

(No Model.)

2 Sheets—Sheet 1.

J. H. GARDNER.
HAY PRESS.

No. 410,237.

Patented Sept. 3, 1889.

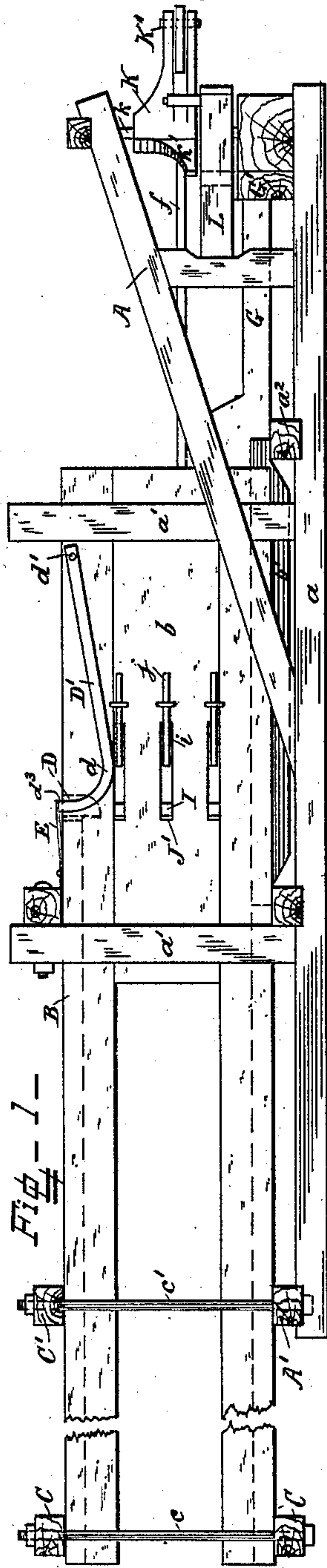


Fig. 1—

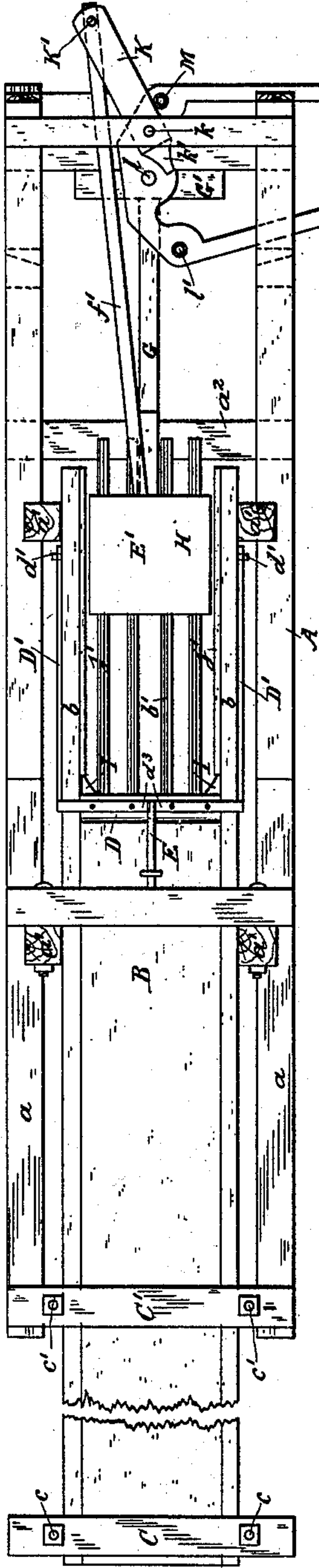
