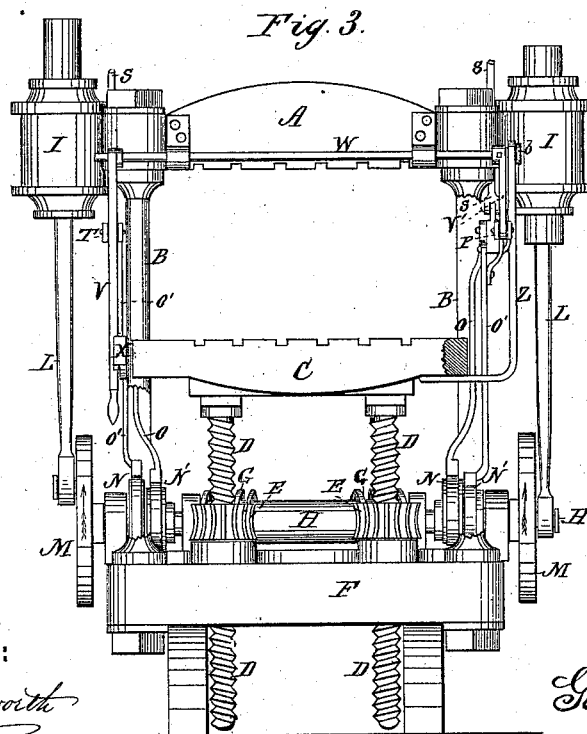
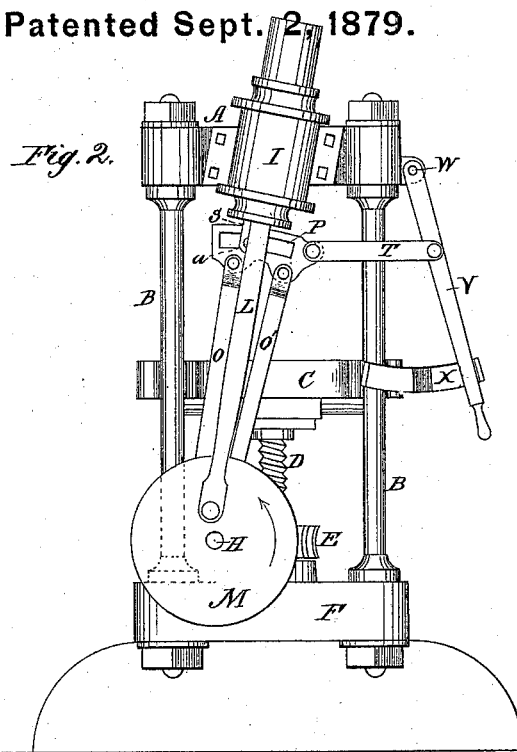
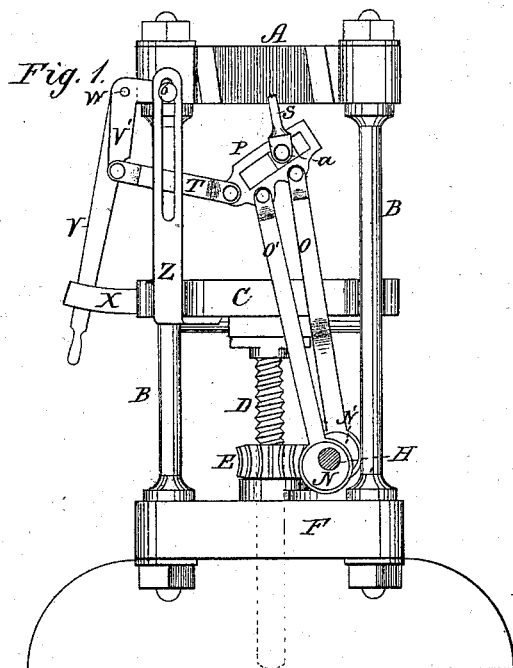


G. COOPER.
Cotton and Hay Press.

No. 219,223.

Patented Sept. 2, 1879.



WITNESSES:

W. W. Hollingsworth
Amos W. Hart

INVENTOR:

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BY

Russell & Co.
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UNITED STATES PATENT OFFICE.

GEORGE COOPER, OF AUGUSTA, GEORGIA.

IMPROVEMENT IN COTTON AND HAY PRESSES.

Specification forming part of Letters Patent No. 219,223, dated September 2, 1879; application filed June 19, 1879.

