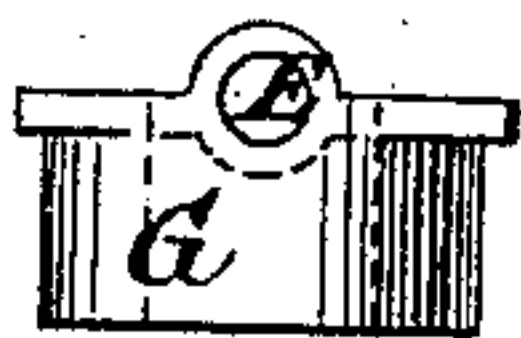


Fig. 4.



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UNITED STATES PATENT OFFICE.

CORNELIUS B. CHURCHILL, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN PRESSES FOR BALING COTTON, HAY, &c.

Specification forming part of Letters Patent No. **168,557**, dated October 11, 1875; application filed April 17, 1875.

To all whom it may concern:

Be it known that I, CORNELIUS B. CHURCHILL, of New Orleans, parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Presses for Baling Cotton, Hay, or other fibrous material; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification.

My invention relates to that class of presses in which the required pressure is obtained by the use of a vertical screw, in combination with a revolving press-box; and it consists, first, of an improved screw with right-hand and left-hand threads, and capable of being swung laterally to uncover the press-box, in combination with two nuts and a revolving press-box, the nuts revolving with the revolution of the press-box, while the screw is prevented from turning on its axis, as hereinafter explained; and, secondly, of a follower or platen so mounted and supported upon the lower end of the screw that when raised above the top of the press-box it may be swung laterally upon a center, so as rapidly to uncover the top of the box to permit of the introduction of the material to be baled into the box without the trouble and loss of time usually required in screw-presses.

In the drawings annexed and made part of this specification, in which like letters indicate like parts in all the figures, Figure 1 is a side view of the press and the press-frame. Fig. 2 is an end view, in which the follower K is raised out of the press-box, the dotted lines showing it as swung over to one side. Fig. 3 is an enlarged section or broken view, showing mechanism for swinging aside the follower; and Fig. 4 represents in plan and elevation the various parts immediately connected with the screw, by means of which the lateral movement of the screw and follower is effected.

A is the screw, made with left-hand threads on a portion of its length, and with right-hand threads on the other portion of its length. The pitch of the two threads may vary, as desired; but it is preferred, in order to prevent too great a loss of power, and in order not to increase unduly the length of the nut C, to

make the threads upon the lower end of the screw of a lower pitch than the upper end thereof. In the upper end of the screw a groove or keyway is cut, for purposes hereafter described. C is a long nut, made with a flange at its lower end, by which it is bolted securely to the follower K. This nut fits the left-hand thread of screw A. B is a nut, provided with a right-hand thread, and fitting the upper end of the screw; and this nut passes somewhat loosely between the arch-bars F, the flange on the lower part of the nut B bearing against the lower edge of the arch-bars when a bale is being pressed, and the lugs B', cast on the upper part of the nut B, resting on the upper edge of the arch-bars, and sustaining the weight of the screw, nuts, and follower when the press-box is empty. D is a collar or sleeve of sufficient interior diameter to allow it to pass easily over the screw A, and this collar is provided with a feather-key, *d*, that fits the longitudinal groove in the screw A. The collar D is also provided with journals or trunnions, fitting in the boxes H, and said boxes are firmly secured to L, the top or straining beam of the press-frame. The feather-key *d* in the collar D, fitting in the groove in the screw A, permits the screw to slide up or down through the collar, while it prevents the screw from turning around with the press.

The nut B being square between the arch-bars F, and the nut C being securely attached to the follower K, it follows that when the press is turned around, both nuts revolve with the press-box around the screw, and the follower K approaches or recedes from the press-box bottom S, according to the direction in which the press is turned, the nut C passing up or down on the screw A, while at the same time the screw A is passing up or down through the nut B and the collar D.

By this construction all friction in the working of the screw is avoided, except that which necessarily exists between the threads of the screw and the interior of the nuts.

On the nut B is a lug, B'', extending a short distance downward, and in the nut C is a corresponding groove or recess, these parts being so related that when the press-box is turned around to raise the follower K, preparatory to

filling the box with the material to be pressed, the lug B'' on the nut B will enter the recess in the nut C just before the follower leaves the press-box, so that when the follower is raised entirely clear of the top of the press-box it maintains its proper position in relation to the press-box without trouble to the operator.