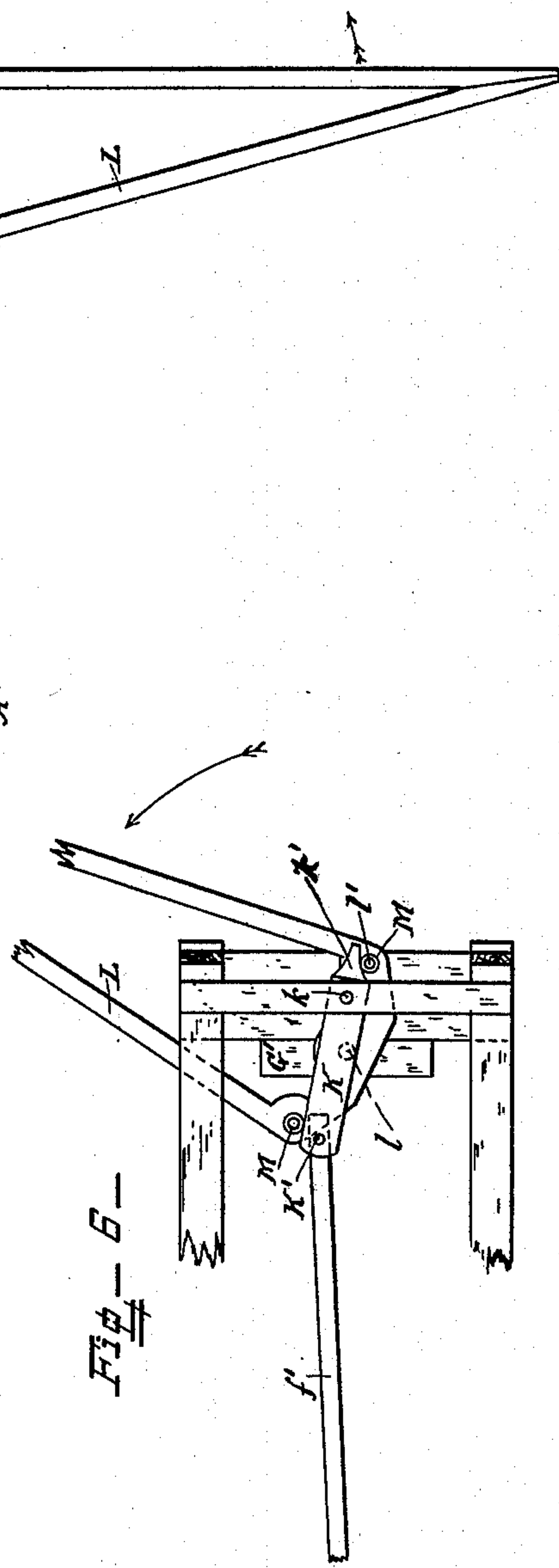


Fig. 2—



Witnesses

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By *his* Attorney *Herbert W. Jenner.*

