

W. M. CONNER.  
Baling-Presses.

No. 141,035.

Patented July 22, 1873.

Fig. 1.

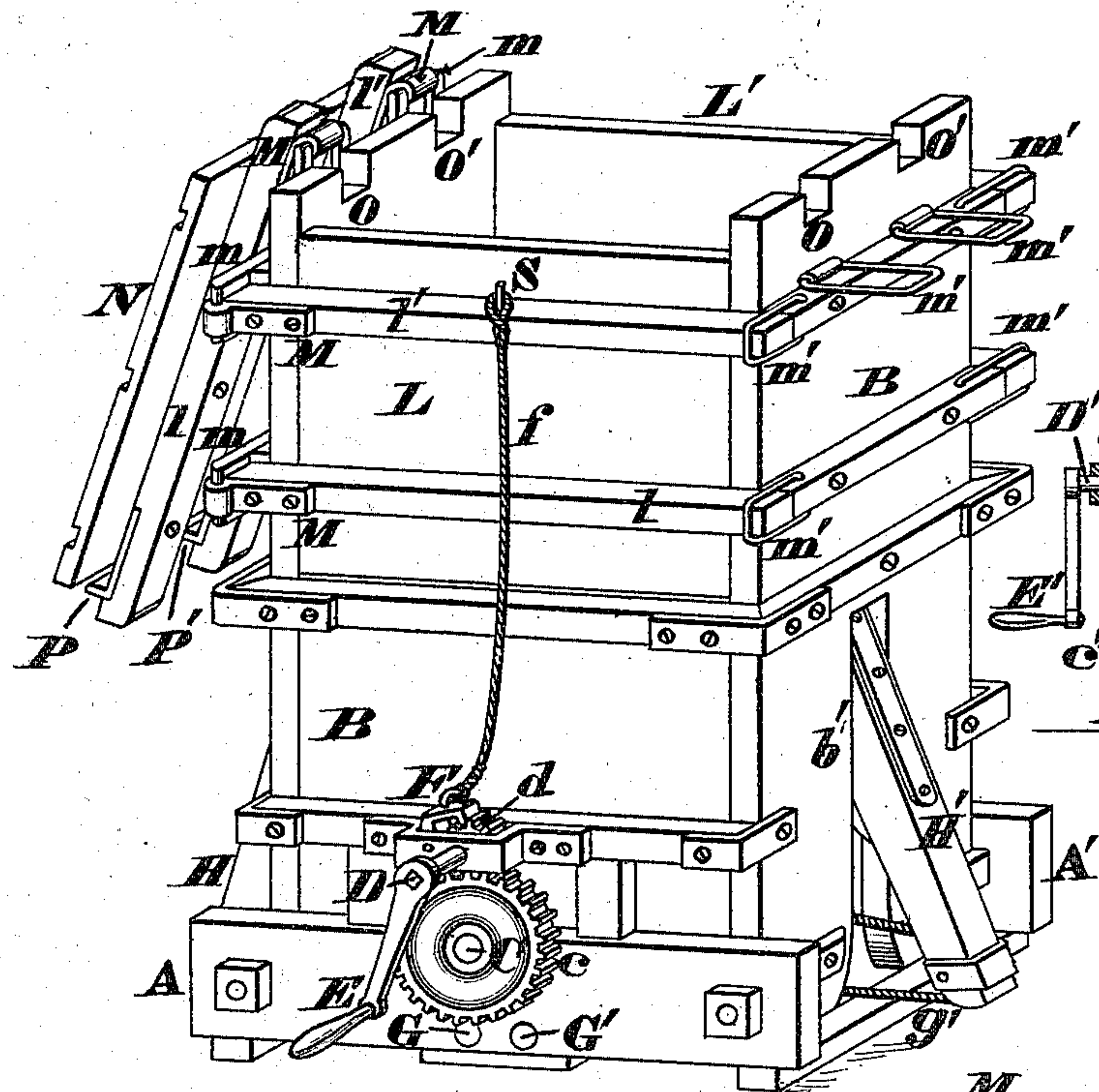


Fig. 3.

