

(No Model.)

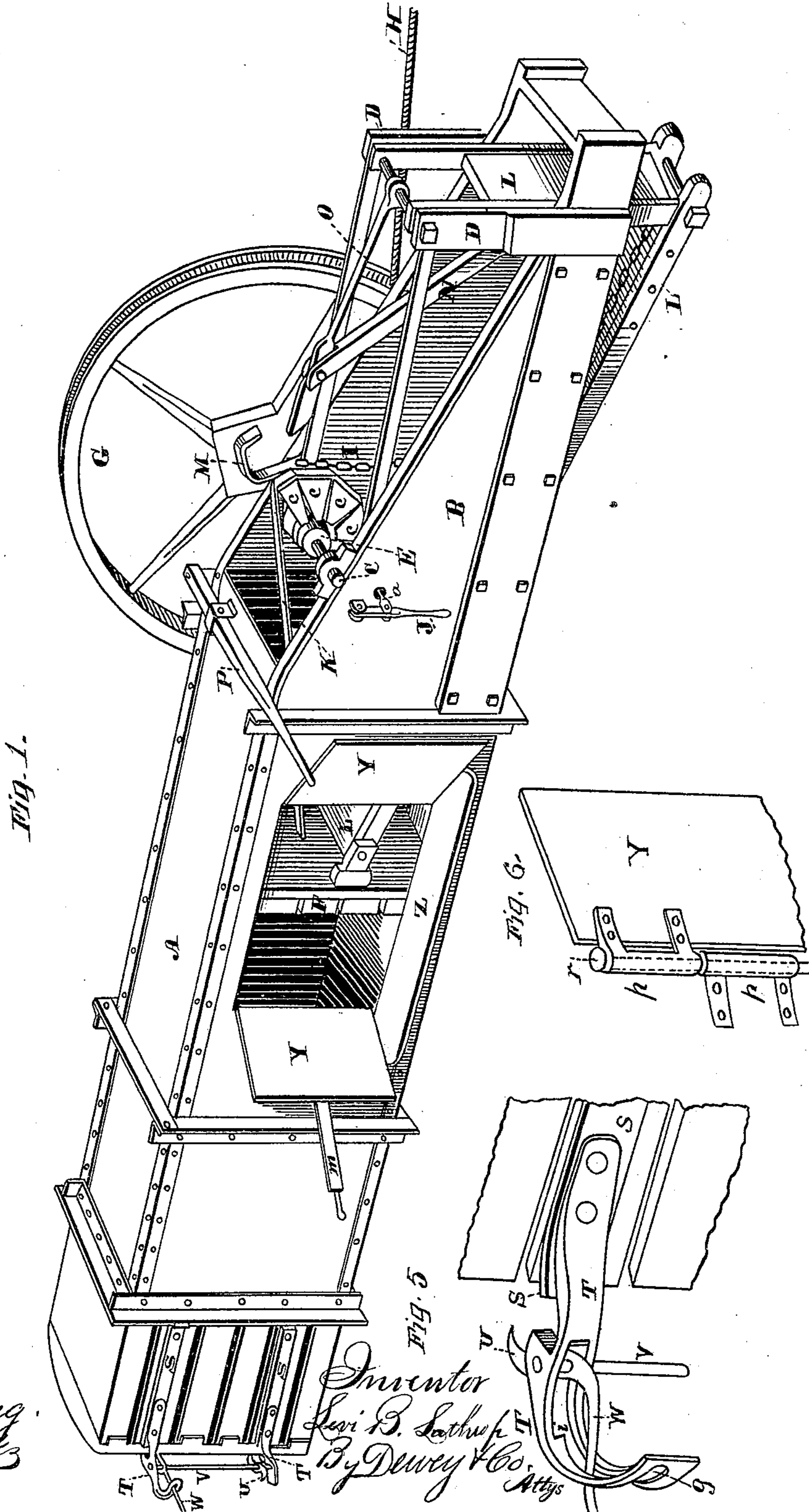
2 Sheets—Sheet 1.

L. B. LATHROP.

HAY PRESS.

No. 249,640.

Patented Nov. 15, 1881.



Witnesses
Geo. H. Strong.
Frank A. Brooks.

