

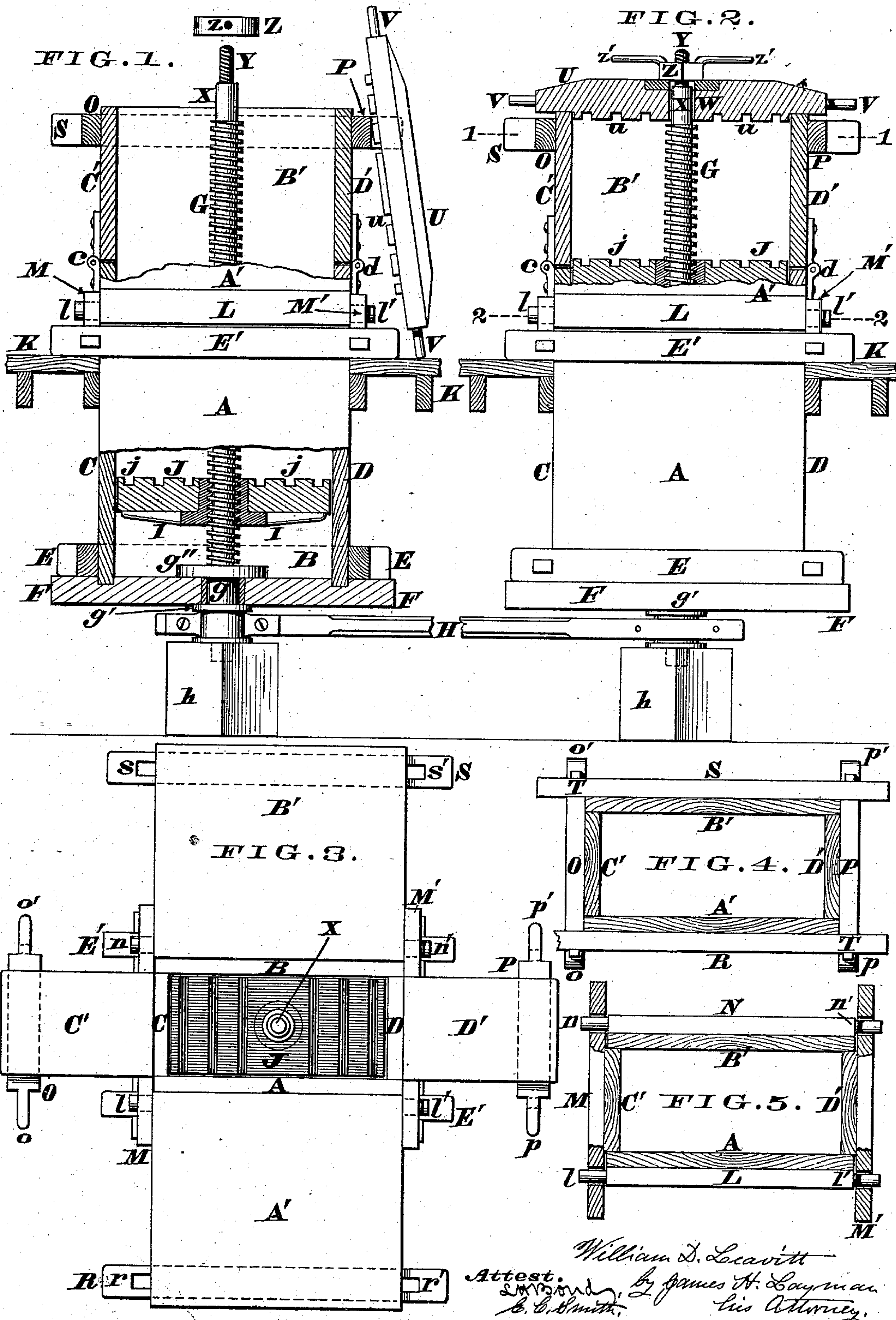
(Model.)

2 Sheets—Sheet.1.

W. D. LEAVITT.
Baling Press.

No. 240,912.