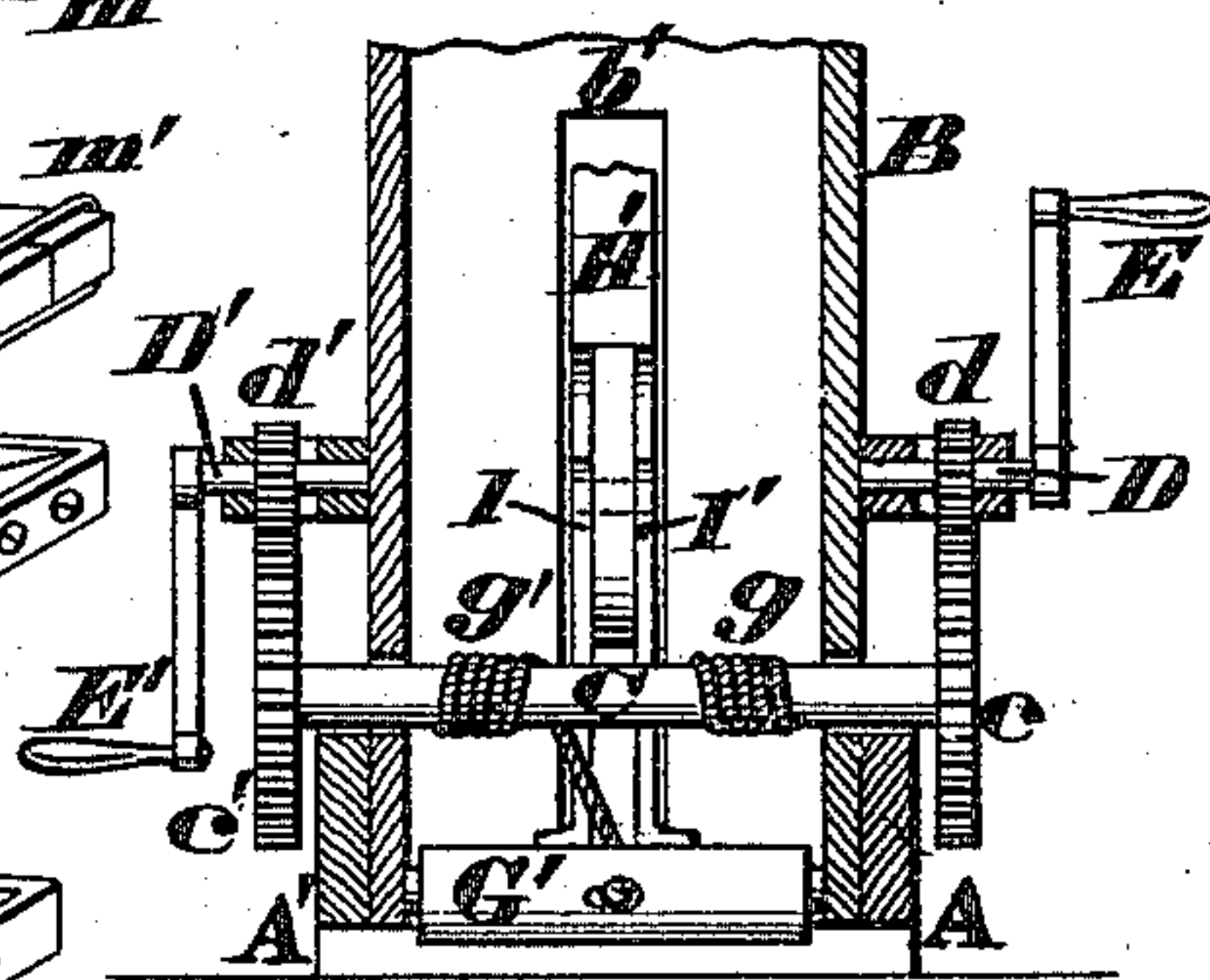


Fig. 4.

