

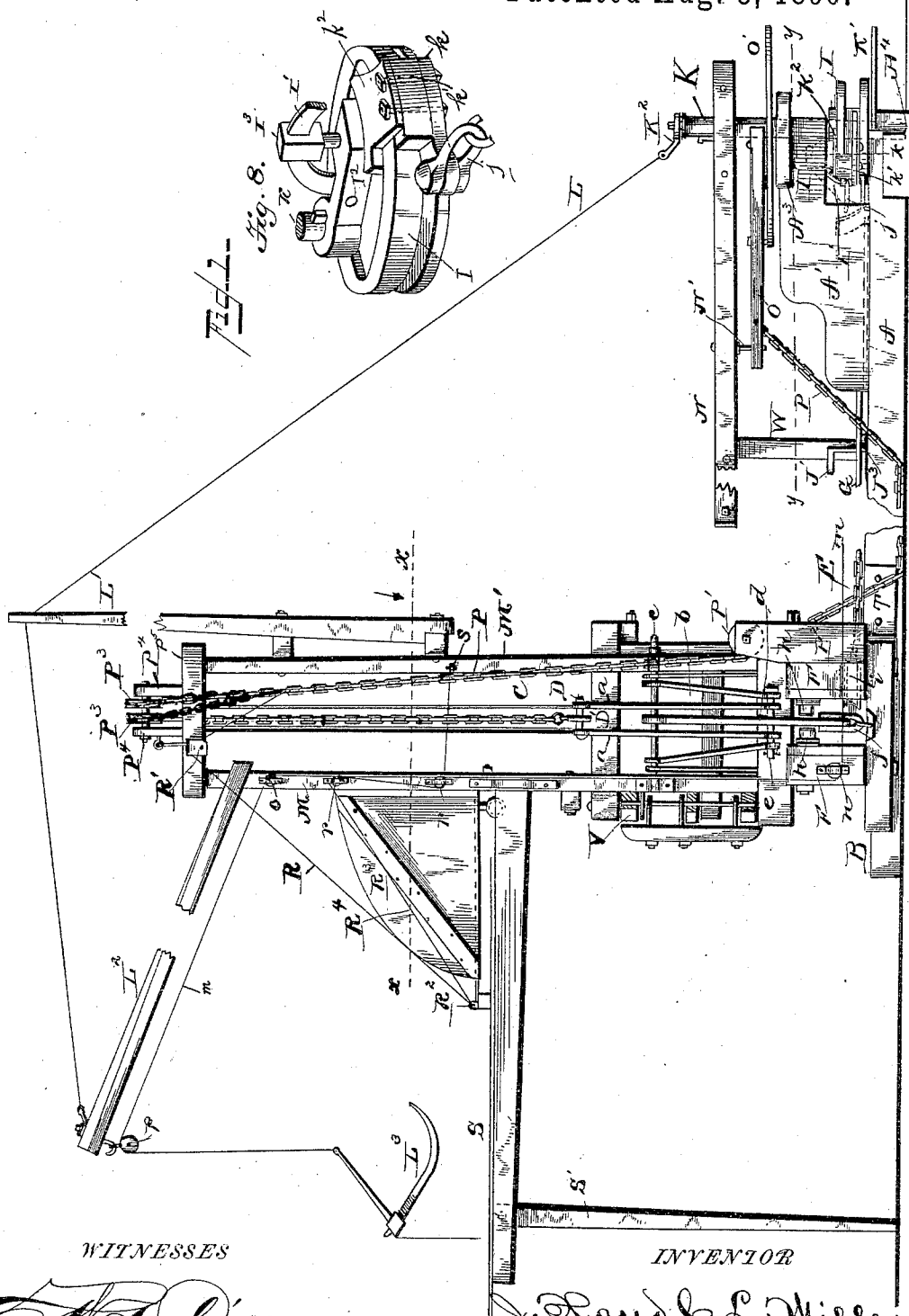
(No Model.)

3 Sheets—Sheet 1.

S. H. & C. L. MILLER.
HAY PRESS.

No. 433,484.

Patented Aug. 5, 1890.



