A. BALDWIN.

COTTON-PRESS.

No. 190,405. Patented May 8, 1877.

Fig: 1.

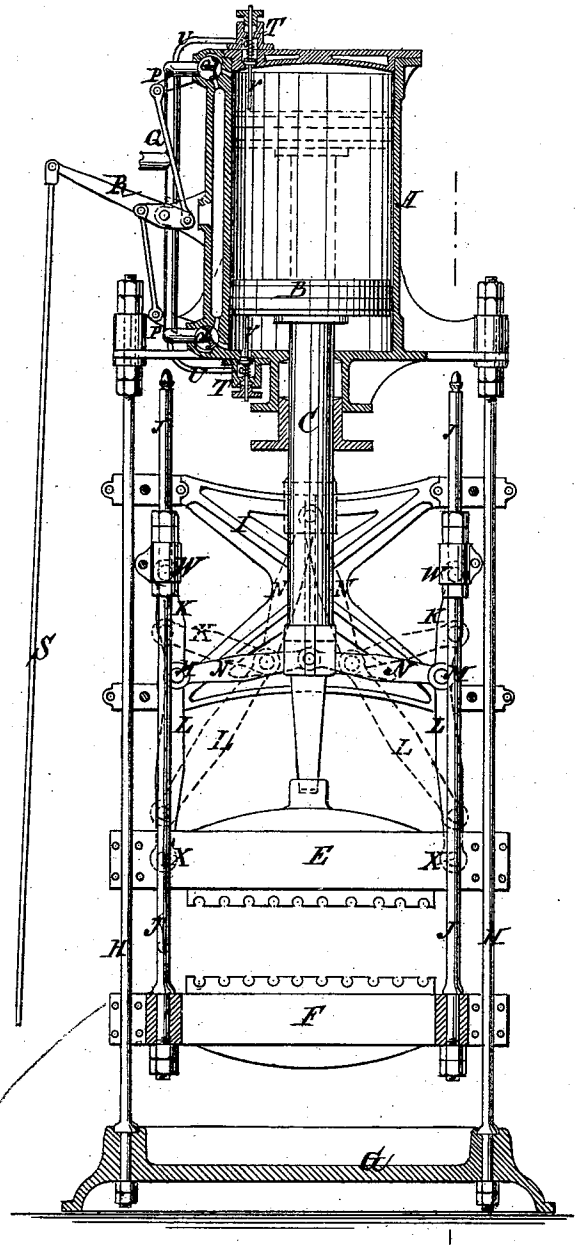
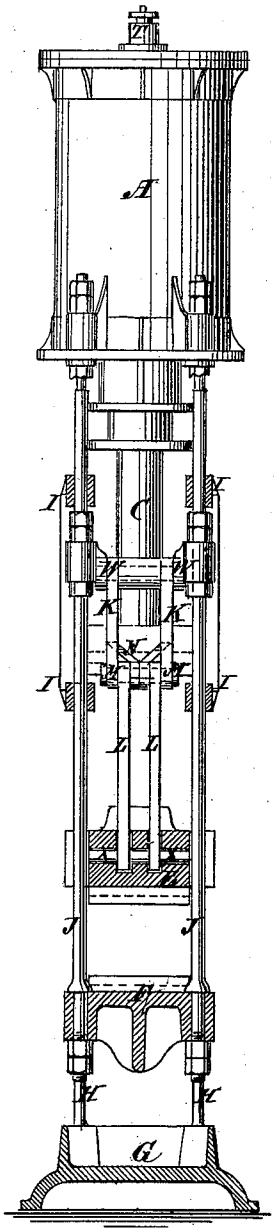


Fig: 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

AUGUSTINE BALDWIN, OF NEW YORK, N. Y., ASSIGNOR TO S. SHELDRAKE & CO., OF SAME PLACE.

IMPROVEMENT IN COTTON-PRESSES.

Specification forming part of Letters Patent No. **190,405**, dated May 8, 1877; application filed September 4, 1876.

To all whom it may concern:

Be it known that I, AUGUSTINE BALDWIN, a resident of New York city, in the county and State of New York, have invented a new and useful Improvement in Cotton-Presses, of which the following is a specification:

The invention consists of a novel and simple contrivance of jointed bars connecting the piston-rod or cross-head of the steam-engine with two followers in such manner that they are made to press the bales simultaneously on two opposite sides.

Figure 1 is a sectional elevation of my improved steam-press. Fig. 2 is partly a side elevation and partly a section, the latter being taken at right angles to the plane of Fig. 1.

A is the steam-cylinder; B, the piston; C, the piston-rod; E and F, the followers; G, the base; H, standards; and I the frame for staying the standards, and also for guides to lifting-rods J, to which the follower F is connected, and which are connected to the bars K, while follower E is connected to bars L, which bars, K and L, are jointed together at M, and also jointed thereat to links N, which connect them to the piston-rod in a toggle-bar contrivance, by which follower E is moved down while follower F is moved up, so as to press the bale simultaneously on two opposite sides, which, it is well known, compresses the bale more with a given amount of power than when all the power is applied to one side.

The said movements are effected by the forcing of the bars K and L from the positions represented in dotted lines to those represented in full lines in Fig. 2 by the piston when it moves down; but it is only the improved arrangement of mechanism that is claimed, as two followers, pressing simultaneously on opposite sides, have been employed before.

The improvement, beyond what has been done before, consists of the bars K, connected to the movable lifters J of the secondary follower F, instead of being connected to fixed objects, thus enabling the working of the two followers with but slight additional apparatus to that required for working only one.

Besides the advantage of working two followers in this manner, there is an economy of friction, and also of power, which is due to the better application of power which this arrangement affords as compared with the other, which will be understood by observing that in the old arrangement the points of application, or of the transmission of the force—that is, the joints M—are made to travel through circles, having the bars K for their radii, causing the power to be delivered during some portion of the first part of the operation almost in the direct lines of the bars L, so that but little advantage of the jointed-bar arrangement is obtained; whereas in this arrangement, owing to the rising of the fulcrum-points of the bars K—that is, their points of connection W with the lifting-bars—in the same measure that the corresponding points X of the bars L descend, the points M, through which the power is transmitted, move more directly outward, and nearly in straight lines from the beginning, in which their position is represented in dotted lines, to the completion, in which their position in represented in full lines, which operations economize power and lessen friction; and there is also an economy growing out of the power expended on the joints W, being applied to the performance of work, instead of being expended on fixed objects, and doing no work.

The rotary valves O are employed for admitting steam to, and exhausting it from, the cylinder, said valves being connected by arms P and rods Q to lever R, in such manner that they are simultaneously reversed by it, the lever being actuated by the press-follower, with which suitable connection is made in practice by the rod S, as is common in presses and other machines, and is not therefore shown.

As the valves shift rather slowly, so that the piston is liable to strike the heads of the cylinder, I have provided the auxiliary valves T—one in each head—with pipe-connections U for admitting the steam to them, and with stems V, projecting into the cylinder to such extent that the moment the valves O have moved far enough in shifting to close the exhaust, and before opening the live-steam ports, they are opened by the piston, so as to admit sufficient steam to cushion the piston, and prevent it from striking the heads while the main

valves are shifting. These valves T close again by the steam as soon as the piston passes beyond reach of their stems, and they are each provided with a coiled spring, to keep them in position when steam is not up.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In a steam-press, having the follower E coupled to the piston-rod by the toggle-jointed bars K L and the links N, the bars K, jointed to lifters J, in combination with a secondary follower, F, attached to said lifters, substantially as described.

AUGUSTINE BALDWIN.

Witnesses:

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