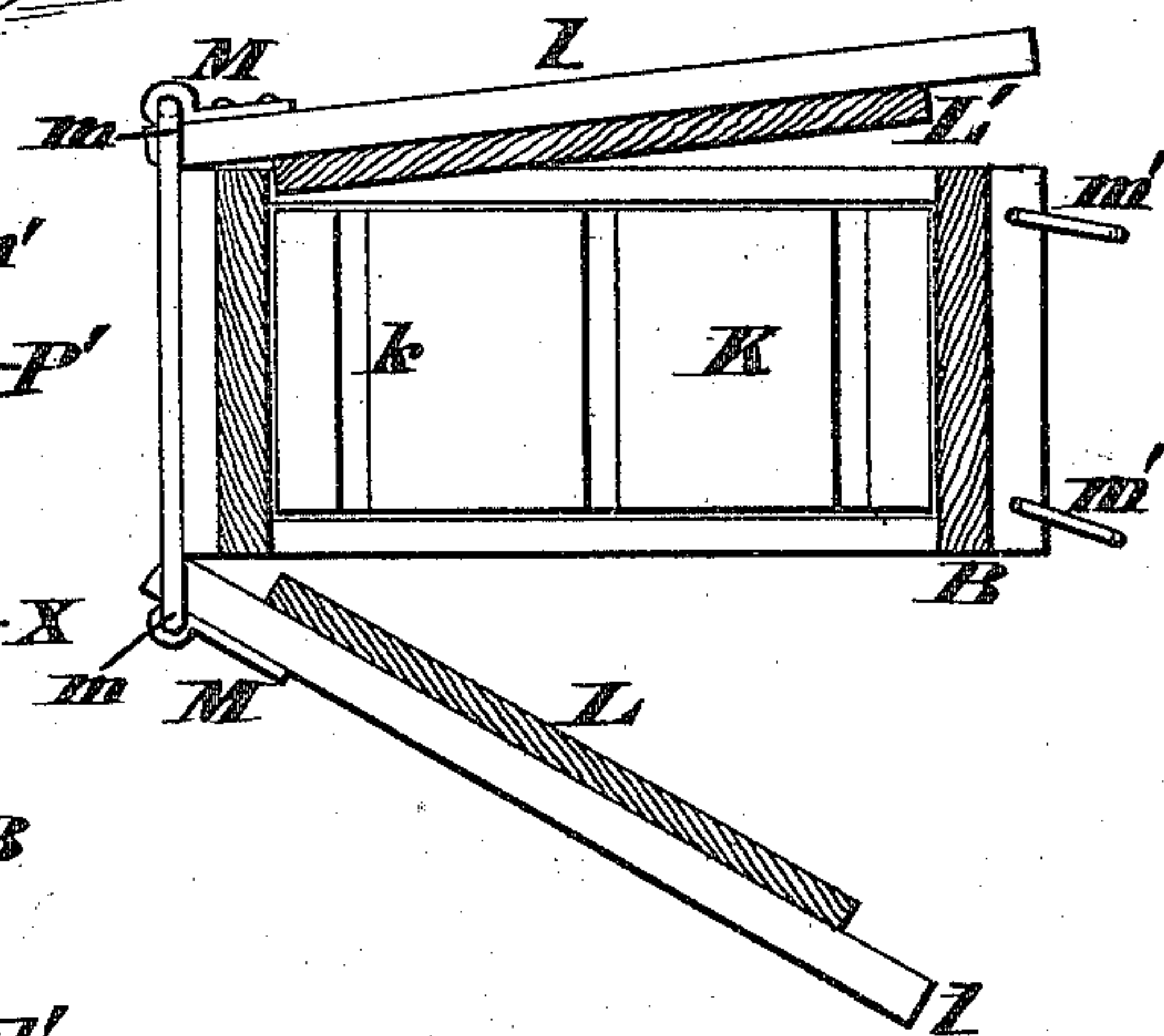
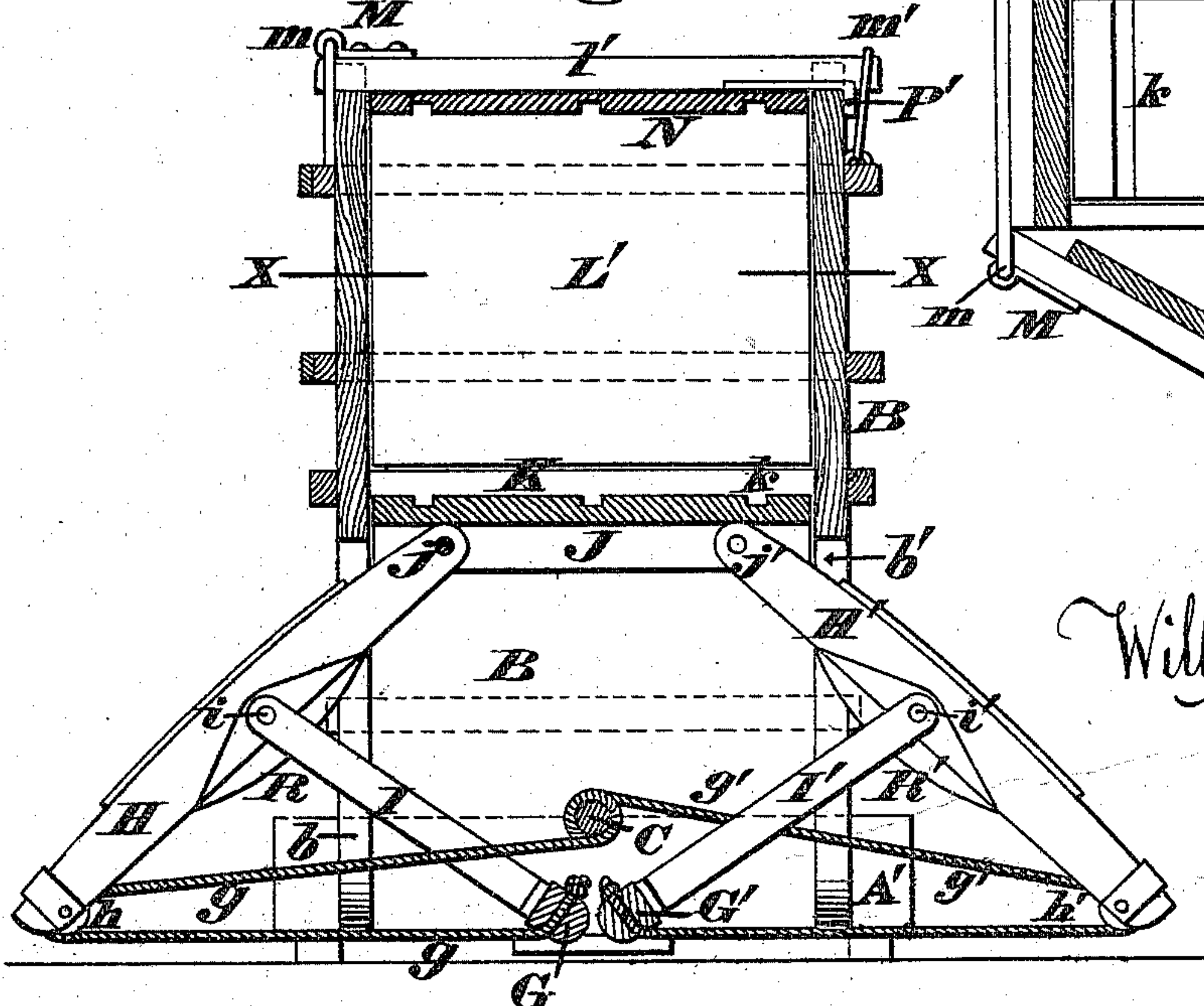