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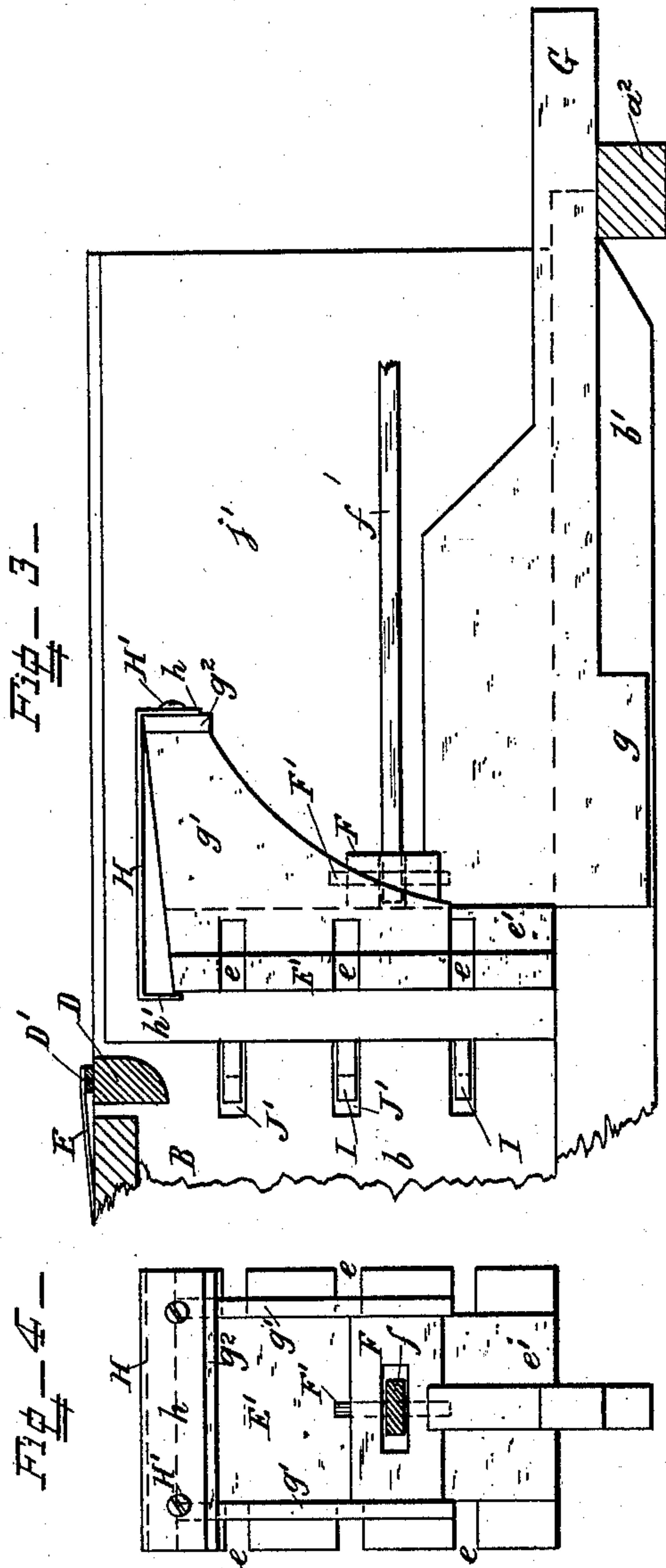
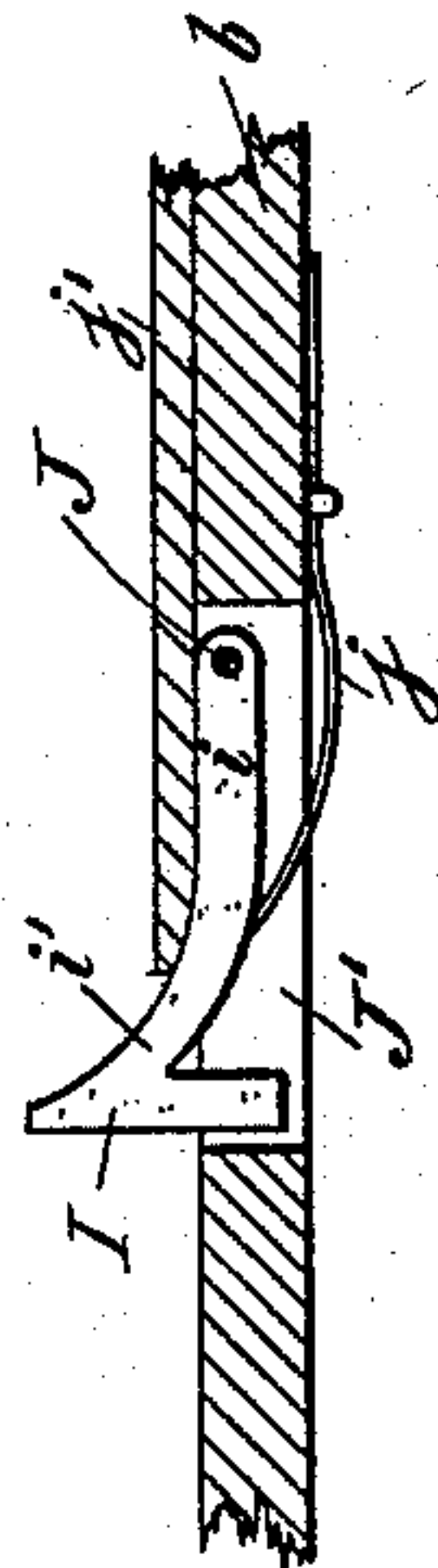


Fig. 5-



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN H. GARDNER, OF DALTON, GEORGIA.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 410,237, dated September 3, 1889.