WITNESSES

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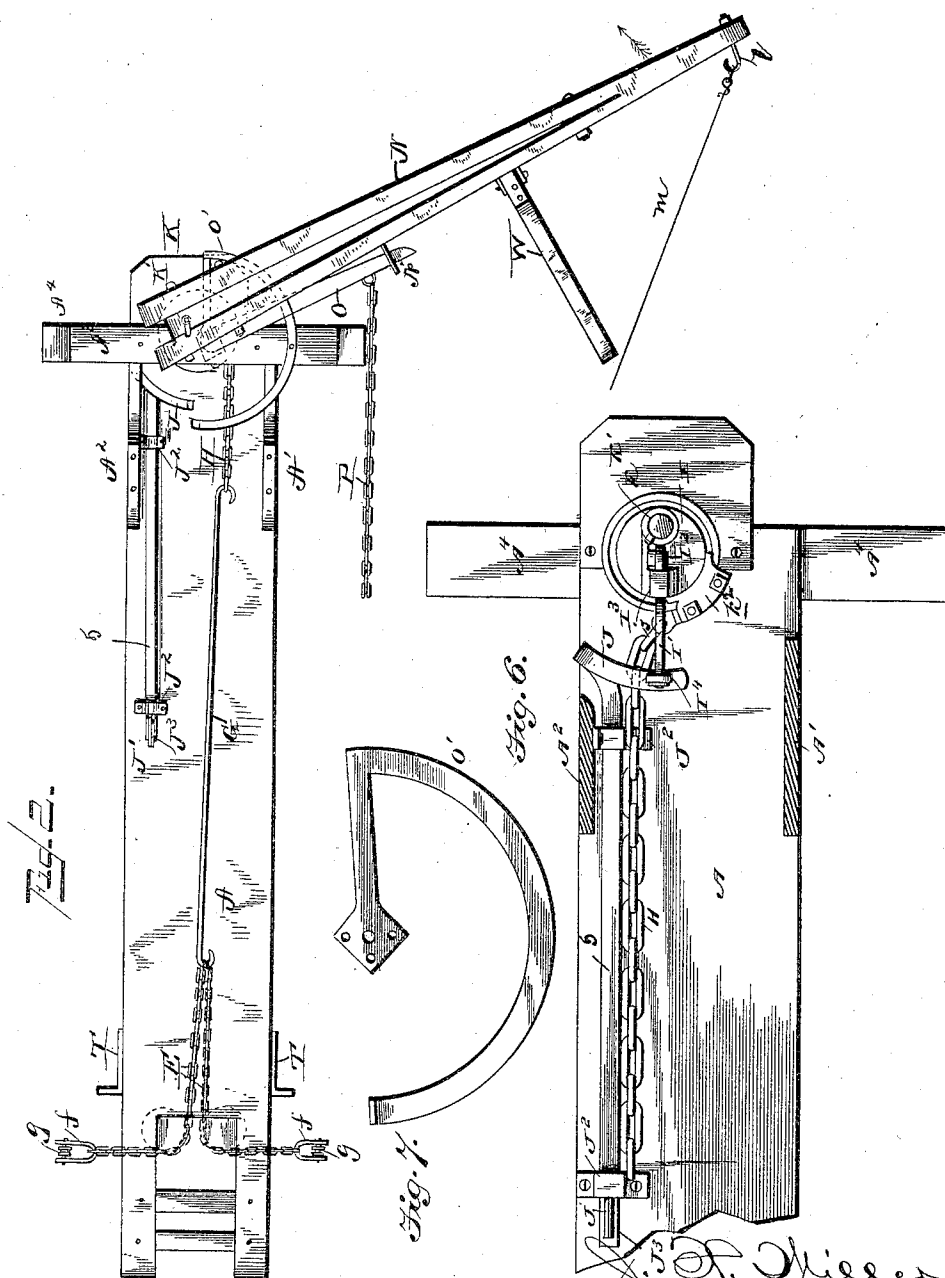
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S. H. & C. L. MILLER.
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3 Sheets—Sheet 2.

No. 433,484.

Patented Aug. 5, 1890.