Fig. 2.



William M. Conner  
By Knight Bros.  
Att'ys.

Attest.  
Jas. H. Layman,  
Walter Allen.



# UNITED STATES PATENT OFFICE.

WILLIAM M. CONNER, OF BURLINGTON, ASSIGNOR TO ALBERT G. WINSTON,  
OF SAME PLACE, AND ALEXANDER V. WINSTON, OF COVINGTON, KY.

## IMPROVEMENT IN BALING-PRESSES.

Specification forming part of Letters Patent No. 141,035, dated July 22, 1873; application filed  
April 18, 1873.

*To all whom it may concern:*

Be it known that I, WILLIAM M. CONNER, of Burlington, Boone county, Kentucky, have invented a Baling-Press, of which the following is a specification:

This invention relates to that class of baling-presses having a vertically-acting follower, which is elevated and depressed by a pair of toggles, the latter being set in motion by cords or chains which are wound in opposite directions upon a shaft; and the first part of my invention consists in providing one end of the winding-shaft with a spur-wheel that meshes with a pinion upon a counter-shaft, to which the operating-crank is applied, and said pinion has engaged with it a retaining-pawl, from which a rope proceeds up to the top of the press. This rope is carried up to a position where it will be convenient for the tramper who charges the press, and by simply pulling said rope so as to disengage the pawl from the pinion, he allows the follower to fall as far as necessary, and its descent can be arrested at any moment by permitting the pawl to again engage with said pinion. By this simple and effective arrangement the tramper is enabled to keep his head above the press during the entire charging process, thereby enabling him to attend to his duties without inhaling a great amount of dust, &c., and also allowing him to work in concert with the pitcher, who throws the hay into the open upper end of the press.

