No. 694,861. Patented Mar. 4, 1902.

L. M. HOSEA.

SCREW PRESS.

(Application filed Sept. 23, 1901.)

(No Model.)

Fig. 1.

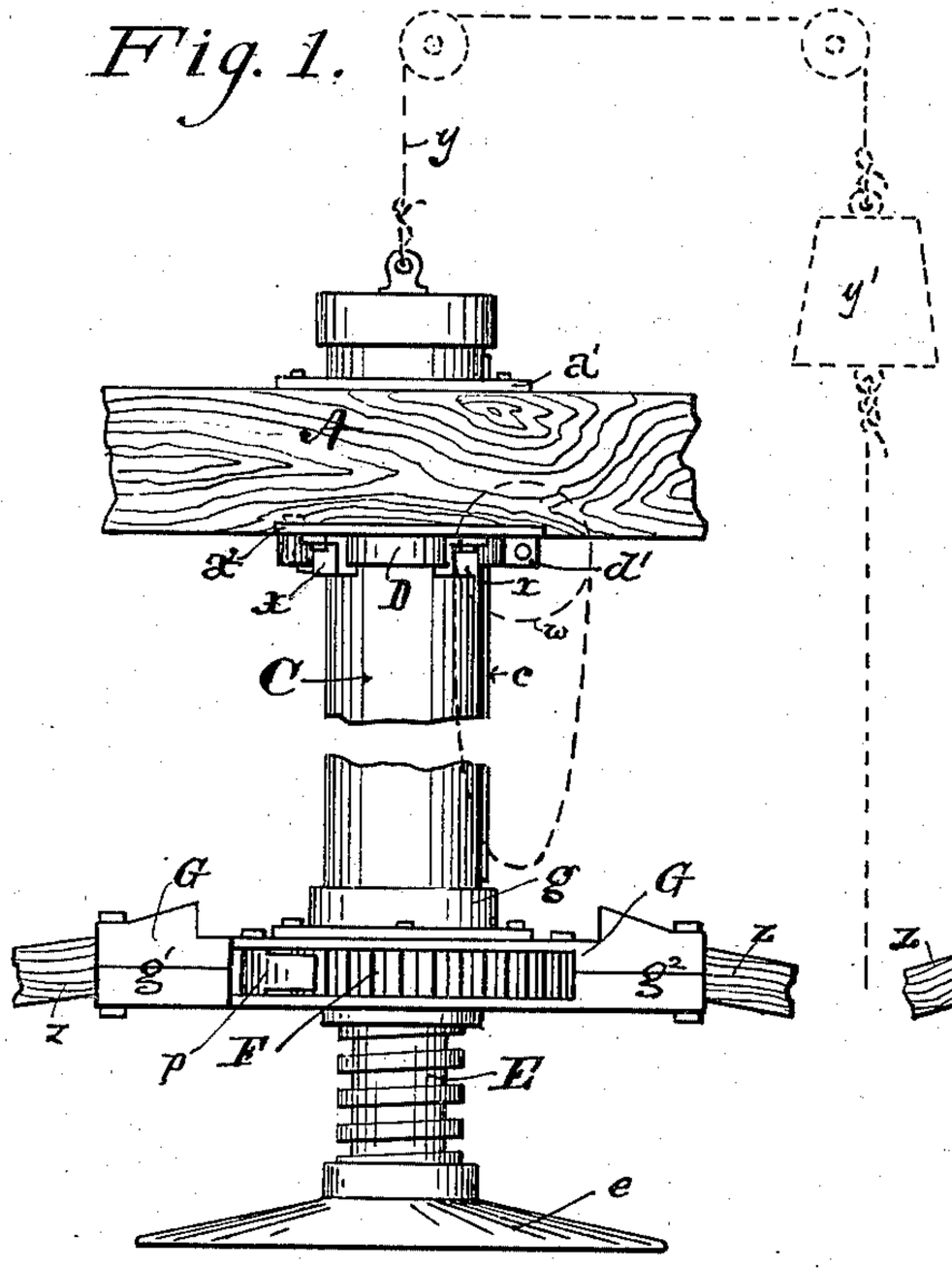


Fig. 2.