Patented May 3, 1881.



William D. Leavitt
Attest. *James H. Layman*
his Attorney.

(Model.)

2 Sheets—Sheet 2.

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FIG. 6.

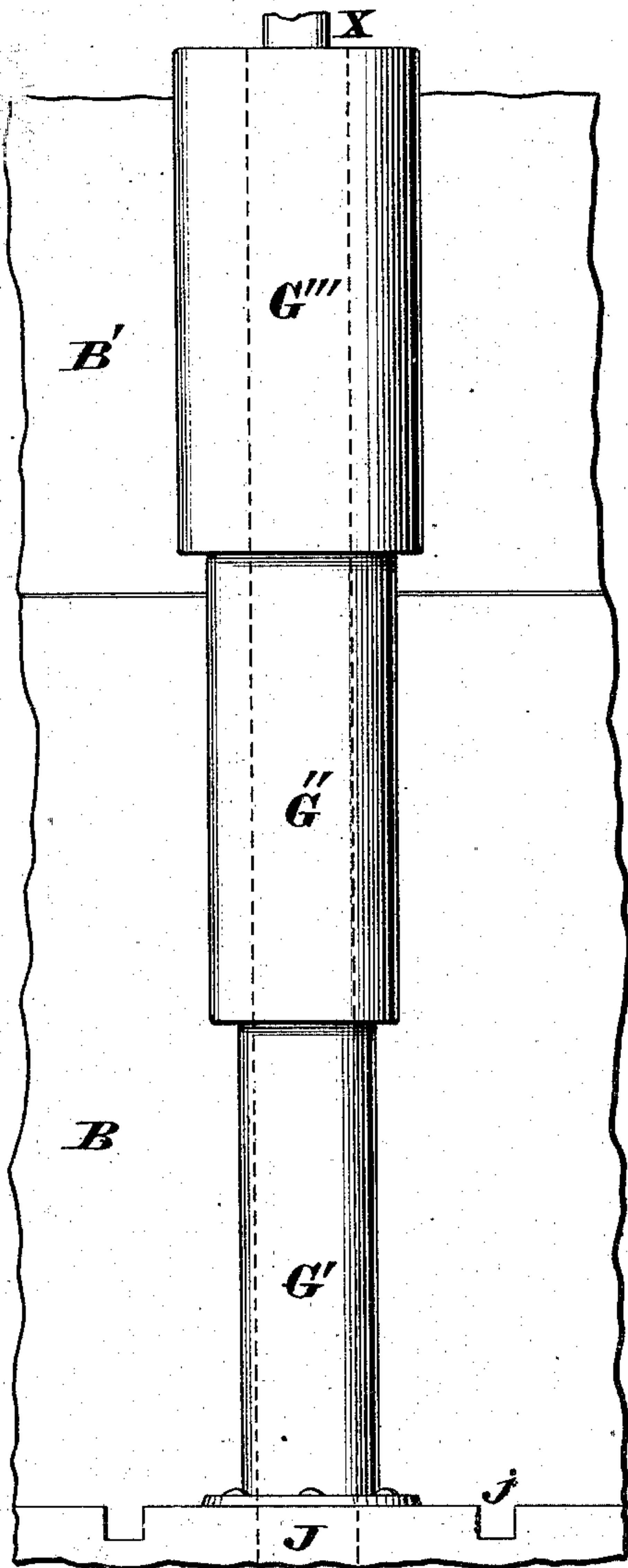


FIG. 7.