In addition to the above arrangement of devices, I have invented a number of other improvements, which add materially both to the strength and convenience of the press, the details thereof being hereinafter fully described.

Figure 1 is a perspective view of a baling-press embodying my improvements, the top door or lid being opened. Fig. 2 is a vertical section through the same in the plane of the toggles. Fig. 3 is a section through the lower portion of the press in the plane of the winding-shaft, showing a duplication of the operating-gearing; and Fig. 4 is a horizontal section through the press at the line *xx*, both of the doors being shown partially opened.

A A' represent two stout sills, which serve

as the base of the box or trunk B of the press, which press is of any convenient height, and has the customary rectangular shape in its horizontal section. Journaled athwart the lower portion of this box is a winding-shaft, windlass, or drum, C, whose outer end carries a spur-wheel, *c*, that meshes with a pinion, *d*, of counter-shaft D, which latter is capable of being rotated by a crank, E, or by any other suitable appliance. Adapted to engage with the pinion *d*, is a pivoted detent or pawl, F, to which a rope, *f*, is attached for a purpose which will presently appear. Located beneath windlass C, and parallel with each other, are two rock-shafts, G G', to which are attached ropes *g g'*, which, after being rove around pulleys or sheaves *h h'*, are then wound in opposite directions upon the drum C. The afore-said sheaves *h h'* are pivoted in the lower ends of levers H H', which are coupled at *i i'* to arms I I', the inner ends of the latter being secured to the rock-shafts G G'. The upper ends of the levers H H' are pivoted at *j j'* to stout beams J, which support the follower K. The above-described devices G G', *g g'*, *h h'*, I I', *i i'*, and *j j'*, constitute the toggle movement, wherewith I am enabled to elevate the follower K with an irresistible force. The follower K has the customary grooves *k*, for containing bands that are to surround the pressed bale, whether of hay, cotton, or other material. Slots *b b'* in the sides of the trunk B allow the protrusion of levers H H', whenever the follower is depressed.

In order to facilitate removing the pressed bale I provide the trunk B with two doors, L L', which are strengthened by having stout beams *l l'* secured to their outer surfaces. Attached to one end of these beams are hinges M, which embrace loops or stirrups *m*, through which the beams project, and thereby relieve the hinge proper from any stress whatever during the baling operation. Adapted to engage over the free ends of beams *l l'* are loops *m'*, which are pivoted either to the trunk of the press or to the stiffeners that surround the same. The upper door or lid N is provided with an arrangement of beams, *l l'*, hinges M, stirrups *m*, and loops *m'* precisely like the doors L L'. When



this lid is closed the beams  $l\ l'$  enter notches  $o\ o'$  in the upper ends of the trunk, and said beams are provided with hook-shaped lugs  $P\ P'$ . When the lid is closed these lugs bear against the sides of the trunk, as shown in Fig. 2, and thus assist in preventing spreading of the upper end of the box  $B$ .  $R\ R'$  are heavy cast plates attached to the under sides of levers  $H\ H'$ , so as to prevent them being sprung by the enormous strain to which they are subjected.  $S$  is a pin, over which the upper end of the cord  $f$  is engaged while the press is being charged. For the purpose of increasing the power of the press the operating devices  $c\ D\ d\ E$  may be duplicated, as shown at  $C'\ D'\ d'\ E'$  in Fig. 3, or the crank may be replaced by a pulley or other device for the application of power.

My press is operated in the following manner: The follower  $K$  is first elevated a sufficient distance, the doors  $L\ L'$  closed and the lid  $N$  opened, after which the pitcher proceeds to throw hay into the upper end of the trunk  $B$ . The tramper then packs the hay down compactly with his feet, and after it has been sufficiently rammed he grasps the cord  $f$ , and, by pulling upon the same, the retaining-pawl  $F$  is elevated, and there being no longer anything to maintain the follower in its elevated position it gradually descends within the trunk. After having descended a sufficient distance the tramper quits his hold of said cord and allows the pawl to again engage with the pinion  $d$ , and thereby arrests the movement of the follower. More hay is then thrown in and packed, and the above-described operation of lowering and stopping the follower is repeated until the press is completely charged. As the tramper keeps his head above the top of the press during the entire charging operation it adds greatly to his comfort, and enables him to see all the movements of the charger so as to act in concert with him. This arrangement also enables the tramper to attend to his duties without being covered with hay, dust, &c. After the press has been charged the lid  $N$  is closed and secured, and the shaft  $C$  rotated in such a manner as to elevate the follower  $K$  with great force, and thereby compress the hay, cotton, or hemp between the members  $B\ K\ L\ L'$  and  $N$ . When the pressed bale has been properly bound the cord  $f$  is disengaged from the pin  $S$ , the doors  $L\ L'$  opened, and the bale removed from the apparatus.