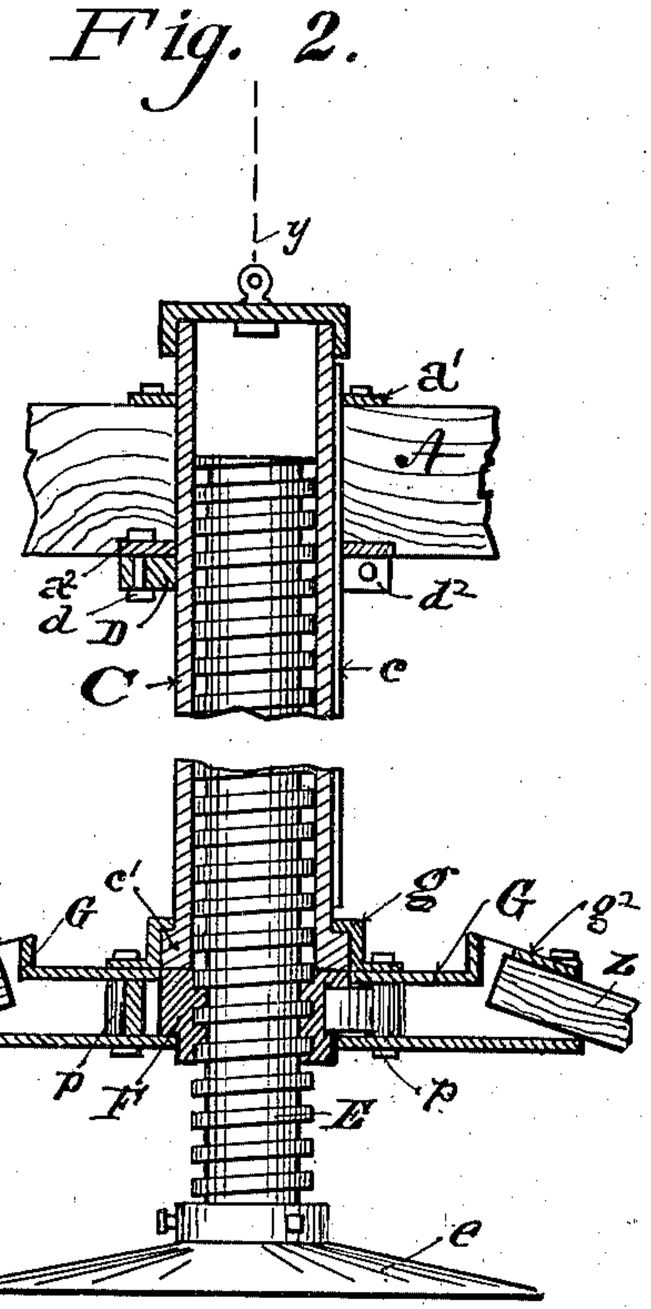


Fig. 3.

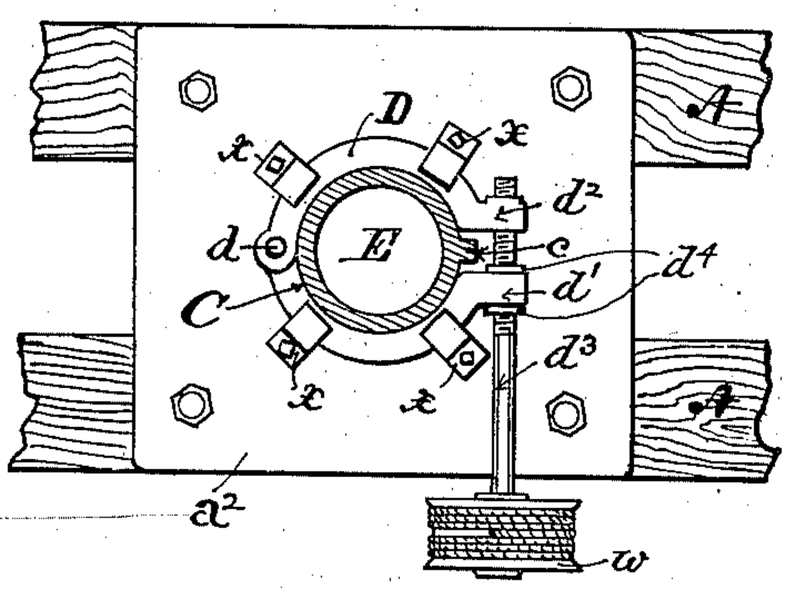
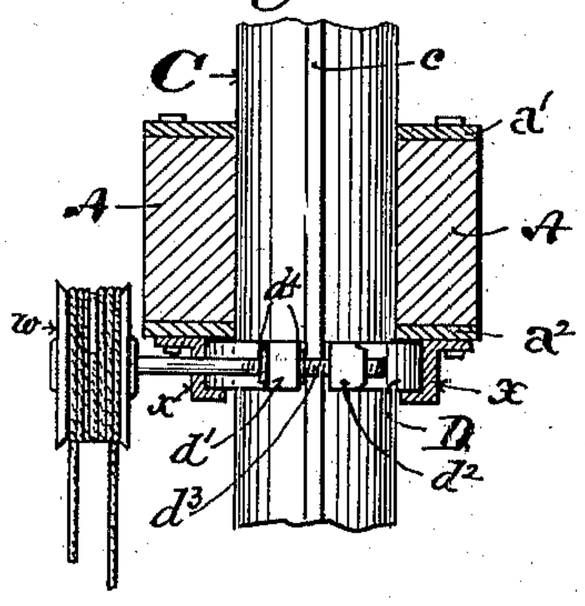