Inventor
Levi B. Lathrop
By Dewey & Co. Attys

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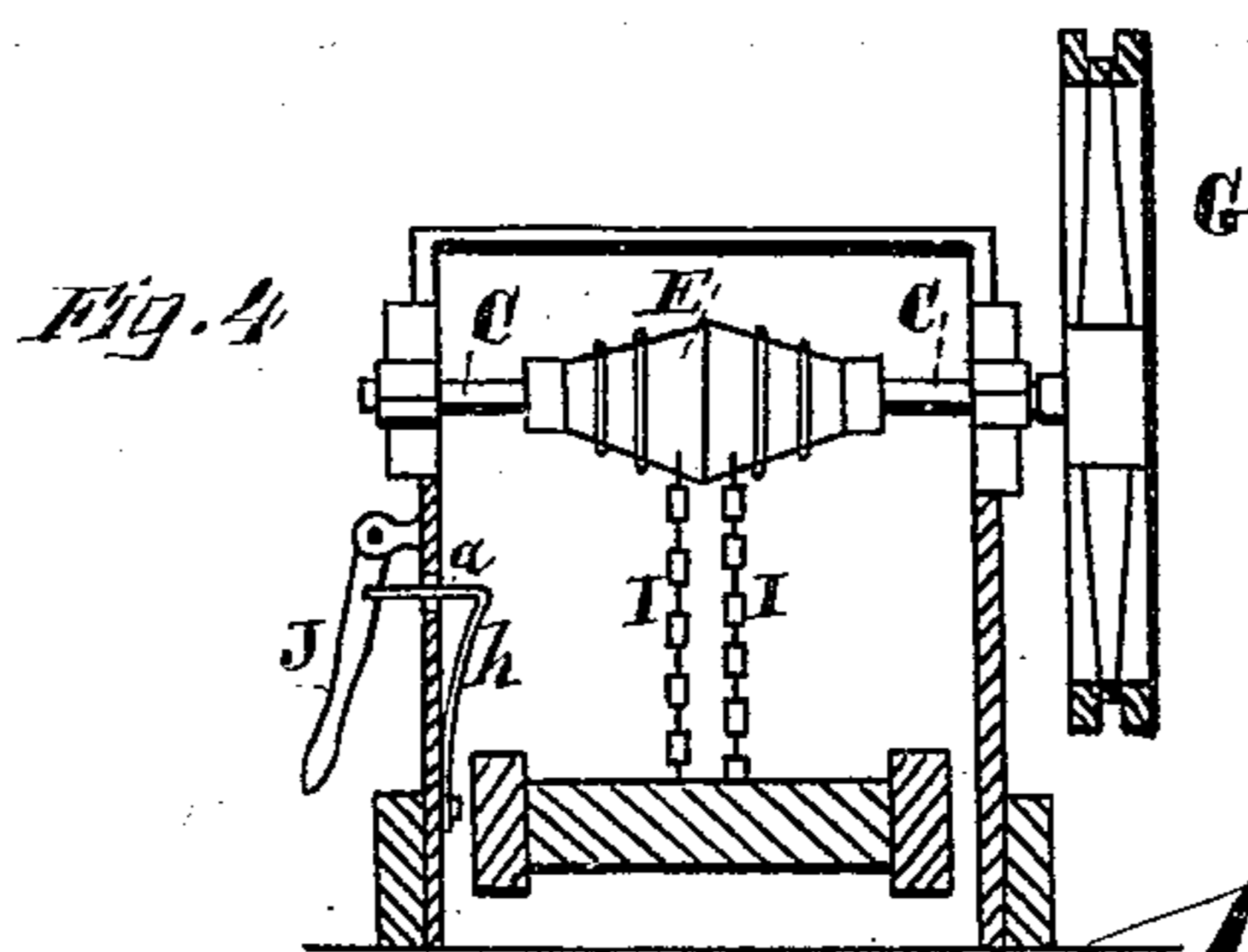