To all whom it may concern:

Be it known that I, GEORGE COOPER, of Augusta, in the county of Richmond and State of Georgia, have invented a new and useful Improvement in Cotton and Hay Presses; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the combination of an engine and valve reversing gear with the follower of a press and the mechanism for operating said follower; also, to the employment of an automatic stop-motion or apparatus in connection with the aforesaid parts.

The construction and arrangement of parts are as hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is an end view of the press without the engine proper. Fig. 2 is a view of the opposite end of the press. Fig. 3 is a side view of the press, a part being broken out.

The head or top piece A of the press is attached to and supported by four standards or posts, B, which also serve as guides for the follower C in its up-and-down movement. The follower is operated by two screws, D D, which work through geared nuts or worm-wheels E E, and the latter rest on the bed F of the press and mesh with worms G, forming part of the driving-shaft H. Said shaft is arranged horizontally above the bed F and in the same lengthwise direction with the follower C. The engine-cylinders I and their valve-chests are rigidly attached to the ends of the press-head A, which are recessed for the purpose, and the piston-rods L are connected with the cranks or disks M on the ends of the driving-shaft H.

It is obvious that the operation of the engines will rotate the driving-shaft, and thereby cause the worm-wheels E to work the screws D D up or down, and thereby impart a corresponding movement to the follower C.

In order to reverse the action of the steam-power, and thus reverse the movement of the follower at will, I employ a link-motion, which is constructed and arranged as follows: N N' indicate two pairs of eccentrics on the driving-shaft H, each pair being located at a point near the cranks and directly under the valve-chests. O O' are the eccentric-rods—one, O, for the forward motion, and the other, O', for

the backward motion of the engines. P P are the links. To adjust the links, and thus change the position or operation of the valves, the links are connected by rods T with levers V V', which are connected by a rock-shaft, W, and one of which levers is provided with a handle, and is retained at any set which may be given to it by engagement with a segment-bar, X.

As usual in such valve-gear, the motions of the valves are produced by an impulse imparted to the pin-slides *a* in the slot of the links P. The motion of the pin-slide is made up of the motions imparted to it by the oscillations of the links, whose operation depends on the two eccentrics N N'; and when the pin-slides are in the middle of the links P the latter are not moved at all, since the actions of the eccentrics of each pair just balance each other, and the links then simply oscillate on the pin-slides as centers. When the links are thus adjusted, the handle V being in the middle notch of the segment X, the valves are inactive and the engines are at rest, and consequently the follower C also.

By adjusting the handle V outward, or at the outer end of the segment X, the links P are shifted over to the left. The eccentric-rods O are then the fulcrums of the links, Figs. 1 and 2, and the engines consequently operate the driving-shaft in the direction indicated by arrows, Figs. 2 and 3, thus elevating the follower C.

By adjusting the handle V in the opposite direction, or at the inner end of the segment X, the links P are shifted to the right, and the eccentric-rods O' in turn become the fulcrums of the links; and hence steam is reversed, and the driving-shaft rotates in the opposite direction, thus causing the follower C to descend.

As a means for arresting the action of the engines automatically I attach a slotted bar, Z, to the follower C, and provide the elbow-lever V' with a wrist-pin, *b*, which works in the slot of said bar. Hence when the follower reaches the assigned limit of its upward movement the wrist-pin *b* of said lever V' will simultaneously reach the lower end of the slot, so that the lever will be tilted, thus rocking shaft W and moving the handle V to the mid-

dle notch in segment X, and shifting the links P so that the pin-slides *a* will be adjusted to the middle or neutral point of the links, in which position the valves will be inactive and the engines at once arrested.

If, on the other hand, the follower has reached the limit of its descending movement, the slotted bar Z will again tilt the elbow-lever V', and thus shift the handle V from the end of the segment X to its middle notch, and shift the links to the same position as before, thus bringing the engines and follower to rest. By this simple mechanism the action of the follower is arrested automatically without requiring any care or attention of the engineer, so that there is little liability to accident or injury to the press.

What I claim is—

1. The combination of the engines proper, the eccentrics, eccentric-rods, links, and a link-shifting device with the follower of the press, the screws, geared nuts, and driving-shaft, all constructed and arranged substantially as shown and described.

2. The combination of the levers V V' and rock-shaft W, on which they are keyed, the bars T, slotted links P, eccentric-rods O O', eccentrics N N', worm shaft and gearing, follower, and slotted plate Z, all as shown and described, to operate as specified.

GEORGE COOPER.

Witnesses:

JOHN R. SCHNEIDER,
ALEX. PHILIP.