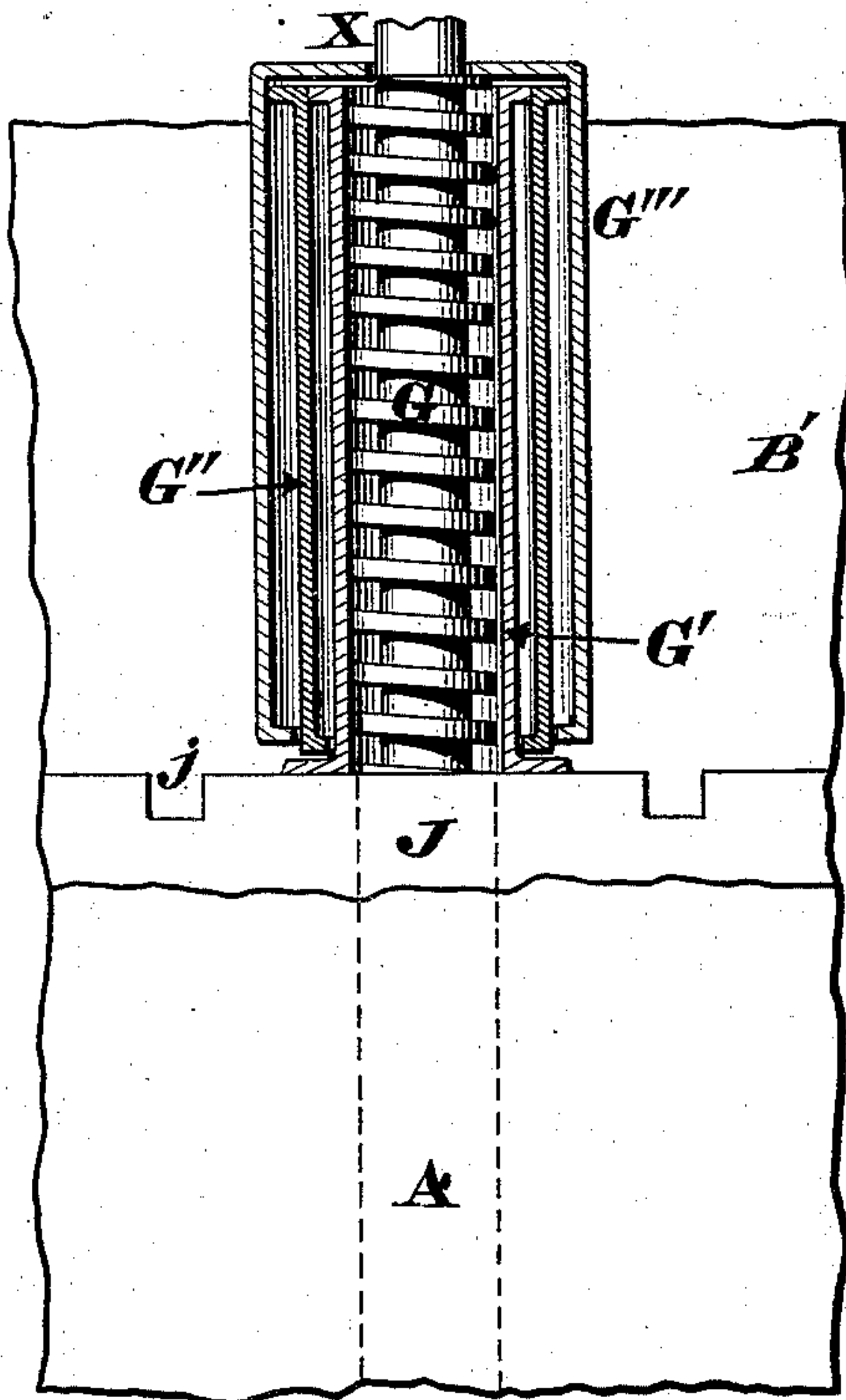


FIG. 9.