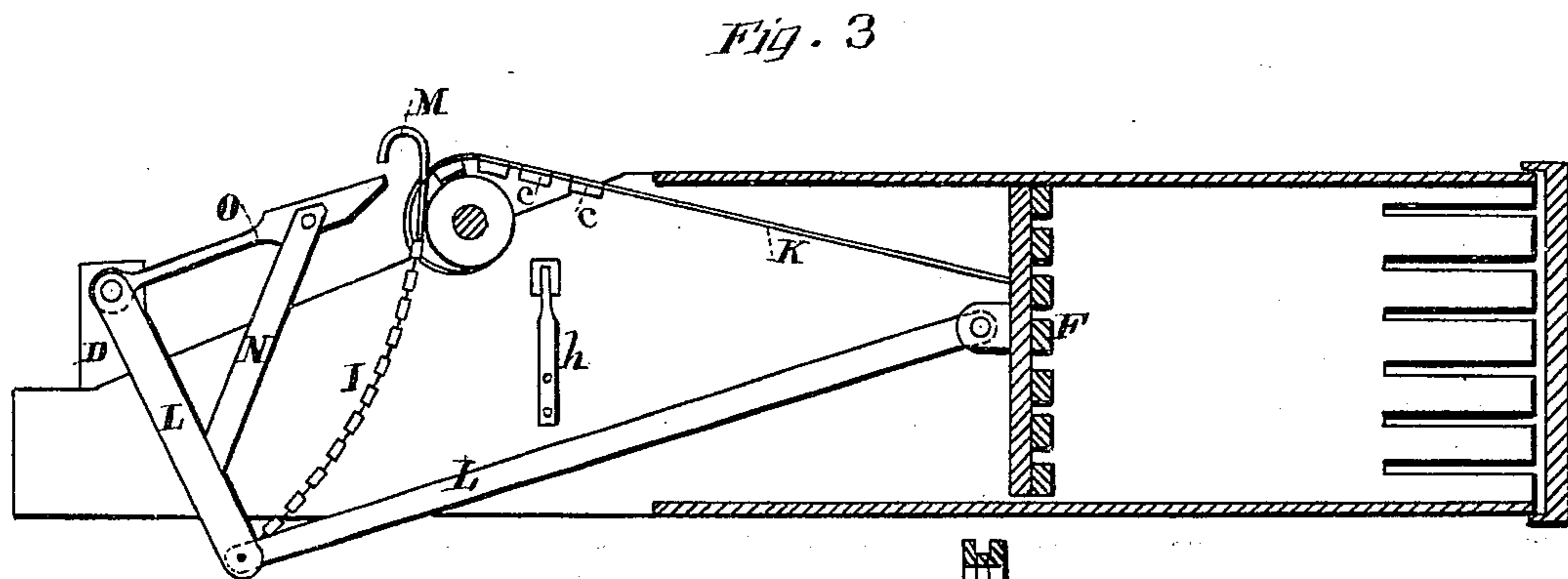
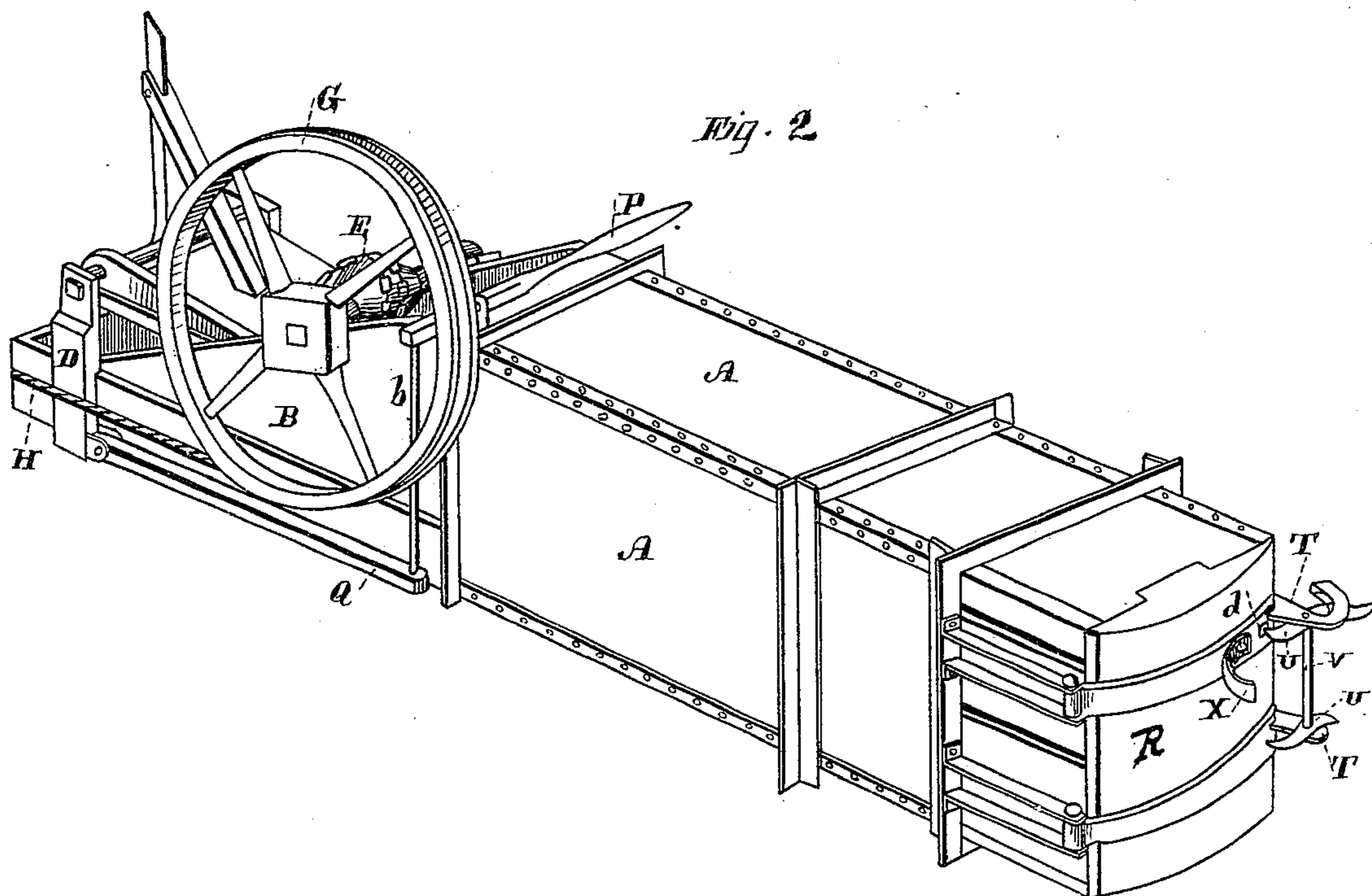
2 Sheets—Sheet 2.

