

(No Model.)

2 Sheets—Sheet 1.

J. H. WILLIAMS.  
HAY PRESS.

No. 433,755.

Patented Aug. 5, 1890.

Fig. 1.

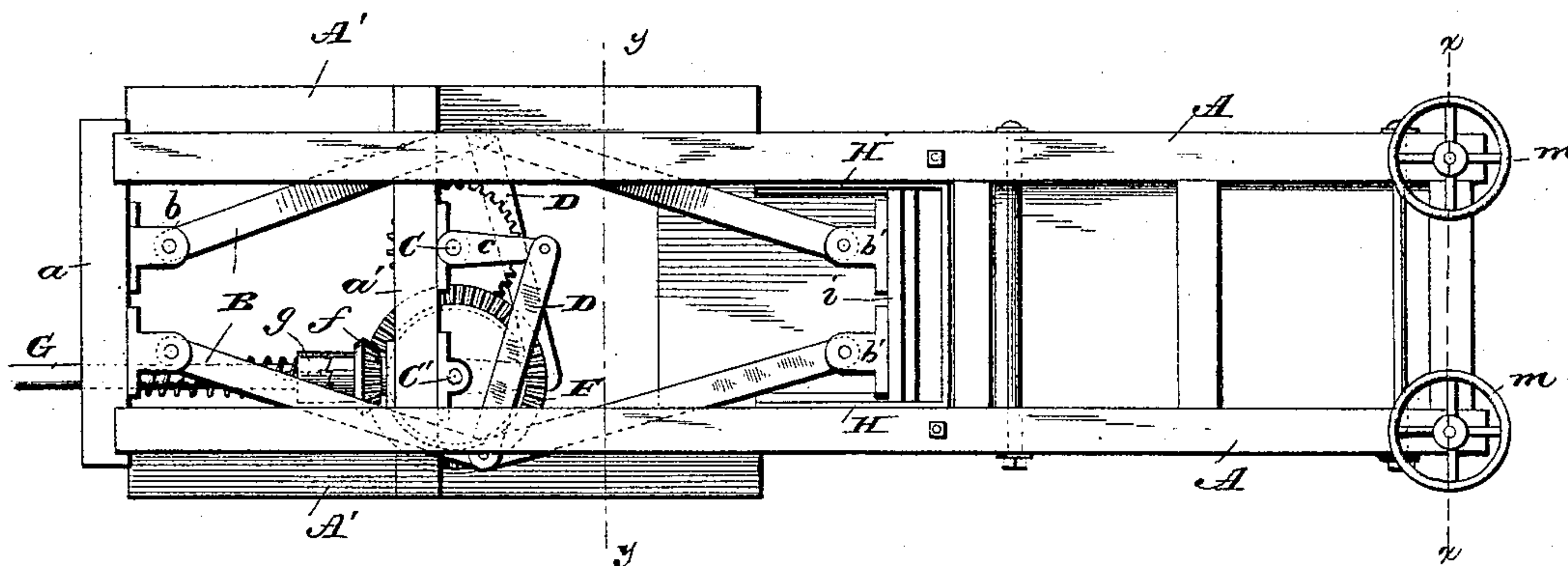


Fig. 2.