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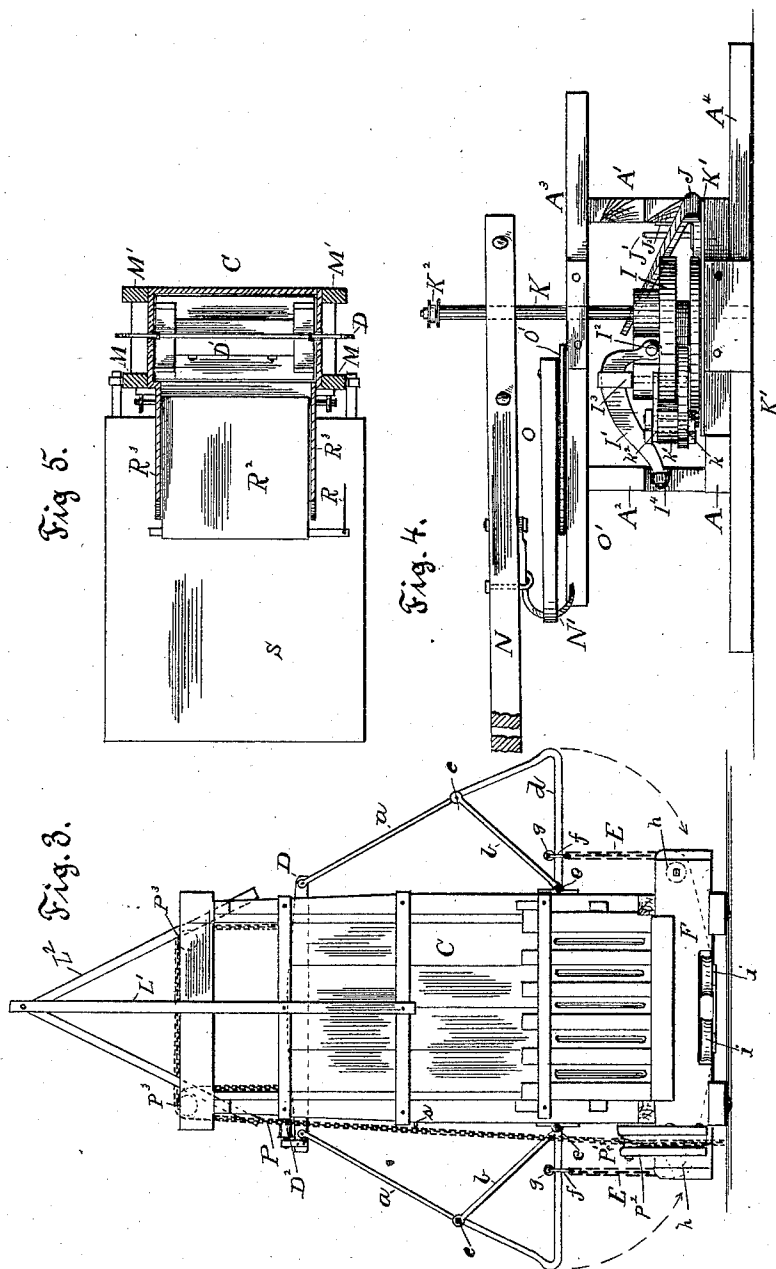
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

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HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 433,484, dated August 5, 1890.

Application filed February 2, 1889. Serial No. 298,522. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL H. MILLER and CHARLES L. MILLER, citizens of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Hay-Presses; and we do 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in baling-presses; and it consists in certain improvements in devices for operating the same, as will be hereinafter described and claimed.

Figure 1 is a side elevation of the entire press and horse-power with the follower shown at the bottom of the press-chamber. Fig. 2 is a plan view of the horse-power and bed-piece, the press being removed. Fig. 3 is a view of the press at right angles to Fig. 1 with the follower elevated, that which is shown in Fig. 2 being removed. Fig. 4 is an enlarged end view of the horse-power and its frame. Fig. 5 is a section of the press through line $x x$, Fig. 1. Fig. 6 is a sectional plan view taken in the plane indicated by the dotted line $y y$ in Fig. 1. Fig. 7 is a detail plan view of the curvilinear slide-track, shown in position in Fig. 2. Fig. 8 is a perspective view of the eccentrically-mounted grooved wheel, and showing more fully the parts K, K', and K² in connection therewith.

A represents the bed-piece, which supports the horse-power, press-box, and pressing devices. Parallel with this bed-piece, at the bottom of the press-box, are bed-sills B B, serving to keep the press-box firmly in position.

C is the hay-baling chamber, which is provided with vertical central slots for the passage of the ends of the follower-bar D. There is a leverage system on each side of the hay-baling chamber C, which consists of follower connecting-rods a , pivoted to a two-part lever b by pin c , and to an angular lever d , the lower ends of the lever b and of the lever d being

attached to a cross-rod e , attached to the hay-baling-chamber frame.