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Geo. H. Strong.
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UNITED STATES PATENT OFFICE.

LEVI B. LATHROP, OF HOLLISTER, CALIFORNIA.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 249,640, dated November 15, 1881.

Application filed June 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, LEVI B. LATHROP, of Hollister, county of San Benito, State of California, have invented an Improved Hay-Press; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the class of hay-presses, and more especially to certain improvements therein based upon a former invention of mine secured to me by Letters Patent of the United States No. 225,396, dated March 9, 1880; and my invention consists in certain details of construction, as hereinafter described, and specifically claimed.

Referring to the accompanying drawings, Figures 1 and 2 are perspective views of my hay-press. Fig. 3 is a longitudinal section. Fig. 4 is a transverse section. Figs. 5 and 6 are details of construction.

The press is designed to be permanently placed upon a four-wheeled wagon, and when in use the wheels are locked, or the wagon is otherwise staked to the ground, so that it is immovable.

The body of the press, A, is made of boiler and angle iron, braced and bolted appropriately. This body is attached to a frame-work, B, the rear end of which has the upright standards D.

F represents the follower within the press, adapted to move forward and back in the manner described in my former patent. The rear end of the follower F is suitably connected by a hinge or pivot with a knee-lever or toggle-jointed bar, L, the shorter and rear arm of which is hinged or pivoted on the top of the standard D. The two arms of this lever are pivoted together below, so that when raised in assuming a horizontal position the follower will be pushed forward, and when depressed it will be drawn back, herein reversing the position and application of the toggle-lever in my former invention. This toggle-lever L is made very heavy, consisting, preferably, of two bars of iron filled in with wood and bolted through, thereby gaining weight and strength, and operating evenly upon the follower, both strips of iron properly making one solid toggle-lever.