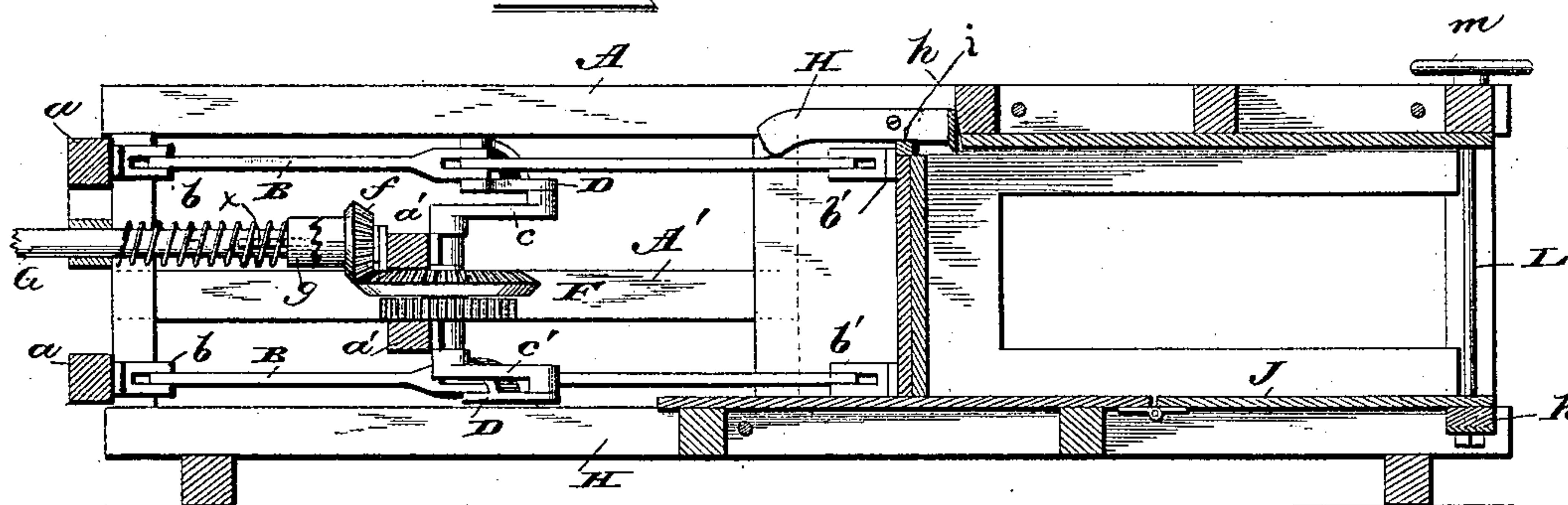


Fig. 3.