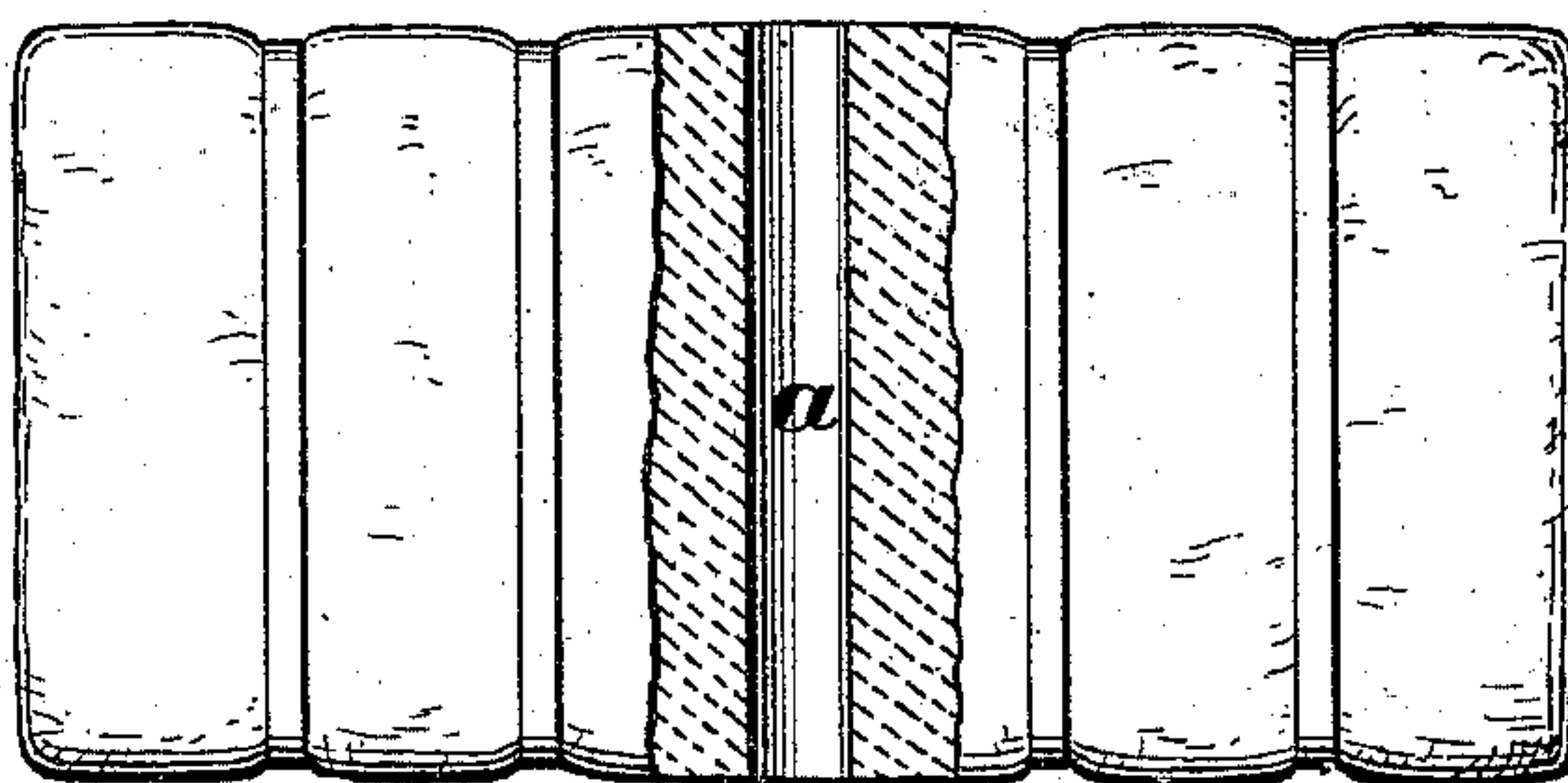
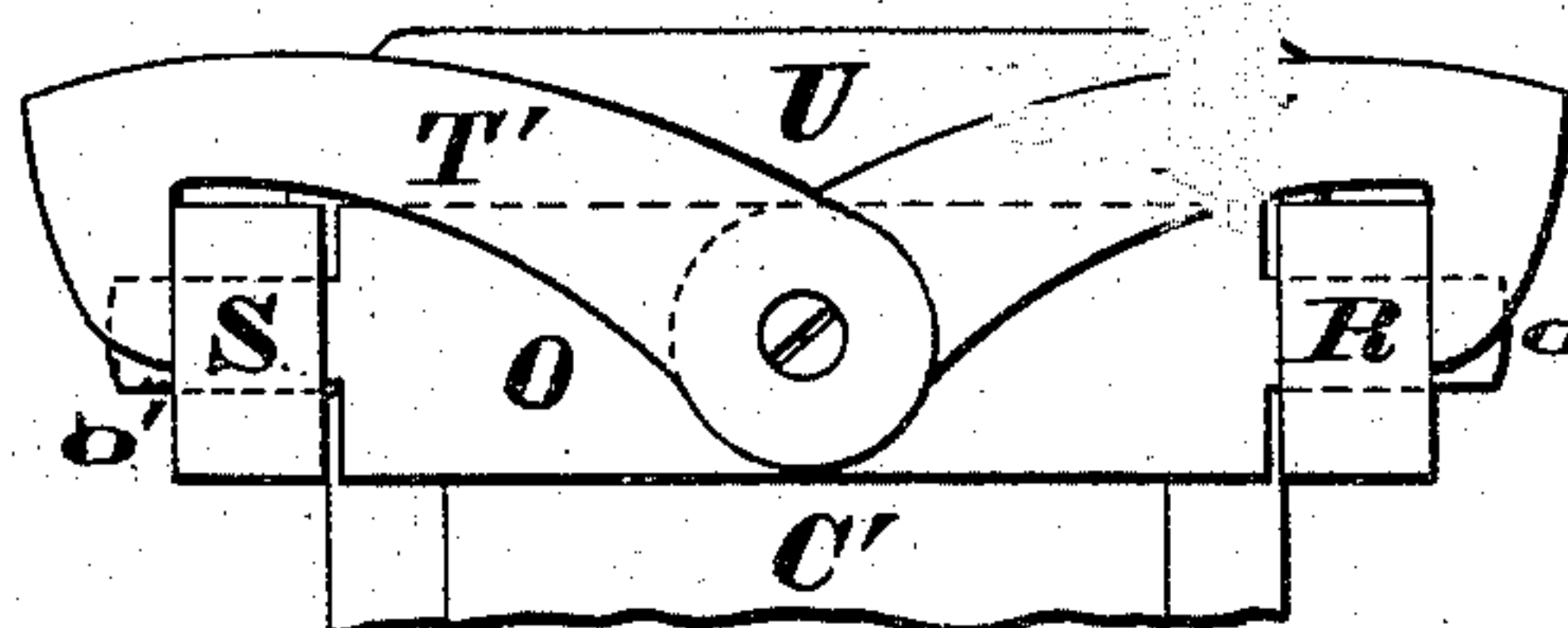


