No. 625,307. Patented May 23, 1899.

J. Q. ADAMS.

BALING PRESS.

(Application filed July 30, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

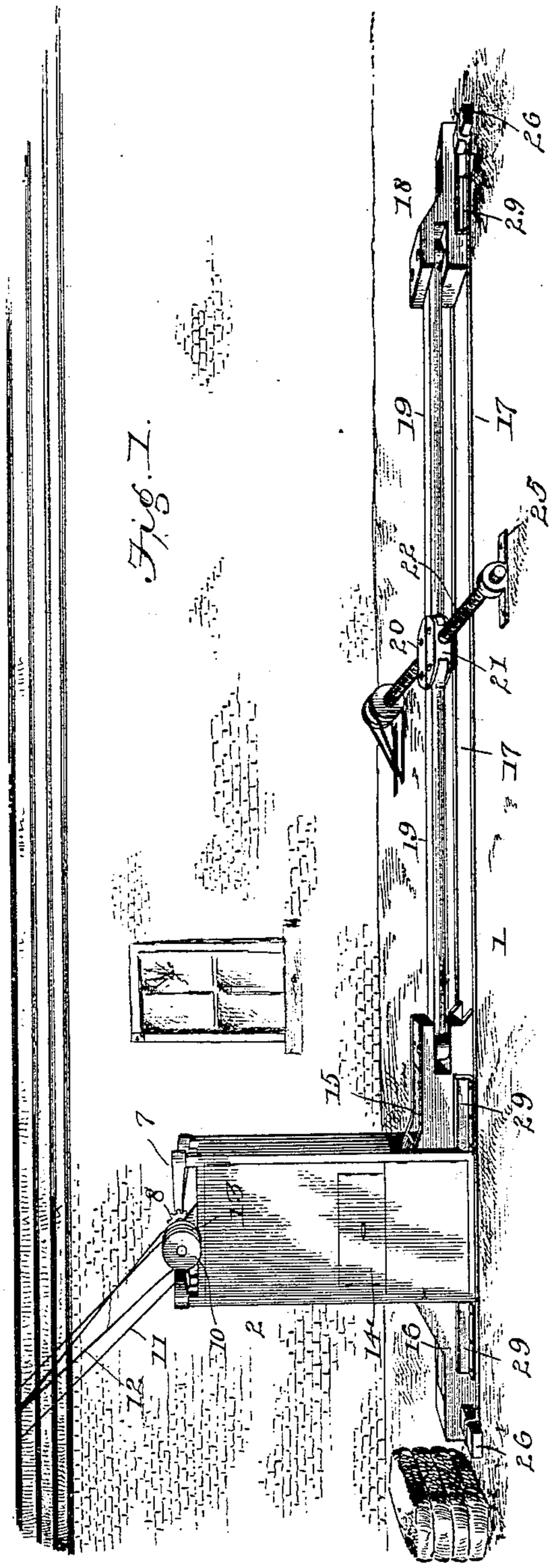
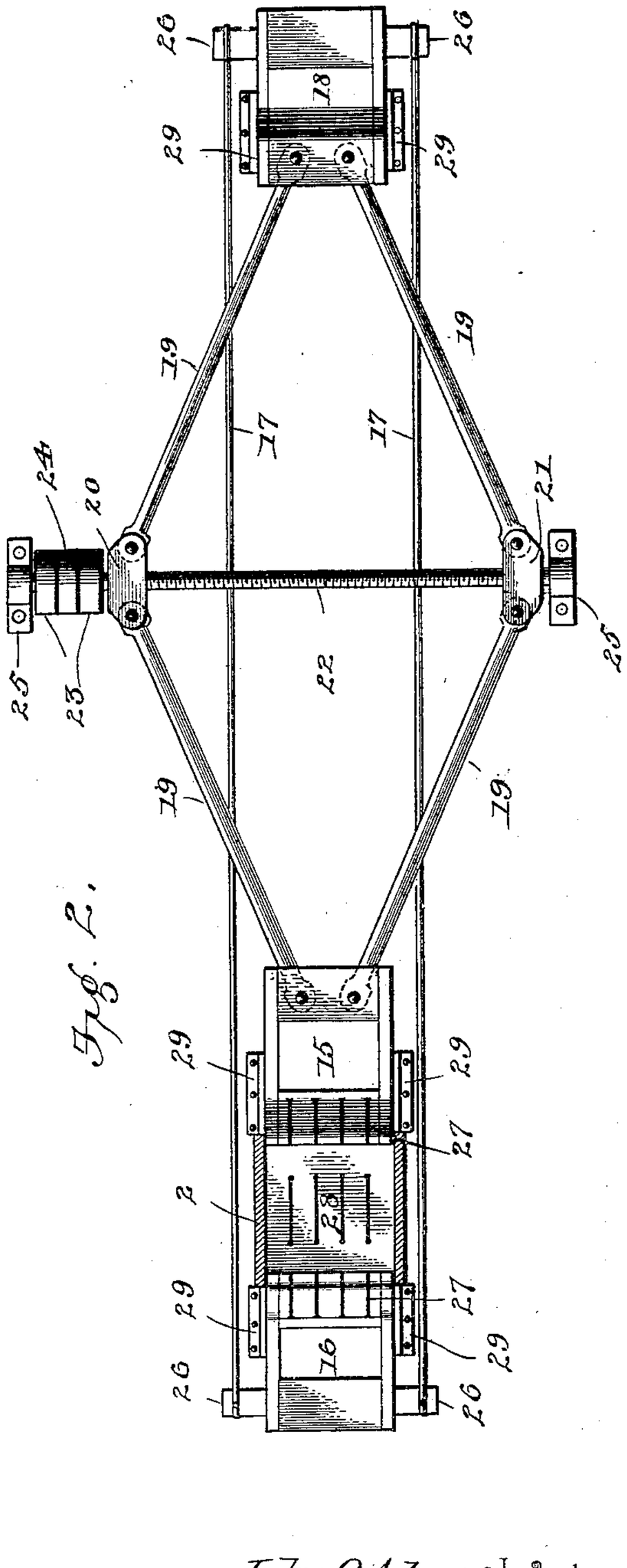