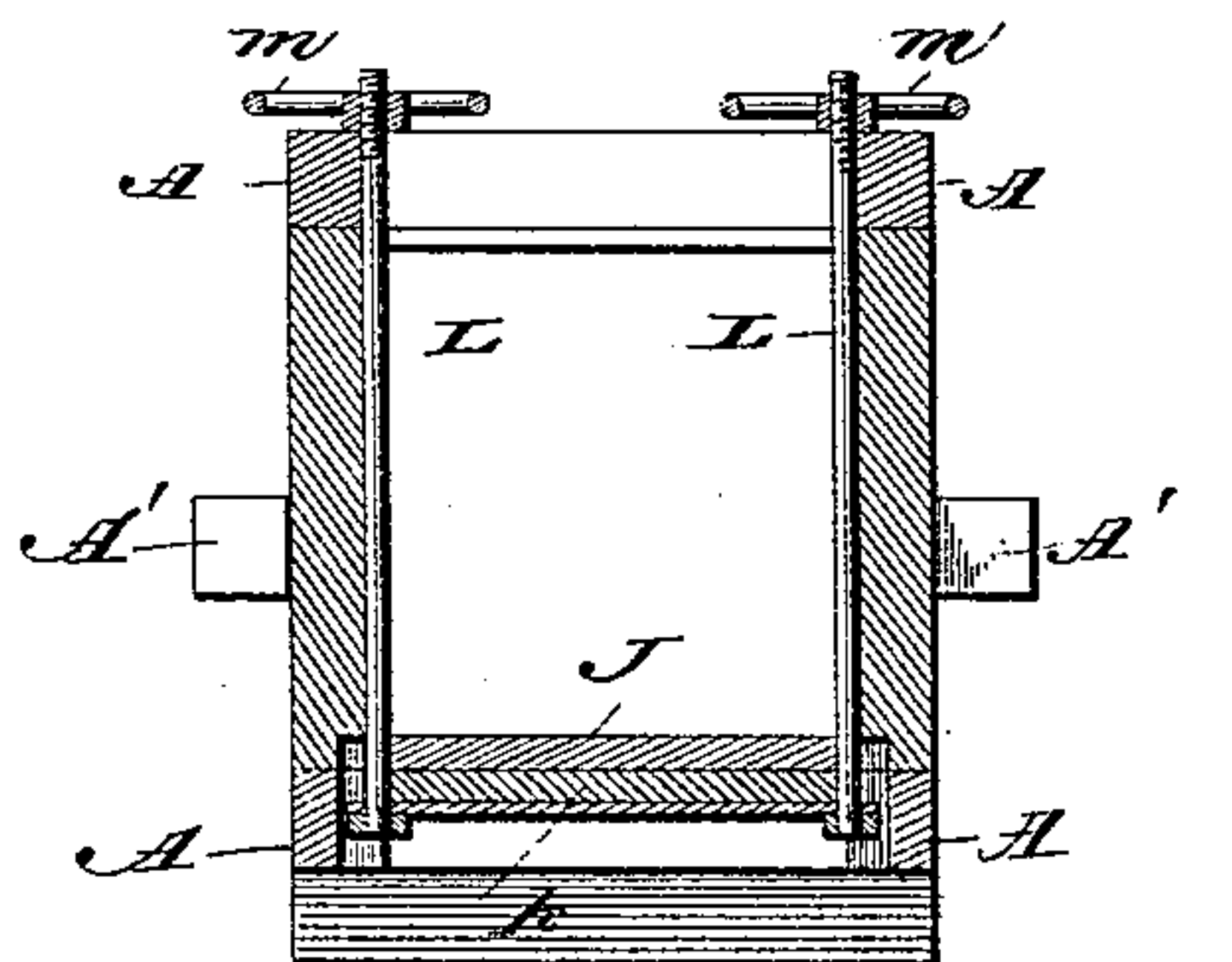
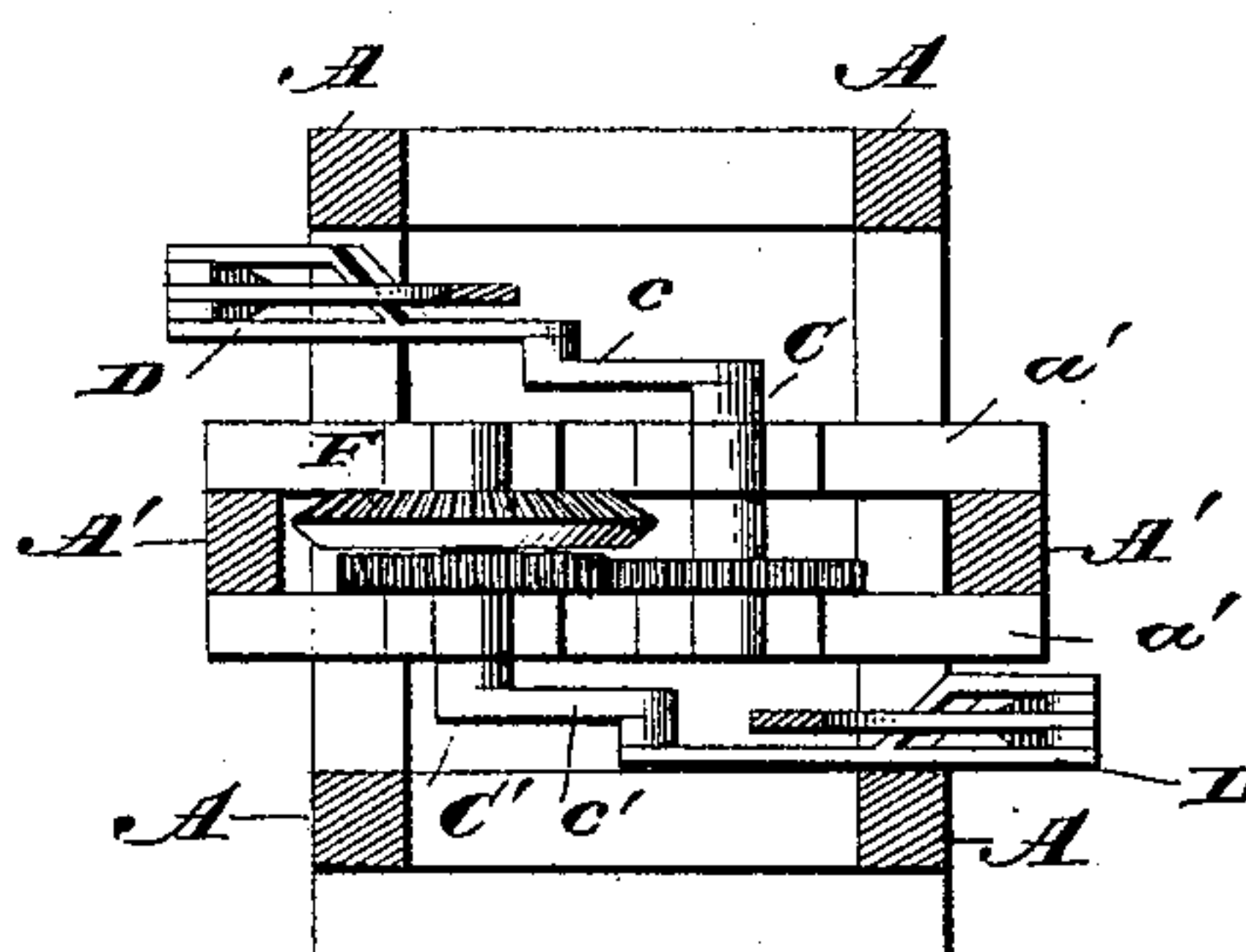