FIG. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM D. LEAVITT, OF CINCINNATI, OHIO, ASSIGNOR TO OLIVE J. LEIGHTON AND JULIA A. LEIGHTON, OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 240,912, dated May 3, 1881.

Application filed September 9, 1878.

To all whom it may concern:

Be it known that I, WILLIAM D. LEAVITT, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

This invention relates to that class of presses which employ a screw for operating the follower or platen within a vertical trunk.

My improvement consists in making the operating-screw long enough to pass completely through the upper head or cap of the trunk, the projecting end of said screw being furnished with an external nut, wherewith said head is securely held while the bale is being pressed. By this arrangement the axial screw-shaft serves as a stout and secure tie-rod, and prevents said upper head being sprung or broken by the immense pressure to which it is subjected. Furthermore, this prolongation of the screw greatly facilitates the act of liberating the pressed and bound bale from the trunk, as hereinafter more fully described.

In the accompanying drawings, Figure 1 is a sectional front elevation of my improved baling-press, the follower being shown in its depressed position, the head being removed from the trunk and the nut shown as disengaged from the operating-screw. Fig. 2 is a similar view, but showing the follower elevated and the upper head of the press secured to the trunk by the engagement of the aforesaid nut with the screw. Fig. 3 is a plan, showing the various doors of the press opened so as to permit the trunk to be charged. Figs. 4 and 5 are horizontal sections of the trunk, taken respectively at the lines 1 1 and 2 2 of Fig. 2. Figs. 6 and 7 represent, respectively, the distended and contracted conditions of a telescopic guard or sheath that surrounds the operating-screw of the press. Fig. 8 represents a modification of the locking devices that secure the doors of the press in their closed condition. Fig. 9 is a partially-sectional view of the bale formed by my press.