It will be seen that my entire press is self-contained, and that no part of it projects either above or below the trunk  $B$ , thereby enabling it to be operated in the smallest possible space, no upper room being required for feeder, or no basement or pit for the power which drives the toggles.

The press, therefore, has the following merits: First, almost irresistible power; second, remarkable ease and celerity of movement; third, simplicity of construction; fourth, cheapness, strength, and durability; fifth, is oper-

ated with but little power; sixth, is in compact form for removal and transportation; seventh, can be operated in very little space; eighth, can be charged with great rapidity, ease, and comfort by reason of its low elevation and the ability of lowering the follower as charged.

To recapitulate: The press is light, weighing about seven hundred pounds, is portable, and can be easily removed from one place to another, thus obviating much rehandling of the material to be pressed. It is self-contained, and may on that account, and by reason of its lightness, be easily moved from place to place. No part of it has to be detached for removal. The movements in this press are rapid. The follower may be elevated during the process of pressing in less than a minute with ease, and the follower may be let down in an instant, and may be stopped at any point at pleasure, where it rests firmly on the arms of the toggles. It is a press of great power, and the mechanical powers employed in the press are so combined and arranged as to enable the operator of the press to work it at the greatest advantage.

When the press is worked by hand-power the operator stands in the same place all the time, and exerts himself in a way the least fatiguing to him, and in such a manner as to require but little space. He simply turns a crank. The motion of the crank is slow. This favors greatly the easy and efficient working of the press. Besides, in pressing hay, straw, cotton, &c., the power of the press increases as rapidly as the resistance, so that it is no harder to work the press at the completion of the bale than when the follower is at its lowest point. It is also noticeable that when the press is exerting its greatest power the mechanical powers have assumed such positions as to be susceptible of sustaining the greatest pressure. The arms of the toggles are then standing almost in a vertical position. Less power is then required to draw the lower ends of toggle-arms together, the movement thus being easier at the toggle-hinge. The ropes running from the shaft or axle have then coiled around the shaft, starting from the sides of the press and meeting in the center of the shaft, where the strain is in opposite direction, thus balancing each other, not increasing the friction, and lessening the strain on the shaft when the press is under its greatest strain. Especial attention is called to these facts.

The power of the press is limited only by the strength of the material used in its construction. It is therefore a press of great utility and efficiency where great power is required. By duplicating the appliances and devices for moving the toggles two men may exert a power almost irresistible and with ease to themselves. Without the least duplication a boy twelve years old can press a bale of hay in one minute and without fatigue to himself; and this on a full-sized press.



By calculation it will be seen that the power is doubled by reason of the pulleys in the ends of the toggle-arms, and that it is multiplied with great rapidity through the shift and the other portions of the machine used for moving the toggles, and that it may be much increased by increasing the ratio between the wheels and their several axles.

The press is simple in construction. Its movements are all easy, and it is durable and not liable to break or get out of order. The press is low, the height being eight or nine feet. The follower drops to within about sixteen inches of the floor, thus avoiding high pitching. The doors are so hung as to give the greatest strength and the greatest facility for opening and shutting, and so as to obviate strain upon the hinges.

These merits are claimed as the legitimate fruits of the combination and arrangement of

the mechanical powers which are employed in this press, the novelty of which combination, &c., is claimed by applicant.

I claim as my invention—

1. The baling - press herein described, having the follower K elevated and depressed by the operating devices C c D d, and toggle arrangement H H', I I', and g g', the pinion d being provided with the pawl F and cord f to enable the tramper to control the movements of the follower K, as and for the purpose specified.

2. The door L l l', constructed as described, with the stirrups m, loops m', and hook-shaped lugs P P', as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

Attest :

W. M. CONNER.

GEO. H. KNIGHT,  
A. G. WINSTON.