Application filed April 20, 1889. Serial No. 307,980. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GARDNER, a citizen of the United States, residing at Dalton, in the county of Whitefield and State of Georgia, have invented certain new and useful Improvements in Hay-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to hay-presses which are provided with rebounding plungers; and it consists in the novel construction and combination of the parts, hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the hay-press. Fig. 2 is a plan view of the same from above. Fig. 3 is a detail side view of the plunger removed from the press. Fig. 4 is an end view of the said plunger. Fig. 5 is a detail plan view of one of the spring-catches. Fig. 6 is a detail view showing the operating-lever moved around from the position shown in Fig. 2 to act upon the short limb of the push-lever.

A is a frame-work of wood for supporting the press.

a are the bottom sills of the frame, and a' are uprights to which the press-chamber is permanently secured.

B is the press-chamber, provided with solid sides b , and a bottom consisting of longitudinal parallel bars b' at its front end where the plunger works. The front end of the press-chamber is secured to the uprights a' , and the middle of the press-chamber is supported on the rear cross-sill A' of frame A. The sides are open at the middle and end of the press-chamber, and C are cross-bars provided with adjusting-bolts c for binding the extreme overhanging ends of the top and bottom of the press-chamber together.

C' is a cross-bar over the middle of the press-chamber, and c' are adjusting-bolts for binding the said cross-bar to the cross-sill A' . This construction enables the rear top and bottom portions of the press-chamber to be adjusted, and the whole press-chamber can be made of increased length and mounted upon a shorter wheel-base than press-chambers heretofore in use.

D is the folder, and D' are the folder-arms, secured to the top of the folder and provided with the downwardly-bent guide portions d . The front ends of the folder-arms are pivoted by the pins d' to the top of the outside of the press-chamber sides, in line with the folder and at a considerable distance from it, so that the folder has practically a vertical motion.

E is a flat steel spring secured to the top of the press, which bears downwardly upon the ends d^3 of the folder-arms in the middle of the folder. This flat spring can be made as strong as desired, and it presents no obstruction to feeding the press. The bottom front edge of the folder is rounded off where the plunger-top strikes against it.

E' is the plunger, having a flat face-plate provided with grooves e for the spring-catches to pass into, and a back piece e' , provided with the socket F and pin F' for the attachment of the pitman f' . A buffer-bar G is secured to the plunger, and the bottom of this bar forms a guide g for the plunger and slides back and forth between the two middle bars b' of the press bottom.

G' is a buffer secured to the frame A for the end of the buffer-bar to strike against when the plunger rebounds. Brackets g' are secured to the plunger, and g^2 is a cross-piece secured to the ends of the brackets, the tops of which are inclined upwardly from the face-plate to the said cross-piece.

H is a top of spring metal provided with a flange h at one end, which is secured to the cross-piece g^2 by the screws H', and h' is a downwardly-bent flange at the opposite end of the top, which strikes against the folder and prevents the hay from getting in between the face-plate and the spring-top. The buffer-bar rests upon the cross-sill a^2 of the frame, which keeps the plunger face-plate vertical in the press.

I are the catches for retaining the hay after it has been compressed by the plunger. Each catch is provided with a shank i at right angles to the head of the catch, and i' is a curved portion which joins the shank to one end of the head and presents a curved surface for the hay to press against to push back the catch. The catch-shanks are pivoted upon pins J in the rectangular slots J', formed

longitudinally in the sides *b* of the press. Springs *j* are secured to the press sides and bear against the backs of the shanks.

j' are plates secured inside the press-chamber, partially covering the slots *J'*, and forming stops which prevent the catches from being forced too far inward by the pressure of the catch-springs. The plunger passes the catches, and the said catches fall into position behind the hay within the slots in the face-plate before the plunger is caused to rebound by the elasticity of the compressed hay.