Fig. 4.



John H. Williams.

Inventor

Witnesses

L. S. Elliott.

E. M. Johnson

By his Attorneys

(No Model.)

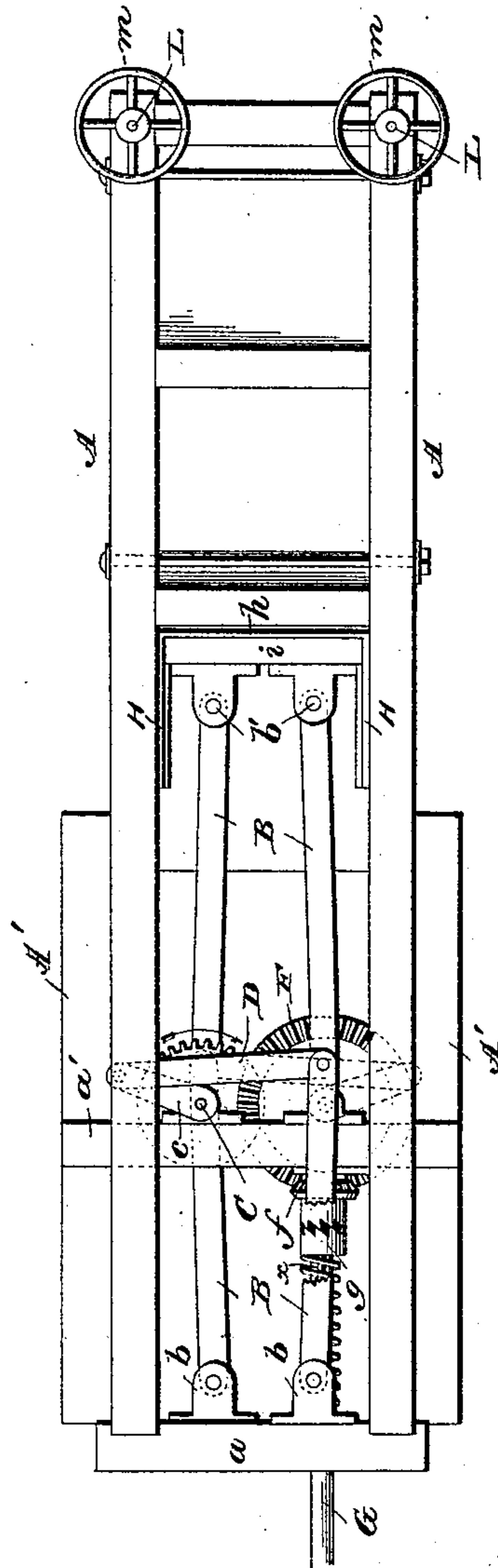
2 Sheets—Sheet 2.