Any device whereby the nut C is temporarily locked upon the screw when the follower is raised may be substituted for the lug B'', the object being to secure the follower, so as to prevent it from turning upon the screw when swung to one side, and thus interfering with the operator. The upper edge of the metallic arch-bars F is a circular curve, the axis of the trunnions E on collar D being the center of the arc. As the nut B fits loosely between the arch-bars F this construction allows the follower, with the screw and nuts, to be swung over to one side, the trunnions E on collar D being the center of motion, thus uncovering the whole top of the box, and allowing the greatest possible room for the operator to put in the cotton or other material to be pressed. On the metallic arch-bars are lugs F', extending upward and embracing the circular top guide G, which surrounds the screw and is secured to the top beam of the press-frame. These lugs, bearing against the circular guide, maintain, or aid in maintaining, the press-box in its vertical position, both when the follower is swung to one side and when the press is in motion, the lugs, in the latter case, revolving freely around the guide. The collar D is suspended inside, and in the center, of the guide G by the boxes H. This circular guide must be large enough to permit of the desired lateral movement of the screw, and it is rendered necessary by the fact that the screw, because it is mounted so as to swing laterally, cannot give the requisite support to the press in its revolution. So far as concerns the suspension of the screw and the connected follower upon pivots, so as to give them the capacity of lateral movement, as hereinbefore indicated, I do not consider that this feature is necessarily connected with the peculiar construction of the screw, (by which it is provided with a right-hand thread upon its upper end, and a left-hand thread upon its lower end.) These parts might be made to swing laterally, even though the threads of the screw were made continuous throughout.

M represents the bottom sill of the press-frame. N represents the gudgeon that supports the entire weight of the press and contents, and upon which the press revolves. The press-box P is made of wood, of dimensions and shape as required. O are four metallic rods, connected rigidly at their upper ends with each end of the two beams R, and rigidly connected at their lower ends with the four corners of the press-box bottom S. The press-box P is fastened together, in the usual manner, with battens and screw bolts, and is held in position by the metallic rods O at each corner, and rests upon, and is supported by,

collars forged in the proper place on the rods O. The doors P'' are hung to the lower battens of the press-box. The battens X, near the bottom of the two side doors, extend slightly beyond the end of the press-box, as shown in Fig. 1. These projecting ends are fitted to receive metallic clamp-bars. The clamp bars pass across and against the end doors, thereby clamping all four doors together, and holding that part of the press-box that is formed by the doors together while a bale is being pressed. The doors are made a little short, so as to allow space between their lower edges and the press-box bottom for the cloth that is to cover the lower part of the bale to pass under. The doors, when opened, are held up by hooks attached to the upper part of the press-box.

To use the press, first spread the cloth for covering the lower side of the bale over the press-box bottom S; then close the doors, and put on the clamp-bars to secure them; then turn the press around until the follower K is raised clear of the top of the box, stopping the press when the beams R reach a position at right angles with the top beam L of the press-frame; then swing the follower over to one side, and fill the press-box with cotton; then spread over the top of the box the cloth that is to cover the upper part of the bale; then swing the follower back to its place; then apply power to the lever V, and turn the press around until the bale is reduced to the size required; then unhook the clamp-bars, swing up the doors, and hook them there; then secure the bale with ties or hoops, and then turn the press around in the proper direction to raise the follower up from the bale. As soon as the follower is clear of the bale the bale can be rolled off from the press-bottom.

What is claimed as new is—

1. The combination of the revolving press-box, a stationary right-and-left-hand screw, and two revolving nuts, the lower one of which receives the lower end of the screw, and is rigidly attached to the follower, substantially as shown and described.

2. The combination of the revolving press-box and a right-and-left-hand screw, working in two revolving nuts, the upper one of which is made capable of lateral movement on its bearings, substantially as and for the purpose indicated.

3. In combination with the revolving press-box and nuts, a stationary screw, the upper and lower ends of which are free to move laterally when the follower is raised, so as to swing the follower away from the top of the press-box, substantially as and for the purpose indicated.

4. A follower arranged to swing away from the top of the press-box by the lateral movement of the screw, the center of such movement being above the follower, substantially as set forth.

5. In combination with the nut which receives the lower end of the screw, the lug B'',

or equivalent device, by means of which the nut and follower are locked in position when raised from the press-box, substantially as and for the purpose set forth.

6. The combination of the revolving press-box and a circular guide for guiding and supporting the same, such guide having an internal diameter sufficient to permit the lateral

movement of the screw as the follower is swung away from the top of the press-box, substantially as shown and described.

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