K is the push-lever, which is mounted on the vertical shaft *k* in the frame *A*. The push-lever is provided with a bifurcated end and a pin *K'* for coupling it to the pitman, and *k'* is a short limb projecting rearwardly from the main portion of the lever.

L is the operating-lever, to which animal-power is applied in the usual manner. This lever *L* is journaled on the pivot *l*, projecting upwardly from frame *A* between the shaft *k* and the press, and it is provided with vertical pins *l'*, having anti-friction rollers *M* for operating the push-lever.

Fig. 2 shows the machine ready to compress the hay. The lever *L* is turned in the direction of the arrow. The roller on the front pin runs along the side of the push-lever and presses it rearwardly with a constantly-increasing leverage until it reaches the position indicated in Fig. 6. The opposite roller *M* then strikes against the short limb *k'*, and a very slight further movement of lever *L* makes a large circumferential movement of the bifurcated end of the push-lever and throws the said push-lever over the center. This is caused by the roller *M* which comes against the limb *k'* being only a very short distance from the shaft *k* when in the position shown in Fig. 6, whereas the other roller *M*, which comes against the bifurcated end of lever *K*, is at a very much greater distance from the said shaft, as also clearly shown in Fig. 6. The plunger then rebounds into a similar position to that shown in Fig. 2, but with the operating-levers upon the other side of the press and ready to operate in the reverse direction.

What I claim is—

1. The combination, with the press-chamber, of the folder at the top of the press-chamber, the long folder-arms pivoted to the press-chamber sides in line with the folder and having downwardly-bent guide portions bearing against the sides of the press-chamber, and a flat spring secured to the top of the press-chamber and bearing downwardly upon the folder, substantially as and for the purpose set forth.

2. The combination, with a press-chamber provided with longitudinal bars at its bottom

and a frame supporting the said press-chamber and provided with a cross-sill under the ends of said bars, of a reciprocating rebounding plunger provided with a projecting buffer-bar sliding on said sill, and a downwardly-extending guide at the bottom of the buffer-bar between the said longitudinal bars of the press-chamber, and a buffer-block secured to the supporting-frame for the said buffer-bar to strike against, substantially as and for the purpose set forth.

3. The combination, with a press-chamber, and a frame supporting the said press-chamber, of a reciprocating rebounding plunger provided with a projecting buffer-bar at its lower part, said bar being adapted to slide upon a cross-sill of the frame and keep the plunger-face vertical, and a buffer-block secured to the said frame for the buffer-bar to strike against, substantially as set forth.

4. The combination, with a reciprocating rebounding plunger, of the push-lever provided with a short rearwardly-projecting limb and mounted on a vertical shaft, the pitman pivoted to the plunger and to the said lever, and an operating-lever pivoted between the said shaft and the plunger and provided with projections bearing against the said push-lever and its short limb, substantially as and for the purpose set forth.

5. The combination, with a reciprocating rebounding plunger, of the bifurcated push-lever mounted on a vertical shaft and provided with a short rearwardly-projecting limb, the pitman pivoted to the plunger and to the said lever, and an operating-lever pivoted between the said shaft and the plunger and provided with vertical anti-friction rollers bearing alternately against the opposite sides of the push-lever and running along them, whereby the power of the operating-lever upon the plunger is increased during the stroke of the plunger, and adapted to strike against the said limb near the ends of the strokes of the operating-lever and throw the push-lever over the center, substantially as set forth.

6. The combination, with a press-plunger having its rear end higher than its face, of a top for the plunger, consisting wholly of a single plate of spring metal secured to the said higher rear end of the plunger and extending forwardly over the face-plate in a normally-horizontal straight line, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. GARDNER.

Witnesses:

S. E. BERRY,
M. D. BERRY.