A represents the front, B the back, and C D the opposing sides, of the customary rectangular trunk of a baling-press. The lower end of said trunk is securely bound together with a heavy frame, E, beneath which the lower and

fixed head, F, is secured. This fixed head is pierced at its center to receive the unthreaded neck *g* of a heavy screw, G, of any suitable material, and having any appropriate pitch of thread.

Formed on the ends of neck *g* are collars *g'* and *g''*, of which the latter collar is located above the head F, while the former one is situated below said head.

Attached to screw G immediately below collar *g'* is a sweep, H, to which one or more horses may be attached for the purpose of operating the press. If preferred, this sweep can be omitted, and a windlass or gearing or any other convenient appliances may be employed for actuating the screw. The extreme lower end of the screw is stepped in a bearing, *h*. Adapted to ride upon this screw is a secure metallic nut, I, supporting the follower J, which latter is grooved at *j* to receive the hoops wherewith the pressed bales are bound. Furthermore, said screw is preferably surrounded with two or more tubular sheaths, G' G'' G''', capable of telescoping one within the other, so as to completely envelop the screw both in the elevated and depressed positions of the follower. Of these telescopic sections, the inner one, G', has a flange secured to follower J, while the outer section, G''', has an annular flange that fits around the unthreaded stem X of screw G. The intermediate section, G'', is located between the inner and outer ones, and by means of suitable flanges on these sections they are capable of distention or contraction, according as the follower is depressed or elevated. (See Figs. 6 and 7.) The object of this sheath or casing is to prevent cotton or other fibrous material becoming engaged with the threads of the screw, so as to impair the efficiency of the press. In the drawings the annular flanges at the ends of these telescopic sections are drawn on an enlarged scale, so as to render them conspicuous; but in practice they are very small projections, as said sections are composed of seamless boiler-tubes with their ends slightly upset. Furthermore, the lower ends of the two sections G'' and G''' are rounded off, so as to prevent the formation of any shoulder or ledge against which the cotton might wedge or pack while the follower J is being advanced. Said sheath,

however, may be dispensed with in some presses, as its use is not essential in all cases.

Located near the mid-length of the trunk is another stout frame, E', which supports the press upon the platform or staging K. The front A and back B do not extend up much beyond said frame, but are attached at this point to prolongations or extensions A' and B', of which the extension A' is secured to a stout beam, L, whose gudgeons *l l'* are journaled in timbers M M' attached to the sides C D. The other extension, B', is secured to a beam, N, whose gudgeons *n n'* are journaled in the rear ends of said beams M M'.

Hinged to the respective sides C D, as at *c* and *d*, are similar extensions, C' D', whose free ends have beams O P secured to them, which beams have tenons *o o'* and *p p'*, that enter mortises *r r'* and *s s'* of the beams R and S, the latter being attached respectively to the free ends of extensions A' and B', as more clearly seen in Fig. 3.

T T are pins, keys, or wedges, which pass through apertures in the tenons *o o'* and *p p'*, so as to retain said tenons in the appropriate mortises of beams R and S; but said pins may be omitted and hooks T' be substituted for them, as shown in Fig. 8. These beams O P and R S serve as a secure clamp or tie-frame to maintain the extensions A' B' C' D' accurately in line with the trunk of the press, while at the same time said beams allow these extensions or doors to be readily turned down to a horizontal position when said trunk is to be charged.

U represents the upper or detachable head of the press, which head has a diminished portion of such size as to readily enter the mouth of the trunk, said diminished portion being grooved at *u* to receive the hoops wherewith the compressed bale is finally bound.