Fig. 2.



Witnesses
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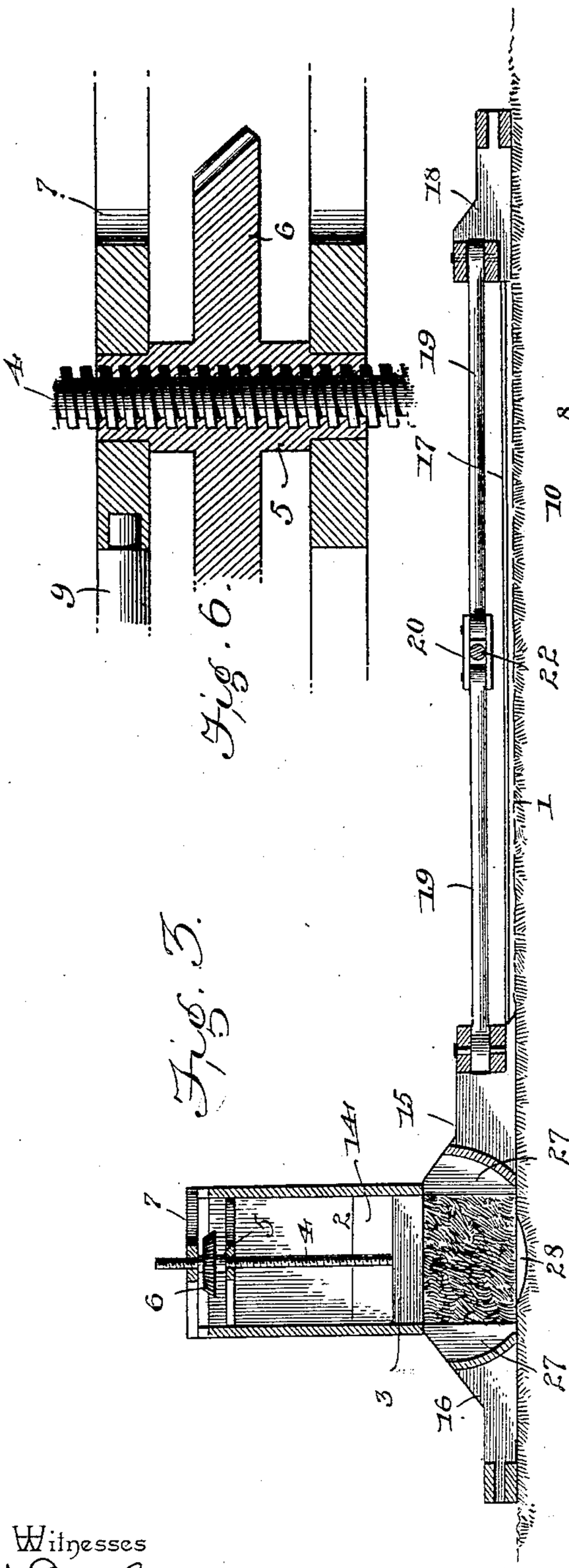