C represents a shaft properly journaled upon the frame B. It has secured to it a double conical pulley, E, said pulley having its base or greatest periphery at the center and its

apex toward the sides. One end of the shaft carries the heavy operating-wheel G, said wheel having a grooved face to receive a rope, H, whereby the wheel and shaft may be revolved.

I represent chains, the ends of which are fastened to the bases of the double conical pulley E, and the other ends are secured to the joint or pivot line of the toggle-lever L. Now, if the toggle-lever L be down, its long arm will be inclined from the follower, which is in the rear of the press, to the rear of the frame B, and its short arm will be perpendicular, or nearly so. If, then, power be applied to the end of the rope H, the wheel G will revolve and wind up the chains I I on the conical pulley E and raise the toggle-lever to a horizontal position, which will push the follower forward. The effect of the conical pulley E is well known, giving the same result as has been set forth in other inventions—to wit, driving the follower rapidly at the beginning of the stroke. When the follower has been driven home the toggle-lever L will be in a horizontal position, and in order to sustain it I have the following device:

J is a lever on the outside of the frame B, pivoted thereto. It is attached to a rod, a, which passes through the frame and is attached to a spring, h, bolted on the inside of the frame. When the toggle ascends it pushes the spring back, and when just above it springs forward and supports it. Now, when I release the spring h, the weight of the toggle-lever will cause it to descend, and thus draw the follower back. While this is the principle of the operation, I have found by experiments that some regulation of this is necessary. The weight of the toggle, when released, causes the wheel G to revolve too rapidly, and in doing this wastes its own power, so that it has not enough left to draw the follower entirely back. To regulate this I attach a strap, belt, rope, or chain, K, to the rear end of the follower and attach its other end to one side of the pulley E at its apex. The base of the conical pulley E is provided with a rearwardly-extending piece of iron, M, I call a "hammer" or "stop."

N is a brace bolted to the short arm of the toggle-lever, and has its upper end slotted, and bolted in this slot is the arm O, the rear end of which is pivoted or journaled upon the same shaft upon the top of the standard D, to which

the end of the short arm of the toggle-lever is journaled. When the toggle-lever is released its weight must first overcome and set in motion the heavy wheel G, which thus partially counteracts the toggle. When the wheel has received momentum the toggle-lever will have descended very nearly to its limit and have only a small distance to fall, and its weight in this small distance would not be sufficient to return the follower completely; but the large wheel G, having acquired momentum, is more than competent to do the work, so that some check must be placed upon it. This is the effect of the connecting-strap K. This strap, during the descent of the toggle, winds upon the pulley E, and when the toggle ceases to draw the follower the revolving wheel G finds resistance in the follower and has to draw it by means of the strap K. This serves to check its momentum, though not sufficiently to prevent its complete return. As the toggle descends the brace N descends and inclines forward, carrying with it the arm O, and when the toggle has reached its limit the end of the arm O projects forward so far that the pulley E, in its next revolution, will strike its stop or hammer M against it, and thus gradually stops the wheel G and the whole operation. By proper adjustment this effect is produced when the follower has nearly reached the completion of its return-stroke. This device relieves the strap K of the strain. Thus the weight and power of the toggle are modified to produce the result of returning the follower without jar or injury, and for this purpose I regard the connecting-strap K or its equivalent as necessary.

In connection with the wheel G, I have applied a braking device, to prevent the said wheel from running too fast when thrown back by the spring of the bale.

P is a lever on top of the press, having its fulcrum on the side nearest the wheel G. The end of this lever passes a little beyond the side of the press and receives a vertical rod, b, which extends below to a line with the under side of the wheel G. To its end is attached the brake-bar Q, which passes horizontally under the wheel and has its other end hinged to the press-frame, so that when the lever P is pressed down it raises the brake-bar against the wheel G. This brake-bar is so placed as to press upon only one flange of the wheel and does not interfere with the rope.