J. H. WILLIAMS.  
HAY PRESS.

No. 433,755.

Patented Aug. 5, 1890.

Fig. 5.



John H. Williams.

Inventor

by

Attorney

Witnesses  
L. S. Elliott.  
H. S. Beall.



# UNITED STATES PATENT OFFICE.

JOHN H. WILLIAMS, OF MAPLE HILL, KANSAS.

## HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 433,755, dated August 5, 1890.

Application filed April 25, 1889. Serial No. 308,588. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. WILLIAMS, a citizen of the United States of America, residing at Maple Hill, in the county of Wabaunsee and State of Kansas, 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in hay-presses, and is designed more especially as an improvement upon the press set forth in my patent dated April 26, 1887, No. 361,912; and my present invention consists in the construction and combination of the parts, as will be hereinafter fully set forth and particularly claimed, whereby I am enabled to dispense with certain parts employed with my said patented press, thereby simplifying the same and making a cheaper press.

In carrying out my invention I employ two crank-shafts, upon which are mounted cog-wheels which mesh with each other, one of said shafts carrying a beveled pinion which meshes with a smaller pinion having a spring-actuated clutch member, said pinion and clutch being carried by the driving-shaft. The crank-arms are connected by pivoted links to the toggle-levers which operate the follower so that said arms and links will, as hereinafter described, be turned to move the follower into the baling-chamber, and when said arms pass beyond their dead-centers the bale reacts to exert a rebound of the follower to more rapidly continue the movement of the cranks, and hence cause the clutch member to revolve faster than it was originally rotated by the shaft, such more rapid movement of the clutch-member permitting the quick retraction of the follower without the necessity for changing or increasing the rotation of the main shaft.

My invention further consists in providing the baling-box at the mouth thereof with a pivoted cross-bar operated by the follower to keep the opening free when the follower en-

ters the baling-box. The baling-box is also provided with a hinged bottom board which can be raised and lowered for increasing and diminishing the size of the baling-box.

In the accompanying drawings, Figure 1 is a plan view of a hay-press constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken through the line  $x x$  of Fig. 1. Fig. 4 is a sectional view taken through the line  $y y$  of Fig. 1. Fig. 5 is a detail plan view illustrating the relative position of the parts when the plunger begins its return movement.

My improved baling-press is adapted to be operated in a horizontal position, and the frame thereof consists of four longitudinal corner-beams  $A A$ , connected by suitable cross-beams, and at one end of the press are mounted beams  $a a$ , which are provided with bearings for one end of the toggle-levers  $B B$ , the opposite ends thereof being connected to the follower, and these toggle-levers are operated by crank-arms, the construction and operation of which will be hereinafter set forth.

One end of the press is provided with beams  $A'$ , which are provided near their centers with cross-pieces  $a'$ , upon which are journaled shafts  $C$  and  $C'$ , each of which is provided with a crank-arm  $c c'$ , the ends of which are connected to links  $D D$ , which connect with the toggle-levers, the said levers being pivotally connected to the follower and one end of the frame of the press, as aforesaid. Each of the shafts  $C$  and  $C'$  has rigidly keyed thereon a cog-wheel to cause the shafts to move in unison when turned by the beveled wheel  $F$ , mounted on the shaft  $C'$ , and operated by a pinion  $f$ , mounted on the driving-shaft. The pinion  $f$  is loosely mounted upon the driving-shaft  $G$ , and has its clutch member engaged by a spring-actuated clutch member  $g$ , which slides upon a spline  $x$ , formed with the driving-shaft.