Fig. 6.

Fig. 3.

Fig. 4.

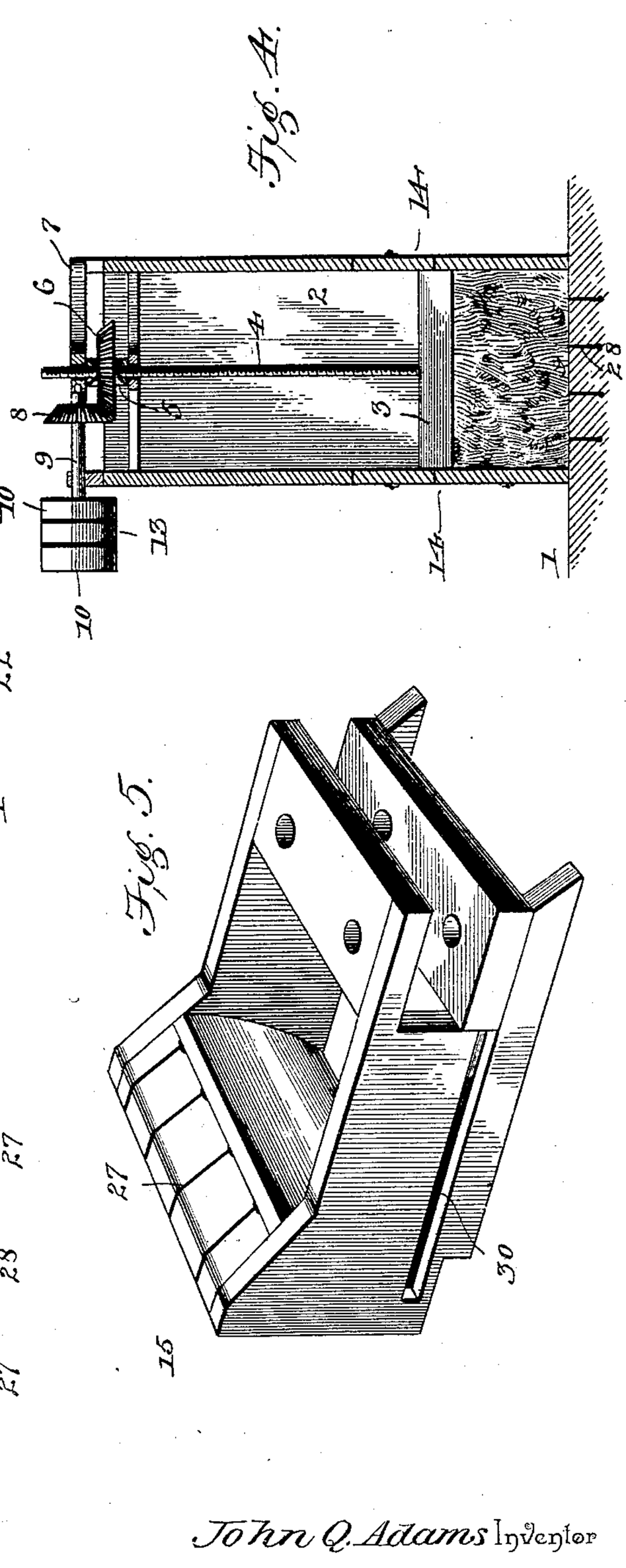

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN QUINCY ADAMS, OF ALEXANDRIA, LOUISIANA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 625,307, dated May 23, 1899.

Application filed July 30, 1898. Serial No. 687,327. (No model.)