I have here described the connecting-strap K as being wound upon the smaller circumference of the pulley E. When this is done, in order to make it wind as fast as the chain is unwound, I place blocks c upon the strap, the effect of which is to practically increase for the time being the circumference of the pulley. This particular construction is a matter of adjustment. I need not wind the strap upon the pulley E, but may have a separate pulley upon the same shaft of the required circumference. Nor is it necessary that I use a conical pulley, for I could use an ordinary pulley, though at the loss of the known advantage of such con-

cal pulleys. The main principle is the connecting-strap for the purpose described, and it makes no difference to what kind of pulley it is attached, provided that it be properly adjusted.

The discharge-door R of the press is on the front end. The hinge is rounded at the corner, so that the point of motion is at the inner edge of the door. Extending across the door, on the inside, are iron straps, turned at their ends at right angles, so as to form hooks or clamps, which close by or over the slotted ends or tongues of the sides of the press, all of which I have shown in my former patent. My improvement herein is in the manner of securing the door.

To the tongues of the sides of the press are fastened heavy steel springs S, extending from the rear to the front end of the bale-chamber, their forward ends being loose to permit the spring.

To the loose ends of the springs S are attached hooks T, against which the door, in closing, presses, and which spring back over the ends of the hinge-bars on the door, as shown. To prevent these hooks from slipping off the door when pressed outward I have the curved hooks U, one below the upper hook and the other above the lower hook, T. These two curved hooks are securely and rigidly attached to an upright rod, V, the ends of which pass through the curved hooks and are pivoted or journaled in the hooks T. The upper curved hook, U, is attached to or is a part of a spring-lever, W, which passes through a slot, g, in the end of the upper main hook, T. A notch, i, in the inner end of this slot holds the lever W in place when pushed up. The ends of the hinge-bars on the door have small notches or recesses d, which receive and hold the points of the curved hooks U.

The operation of this device is as follows: When the door R is closing it presses back the spring-hooks T, and, when shut, the hooks T spring back and fit their hooks or shoulders over the ends of the hinge-bars on the door; but in order to further secure and prevent the pressure from causing the doors to slip by the hooks T, I turn the lever W inward, thus turning the curved hooks U until their points fit into the notches d on the end of the hinge-bars. The spring of the lever W will cause it to fit up into the notch i, and thus the whole device is held securely. To open the door a very slight force upon the lever W will release it, and in drawing it back the curved hooks U bear against the sides of the press as a fulcrum and draw the hooks T back, so that the door may be opened. Thus, by simply pushing the door to, all the hooks spring into position and the door locks itself. To the outside of the door is secured a curved spring, X, which, when the door is thrown open violently by the pressure of the hay, comes in contact with the side of the press, and thus saves the door.

Upon the side of the body of the press are

the feeding-doors Y, swinging to meet at the center. These doors are hung upon hinges consisting of knuckles *p* upon the doors and sides of the press, through which passes a pin, *r*, thus forming a close hinge, and leaving no crack where the door opens.

Below the edges of the doors is a table, Z, upon which they fit closely, and to one door is attached a cross-bar, *m*, which passes over the other door when closed, and is hooked appropriately.

I am aware that there is nothing new in the principle of close hinges or of doors closing to the center; but the application to a hay-press accomplishes an object which is of great importance.

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

1. In a hay-press having a follower, F, toggle-lever L, and actuating-wheel G, the band, strap, rope, or chain K, one end of which is secured to the rear of the follower and the other to the shaft of the actuating-wheel G, whereby said follower and wheel are connected, or an equivalent device, substantially as and for the purpose herein described.

2. In a hay-press, the combination of the follower F, toggle-lever L, pulley E, strap or band K, and wheel G, substantially as herein described.

3. In a hay-press, the combination of the follower F, toggle-lever L, strap or band K, wheel G, pulley E, stop or hammer M, brace N, and arm O, substantially as and for the purpose herein described.

4. The combination of the toggle-lever L, spring *h*, and lever J, substantially as and for the purpose herein described.

5. The device for securing the discharge-door of a hay-press, consisting of the spring-hook T, with the slot *g* and notch *i*, curved hooks U, and connecting-bar V, said curved hooks being adapted to fit the recesses *d* and the lever W, substantially as herein described.

In witness whereof I have hereunto set my hand.

LEVI B. LATHROP.

Witnesses:

FRANK A. BROOKS,
JOSEPH A. BAYLESS.