V are pins to facilitate handling the removable head U. The aforesaid head is pierced at W to receive the unthreaded stem X of the screw G, whose upper portion is threaded at Y for engagement of nut Z. This nut may be disk-shaped and be furnished with openings *z* to admit levers or hand-bars; or the nut may be of any other shape and have handles *z'* permanently attached to it.

The manner of operating my press is as follows: The follower J having first been depressed, as seen in Fig. 1, the nut Z is disengaged from the threaded portion Y of screw G, and the removable head U is then unshipped from the upper end of the trunk. Pins T are now withdrawn from the apertures in tenons *o o' p p'* and the extensions or doors A' and B' are turned down so as to rest upon platform K, after which act the other extensions, C' and D', are brought to a similar position. (See Fig. 3.) These changes afford an open and unobstructed mouth to the press about at the level of platform K, upon which latter the attendants stand. The chargers are now enabled to fill the trunk with the utmost facil-

ity, as they are not compelled to lift the material to any considerable height. The trunk having been properly filled and the material tramped therein, the attendants then restore the extensions A' B' C' D' to their erect positions and secure them with the pins T or hooks T'. The removable head U is now fitted upon the trunk and secured in place with the nut Z. Power is then applied to sweep H, so as to cause such a rotation of screw G as will elevate its follower I J within the trunk A B C D, which elevation is continued until the material has been sufficiently compressed, when the further rotation of said screw is temporarily arrested. The doors A' and B' are now opened, the hoops passed through the grooves *j* and *u*, and then secured around the bale. As soon as these bands have been properly locked, nut Z is disengaged, the head U lifted from off the side extensions, C' and D', and said sides are then turned down upon platform K. The compressed bale is now supported entirely upon follower J, and consequently the attendants have free access to the top, both sides, and each end of the bale, and they are thereby enabled to apply the bagging with the utmost facility. A few more revolutions of the screw are then made and the bale is raised high enough to disengage itself from the screw and roll off onto the platform without any handling whatever. The bale having been thus forcibly liberated from the screw, the previously-described operations of charging the trunk and pressing the hay or cotton are again repeated in a precisely similar manner. When finally discharged from the press the bale has a hole in it of the same diameter as the screw G or the outer section, G'', of the telescopic sheath, which opening enables the cotton-inspector to draw samples of the staple from the center of the bale, where inferior material is generally packed.

It will thus be seen that a bale produced in my press cannot be filled in with an inferior article without being readily detected.

During the ascent of the follower a very great pressure is necessarily exerted against the upper head, U; but the latter cannot break or give, because the screw G Y and nut Z act as a tie-rod to maintain said head in its proper position. As this screw occupies an axial position within the trunk, where the greatest strain occurs, it is evident said screw enables me to dispense with the complicated, expensive, and unreliable system of straps, staples, links, bolts, nuts, &c., that are generally employed for maintaining the upper head of a baling-press on the trunk.

An obvious but inferior modification of the press may be effected by disposing the trunk in a horizontal position.

Furthermore, two or more screws may be employed for actuating the follower, which screws must be of a uniform pitch of thread, and arranged to rotate at the same speed.

A key or other equivalent device may be substituted for the nut Z.

The screw G may be composed of several cast-iron sections secured together with an axial bolt, said sections being coupled together with non-circular tenons and sockets.

5 I claim as my invention—

1. A baling-press whose operating-screw is prolonged upwardly to the top of the trunk, and serves as a tie-rod to the removable head, substantially as herein described.

10 2. The combination of trunk A B C D, fixed head F, operating-screw G g'', follower I J, removable head U W, and retaining devices Y Z, substantially as herein described.

3. In combination with an operating-screw passing through a baling-press in the manner 15 described, the telescopic sheath or guard G' G'' G''', which sheath envelops said screw and is actuated by the follower J, substantially as herein explained, and for the purpose stated.

In testimony of which invention I hereunto 20 set my hand.

WILLIAM D. LEAVITT.

Witnesses:

JAMES H. LAYMAN,
B. J. THURSTON.