To all whom it may concern:

Be it known that I, JOHN QUINCY ADAMS, a citizen of the United States, residing at Alexandria, in the parish of Rapides and State of Louisiana, have invented a new and useful Baling-Press, of which the following is a specification.

My invention relates to baling-presses, and particularly to a cotton-compress, and has for its object to provide a simple, compact, and efficient construction and arrangement of parts whereby the contents of a baling-chamber may be compressed in one direction and then condensed by opposing pressures applied in a plane perpendicular to that of the first pressure to secure the desired compactness of the bale.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a cotton-compress constructed in accordance with my invention. Fig. 2 is a plan view, partly in section, of the same. Fig. 3 is a longitudinal vertical section. Fig. 4 is a transverse vertical section. Fig. 5 is a detail view in perspective of one of the horizontally-movable followers. Fig. 6 is a detail sectional view of the feed-nut and adjacent parts for operating the vertically-movable follower.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the construction illustrated the numeral 1 relates to a suitable base or support, rising vertically from which is a press-box or baling-chamber 2, in which is fitted for reciprocatory movement, as in a vertical direction, a follower or plunger 3, having a rod 4, which is threaded for engagement by a feed-nut 5. In the construction illustrated this feed-nut consists of the hub of a gear 6, suitably mounted upon the baling-chamber at its upper end beneath a restraining-spider 7 and having in mesh therewith an operating-pinion 8, also mounted in bearings upon the baling-chamber. The spindle or shaft 9, which carries said pinion, is preferably provided with loose pulleys 10 for driving and reversing belts 11 and 12 and a fast pulley 13, adapted to be traversed by either of said belts to impart movement in opposite directions to the follower. The baling-chamber is also provided, preferably, with movable wall sections or doors 14, whereby access may be had to the interior thereof to facilitate the operation of tying a compressed bale.

Operating in a plane at right angles to that of the movement of the follower 3 and through registering openings in the side walls of the baling-chamber near its lower end are cooperating followers 15 and 16, of which the latter is connected by tension-rods 17 with a reciprocatory cross-head 18. Connecting the follower 15 with the cross-head 18 are toggle-levers 19, of which the members are connected at their contiguous ends by right and left threaded feed-nuts 20 and 21, engaged by a right and left threaded feed-screw 22, also provided with loose pulleys 23 and a fast pulley 24. It will be understood that other means for communicating motion in opposite directions to the feed-nut of the vertically-movable plunger-stem and also to the feed-screw may be adopted, but that the fast and loose pulleys shown and described are simple and prove efficient in operation.

The feed-screw 22 is terminally mounted in bearings 25 on the base 1, whereby it is held from axial movement; but a further function of the feed-screw is to maintain the feed-nuts 20 and 21 at a fixed distance from the press-box and cause them to traverse alined paths upon a transverse line or a line perpendicular to the movement of the followers 15 and 16. The cross-head 18 is free to move longitudinally and may, as illustrated in the drawings, be provided with lateral lugs 26, with which eyes at the rear ends of the tension-rods 17 are engaged. Hence when the feed-screw 22 is turned to cause the feed-nuts 20 and 21 to approach each other or approach the longitudinal line of movement of the followers 15 and 16 the follower 15 and the cross-head 18 are separated or are moved from each other, whereby the follower 16, which by reason of the tension-rods 17 follows the movements of the cross-head 18, is caused to approach the follower 15. Thus the followers 15 and 16 approach each other through the lateral openings in the press-box or bal-

ing-chamber to laterally press an interposed bale.

In operation, the cotton or other material to be baled having been placed in the baling-chamber, the follower 3, which is preferably mounted for vertical movement, but which may be mounted in any desired position for operation in a direction transverse to the line of movement of the coöperating followers 15 and 16, is actuated to compress said contents of the chamber until in a baling-chamber of a length of eight feet and three feet in cross-section the bale is reduced to a depth of about two feet. This is approximately the vertical depth of the followers 15 and 16. Then the toggle-levers are operated to advance the followers 15 and 16 in opposite directions to condense the formerly-compressed bale to about one-half of the above-named bulk, after which the single follower 3 may be removed from contact with the bale to permit the application of ties, the faces of the followers 15 and 16 being provided with tie seats or slots 27 and the bottom of the baling-chamber with corresponding slots 28. Each of the tie seats or slots has a concaved floor, and the floors of the several slots are struck from a common center and equal radii, whereby when the followers are adjusted to compress a bale the floors of the tie seats or slots are flush to form continuous segmental surfaces to guide tie-wires in the operation of passing them around the compressed bale. Furthermore, when the followers are at the limits of their approach or inward adjustment the upper ends of the tie seats or slots therein are exposed beyond the side walls of the baling-chamber, and hence the tie-wires may be conveniently passed around the bale, while the followers maintain the relative positions which they occupy at the completion of the compression.