The bearings  $b$  and  $b'$  at each side of the press are substantially on a line with each other, and the bearings attached to the follower are secured to diagonally-opposite corners thereof to equalize the pressure thereon.

The operation of my invention in so far as described is as follows: When the driving-



shaft G is operated, the shafts C C' will be turned to rotate the crank-arms mounted thereon, which by means of the links D D operate the toggle-levers to move the follower inward in the baling-box. By providing the driving-shaft with a clutch when the follower has reached the limit of its movement the links and cranks will have passed their dead-centers, and the resilience of the hay will cause the toggle-levers to spread rapidly, thus continuing the revolution of the crank-arms and the pinion *f* more rapidly than before, so that the clutch member of the pinion *f* will move faster than the determined rotation of the main shaft, the yielding clutch member permitting this, and the result being that the follower is retracted without necessitating a change of speed of the main driving-shaft. As soon as the follower ceases to act upon the clutch member the driving-shaft again acts to repeat the pressing operation.

To the frame of the baling-box are pivoted arms H H, which are connected to each other by a cross-piece *h*, the under side of these arms being curved, as shown, and with said curved portion engages a cross-bar *i*, attached to or carried by the follower, the said cross-bar *i* moving in slots provided for the same. Upon the rearward movement of the follower the cross-bar *i*, attached thereto, will engage with the ends of the arms H to depress the cross-piece *h*, thus feeding projecting portions of the charge of hay or straw into the baling-box. This cross-piece, lying below the upper surface of the baling-box, will partially cut off the feed-opening, and when the follower is forced into the baling-box the cross-piece *h* will be raised to give an unobstructed and clear passage-way for the follower, which will be free from straw liable to catch between the upper edge of the follower and the end of the baling-box.

The lower floor of the baling-box has a hinged bottom J, supported at the end of the press by a cross-piece *k*, through the ends of which pass rods L, the upper ends of which are screw-threaded so that the hand-wheels *m* may engage therewith. When the hand-wheels are turned in the proper direction, the hinged board may be lowered to increase the size of the baling-box sufficiently to permit the easy removal of the bale therefrom.

I claim—

1. The combination, in a baling-press, of a

driving-shaft G, journaled in suitable bearings and provided with a pinion *f*, having one member of a clutch, the other member being movable therein and having a spline engagement therewith, and a spring thereon bearing against said movable member, two vertical crank-shafts geared together, and a bevel-wheel F, keyed on one of said shafts and driven by the pinion, toggle-levers B B, connected by links D D to the cranks and having their ends connected, respectively to a fixed portion of the press and to the follower, substantially as set forth.

2. The combination, in a continuous baling-press, constructed substantially as shown, of a follower provided with bearing-blocks *b'*, toggle-levers B B, pivoted to said bearing-blocks at one end and at their opposite ends to bearing-blocks secured to the end of the frame, cross-pieces *a'*, independent crank-shafts journaled therein and each connected to said toggle-levers by links D D, intermeshing cog-wheels carried by said crank-shafts, a bevel gear-wheel F, mounted on one of said crank-shafts, a driving-shaft G, a clutch-sleeve engaging a spline on said driving-shaft, a pinion *f*, engaging said bevel-wheel F and having a toothed hub, and a spring for holding the clutch member in engagement with the toothed hub of the pinion, substantially as set forth.

3. The combination, in a continuously-operated baling-press, of the crank-shafts geared together, as described, a follower, toggle-levers and links connecting the latter with the crank-shafts, a driving-shaft having movable and stationary clutch members, a pinion carried by one of the latter to actuate the crank-shafts, together with a baling-box, a cross-piece *i* on the follower, pivoted arms H H, curved on their under faces, and a cross-bar *h*, connecting said arms H H, whereby the rebound of the follower under the action of the compressed hay will revolve one of the clutch members faster than it was rotated by the driving-shaft and simultaneously move the arms H H to operate the cross-bar *h*, substantially as set forth.

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

JOHN H. WILLIAMS.

Witnesses:

W. D. BARBER,  
GEO. H. SMITH.