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

LEWIS M. HOSEA, OF CINCINNATI, OHIO.

SCREW-PRESS.

SPECIFICATION forming part of Letters Patent No. 694,861, dated March 4, 1902.

Application filed September 23, 1901. Serial No. 76,276. (No model.)

To all whom it may concern:

Be it known that I, LEWIS M. HOSEA, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Screw-Presses, of which the following is a specification.

My invention relates to screw-presses, and is applicable particularly to those used in "prizing" tobacco and for other purposes, its object being to improve the same both in construction and mode of operation with a view to increased efficiency and capacity and facility of manipulation. The presses of this character as heretofore generally constructed and used consist of a relatively long screw hung in a nut secured to the head-block and operated by rotating either the screw or nut by oscillating ratchet devices. Besides increased cost of construction the great length and necessarily-enlarged diameter give the screw great weight and consequent friction in the supporting-nut, which makes the elevation of the screw for readjustment a tedious and laborious process, especially in those presses in which the ratchet devices, carried on the screw itself, add considerably to the weight and friction. Where, as in the case of large screws used in tobacco-packing warehouses, the screw must be lifted several feet for readjustment by the same ratchet devices used in compressing, much valuable time is wasted, besides the labor. In my improvement the readjustment of the screw is effected with little labor and no loss of time and all its operations facilitated; to which end it consists in a screw carried telescopically in and protruding below a tubular casing, which casing is longitudinally adjustable in the head-block. In the preferred construction shown herein the casing and screw do not rotate, the protrusion of the screw being effected by a ratchet-nut upon the screw, which nut, together with its operating devices, is swiveled to and in contact with the lower end of the tube, whereby also the screw is supported mediately by the tube. The nut therefore operates as a rotating wedge, forcing the screw in either direction in relation to the tube as an adjustable abutment. The screw is therefore relatively short, light, and its readjustment in the tube may be easily and quickly accomplished by rotating the platen as a hand-wheel, while the entire device (screw and casing) can be lifted or depressed at any time instantly and directly.

Further details will appear in the subjoined description, the essential feature of the invention being the adjustable tubular casing carrying the screw and operating as a shifting abutment against which the operating-threads of the screw act.

Mechanism embodying my invention is illustrated in the accompanying drawings, in which—

Figures 1 and 2 are side elevations, the latter in axial section, of my improved screw-press; Fig. 3, an under plan of the head-block, showing the clamping-ring and its immediate attachments; Fig. 4, a vertical cross-section through the head-block, showing a cross-elevation of the clamping-ring and operating devices.

Referring now to the drawings, A designates the "head-block" or cross-beam, constituting the supporting element of the screw E, and its attachments. It may be in duplicate, as shown, and constitute part of a suitable press-frame, or, as common in large screws used in tobacco-packing warehouses, a cross-beam of the building where used.

At the upper and lower sides of the beam or beams A are metal guide-plates a' a^2, perforated to receive and guide a metal tube C, arranged to be adjusted vertically in and through the guide-plates and held against rotation by a spline c, attached longitudinally at the outer side of the tube, engaging in a corresponding side recess in each guide-plate opening into the central perforation. The tube C is held in adjusted positions in any convenient manner. I prefer and have shown herein a two-part ring D, of metal, hinged at the rear side by a pintle d and arranged to embrace the tube C, the front terminals d' d^2 of the ring being turned outward and perforated tangentially for the reception of a screw-shaft d^3, threaded into one of said terminals and held to the other by collars d^4 d^4. The outer terminal of the screw-shaft d^3 is fitted with a wheel or crank w, by which the two-part ring is operated to clamp the tube C and retain it against upward movement by contact of the ring D against the plate a^2 of the