In order to prevent displacement of the coöperating followers 15 and 16 in a direction parallel with the length of the baling-chamber, I employ fixed guide pins or keys 29, engaging longitudinal guide-grooves 30 in opposite sides of said followers, or any equivalent means may be substituted to insure the proper linear movement of the coöperating elements.

The above-described arrangement of the means for operating the opposing plungers 15 and 16 enables me to apply a strong pressure to the contents of the baling-chamber without straining the connections or the bearings of the feed-screw, for the reason that the pressure of the toggle-levers is applied in the opposite directions to the follower 15 and the cross-head 18, and hence the pressure in one direction is compensated for by an equal pressure in the opposite direction. Thus there is no loss by friction due to the thrust of the followers except such as may occur at the joints between the elements of the toggle-levers.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a baling-press, the combination with a baling-chamber having lateral openings, of coöperating oppositely-movable followers mounted for reciprocatory movement in said openings and provided with tie seats or slots, extending backward from their faces, and means for actuating said followers; where, when the followers are at the limits of their approach or inward movement, the upper ends of said tie seats or slots are exposed beyond the side walls of the baling-chamber, substantially as specified.

2. In a baling-press, the combination with a baling-chamber having lateral openings, of coöperating oppositely-movable followers mounted for reciprocatory movement in said openings and provided with tie seats or slots, extending backward from their faces, and having concaved floors for guiding tie-wires, and means for actuating said followers; where, when the followers are at the limits of their approach or inward movement, the upper ends of said tie seats or slots are exposed beyond the side walls of the baling-chamber, substantially as specified.

3. In a baling-press, the combination with a baling-chamber having lateral openings, of coöperating oppositely-movable followers mounted for reciprocatory movement in said openings and provided with tie seats or slots, extending backward from their faces, and having concaved floors for guiding tie-wires, the bottom of the baling-chamber being provided with tie seats or slots having segmental floors, and means for actuating said followers; where, when the followers are at the limit of their approach or inward movement, the upper ends of the tie seats or slots therein are exposed beyond the side walls of the baling-chamber and the floors of said tie seats or slots in the followers are flush at their lower ends with the floors of the tie-seats in the bottom of the baling-chamber, substantially as specified.

4. In a baling-press, the combination with a stationary baling-chamber having opposite lateral openings, a plunger mounted for longitudinal movement in the baling-chamber, and adapted for arrangement at its lower surface flush with the upper walls of said lateral openings, and means for actuating said plunger, of coöperating oppositely-movable followers mounted in said lateral openings of the baling-chamber between the planes of said plunger and an opposite parallel wall of the baling-chamber, said wall of the baling-chamber being provided with tie seats or slots having segmentally-curved floors, and the faces of said followers being provided with tie seats or slots having concaved floors for terminal arrangement flush with the extremities of the floors of said tie-seats in said wall

of the baling-chamber, when the plungers are at the limits of their approach or inward movements, and means for actuating the followers, substantially as specified.

5. In a baling-press, the combination with a stationary vertical laterally-accessible baling-chamber, of a plunger mounted for vertical movement therein, operating devices for said plunger, twin opposite followers mounted for horizontal movement through side openings in the baling-chamber and provided in their side faces with guide-grooves, stationary pins in the baling-chamber for engaging said grooves of the followers, a reciprocatory cross-head, tension-rods connecting the cross-head with one of the followers, toggle-levers connecting the cross-head with the other follower, feed-nuts carried by the toggle-levers, and a feed-screw, mounted in fixed bearings, and engaging said feed-nuts for moving the latter in a path transverse to that of the followers, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN QUINCY ADAMS.

Witnesses:
C. N. ADAMS,
J. R. THORNTON.