head-block and against downward movement by similar contact against supporting-cleats x, attached to said plate and projecting beneath the ring. The tube C may be elevated, depressed, and counterbalanced by a rope y and weight y' (shown in dotted lines in Fig. 1) when the clamping-ring D is released. The tube C is utilized as the carrier and guide of the compression-screw E, which operates telescopically within the tube and projects downwardly through the same, carrying the usual platen e at its lower end. The screw E is held to and supported by the tube C by means of a nut F, fitted in an oscillating pawl-frame G, which latter is swiveled to a circular flange c' at the lower mouth of the tube by a countersunk collar g, secured to the frame G and engaging over the flange c', the oscillating frame projecting radially in opposite arms g' g^2, formed as sockets to receive ordinary "capstan-bars" z for operating the nut F, as follows: The outer face of the nut F is recessed to receive and be engaged by the terminals of a pawl or pawls p, pivoted in the frame G, the pawl or pawls being "reversible" and held in ultimate positions of engagement by springs in the usual manner of such constructions.

The mode of operation is as follows: The screw E being slightly protruded through the tube C is held and guided in the extended axis of the tube by the telescopic fit of the inner cylindrical wall of the tube against the outer threads of the screw, these parts being so proportioned in length that a sufficient lap shall always exist in the pressing operations. The clamping-ring D being loosed, the tube C is dropped down through its guide-plates a' a^2 until the platen e rests upon the mass to be compressed. The ring D is then clamped to the tube C and the ratchet-nut F rotated "backward," the screw E being held against rotation by the frictional pressure of its platen e against the mass undergoing compression. The ratchet-nut being swiveled to the tube acts as a rotating wedge between the lower margin of the tube as an abutment and the threads of the screw E, covered by the nut. The screw is thus drawn downward as far as may be necessary. When the screw has reached the proper limit of protrusion, the tube is raised up and the screw is rotated by hand into the tube to its first position, while the nut is held stationary and the parts then dropped down for a renewal of the operation. Thus the tube is utilized as a shifting abutment to any desired degree, and a relatively short screw is made to do the work of a long screw. These adjustments, as will be obvious, are easily and quickly made and the capacity and efficiency of the apparatus thereby largely increased.

Instead of two plates a' a^2, as here shown, a single socket-piece may be used by casting the lower plate with a curb or hollow projection at the back and extending upward as a tubular guide for the tube C. Various other changes may be made in mechanical details without departing from the spirit of my invention, the essential feature of which is the longitudinally-adjustable tube telescoped about the screw and constituting a shifting abutment for the operation of the screw. For example, the nut F might be rigidly attached to the tube and the rotating power be applied to the screw or to the tube.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. A screw-press of the character indicated embodying in combination a non-rotating tubular casing adjustably supported in the head-block; a screw movable and guided longitudinally in the casing; and a nut seated on and engaging the threads of the screw and supporting the same by swiveling connection with and upon the casing and operating the screw without rotation of the latter, as a rotating wedge between the casing and the screw-threads, substantially as set forth.

2. A screw-press, embodying in combination a non-rotating tubular casing adjustably supported in the head-block, means for holding the casing in adjusted positions, a screw movable and guided longitudinally in the casing; a nut seated on the threads of the screw and supporting the same by a swiveling connection with and upon the casing, and operating the screw without rotating the latter by rotation as a rotating wedge between the screw and casing, and means for rotating said nut in either direction by step-by-step movements, substantially as set forth.

3. The improved screw-press embodying, in combination, a non-rotating tubular casing adjustable longitudinally in the head-block and devoid of internal threads; means for holding the casing in adjusted positions; a normally non-rotating screw guided telescopically within and protruding below the casing; a threaded nut upon and engaging the screw, said nut having a swiveling connection with the tubular casing whereby it is held below in rotative contact with the same; and means for rotating said nut in such contact and upon the threads of the screw; substantially as set forth.

4. In an extensible screw device of the character indicated, the combination of a tubular casing adjustable in the head-block and carrying telescopically a protruding normally non-rotating screw, and an adjustable clamp supported from the head-block and embracing the casing as a collar beneath and in contact with the head-block, substantially as set forth.

5. In a screw-press of the character indicated, the combination of a tubular casing adjustably seated in and projecting below the head-block, a normally non-rotating screw guided telescopically in and protruding below the tubular casing, a screw-nut abutting endwise against the casing and engaging the

threads of the screw below and supporting it rotatively upon the tubular casing, and an oscillating pawl-frame swiveled upon and in pawl-engaging relations with the nut as a rotating wedge interposed between the screw and casing, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LEWIS M. HC

Witnesses:
LLOYD T. BRUNSON,
CHAS. HERBERT JONES.