A chain E connects the above-described leverage system to the horse-power as follows: The upper end of the chain is preferably supplied with a clevis f , having a roller g , which engages with the portion of the angular lever d back of the elbow, so that it slides back and forth thereon from the hay-baling chamber to the elbow, and the chain extends to the center beneath the press and passes under a two-part guiding-sheave h , located between the cross-timbers F F of the press, and around a horizontal guiding-sheave i , attached to the cross-timber F beneath the same. The two chains E, a short distance beyond the guiding-sheave h , are attached to a rod G, having hooked ends, at the horse-power end of which is another chain H, which is connected to an eccentric horse-power by means of a clevis j , attached to a three-part slide, k being the lower part, k' the middle part, and k^2 the upper part. The lower part k slides in a groove of the eccentrically-mounted grooved wheel I, and the center part k' connects the part k to the part k^2 , which slides on the periphery of the rim of the wheel I. A latch-lever I' is hinged to the surface of the wheel I by a pin I², and passes through the eye of a pin I³, which is loosely inserted in a guide-opening on the surface of the planet-wheel I, opening into its center, so that the latch-lever I' may vertically operate the pin I³. The latch I' has at its point or free end a roller I⁴, which, as the wheel I rotates, engages with an angular inclined arm or branch J of the adjustable bar 5, forming an inclined plane at that end. The bar 5, which moves parallel with the bed-piece A in guides J², has a handle J' at its other end engaging with a check-iron J³, attached to the bed-piece A.

A' A² are respectively supporting-timbers, and A³ the top cross-bar and A⁴ the lower cross-bar of the horse-power frame, all of which are suitably secured to the bed-piece A and to each other. A vertical shaft K has its journal-bearings in the bars A³ and A⁴. A half-circle rest and slide-track O' is attached to cross-bar A³. At the upper end of the shaft K is a loop-link K², which takes the end of a rope L, which passes over a mast L', attached

to one side of the hay-baling chamber and suspends the derrick-boom L^2 , which has its foot bolted to the front corner-post M of the hay-baling-chamber frame. At the upper end of the shaft K is also a sweep N, secured at its rear end to said shaft, and said sweep is provided with a hook N' , which engages, when in operation, with a lever O, pivoted on the inner end of the slide-track O' and at the point where such slide is attached to the cross-bar A^3 . A chain P is attached to the lever O a short distance from its end, and extending forwardly passes under sheave P' , journaled between jaws P^2 , attached to sill F, and then passes upward in two parts over guiding sheaves P^3 , journaled between two up-rights on a cross-bar P^4 at the top of the press-box, and is suitably connected with the follower D' within the hay-baling chamber C.

The end of the sweep N is provided with a hook l to receive the eye end of a rope m , which passes around a pulley n on the end of the sill F and over a pulley o , near the top of the frame-post M, and through a pulley-block p at the outer end of the boom L^2 . Said cord has a fork L^3 , pendent at its end.

To the chain P on one side of the press is attached a rope R, which passes over a pulley R' , attached to the cross-bar P^5 , and has its end attached to a small feed-platform R^2 , which is hinged to post M.

R^3 indicates sides or protections provided for the platform R^2 , which are attached to the press-box. The platform R^2 has also a rope R^4 , passing over a pulley r on post M, and passing downward under another pulley r on the same post, and is attached to an eyebolt s on the post M' of the frame and engages, as will be shown, with a roller D^2 on the end of the follower-bar. When the platform R^2 is lowered, it rests upon a main platform S, attached to the frame of the press-box and supported by posts S' at its outer end.

At the intersection of bed-piece A with the press are shoulder-irons T, which serve to brace the press and prevent its drawing toward the horse-power. A door V in the lower part of the hay-baling chamber is provided with vertical slots for the reception of the usual bale-ties. The sweep N is provided with a ground-brace W.

Having described the construction of our improved press, we will now describe our method of operating the same. The press is set alongside the stack of hay, the end of platform S being against the stack. The team is attached to the sweep N, the hook N' engaging with the lever O, the rope m having previously been placed in position on the hook l by means of an eye in the end of said rope. The team then travels in its circle and raises the fork L^3 with its load of hay. When the team reaches a point farthest from the press, the operator on the stack trips the fork L^3 and discharges its load on the platform S, and the rope m then automatically releases itself from the hook l , by reason of

the said hook and the ring changing their relative holding position, and thus permitting the fork L^3 to be returned to the stack. The operator on the platform S pitches the hay upon the feed-platform R^2 . The feed-platform R^2 is raised at its outer end by means of the attachment of the rope R to the chain P and by the engagement of the pulley D^2 with the rope R^4 as the follower D' is elevated, and thus automatically discharges the hay thereon into the hay-baling chamber C. At this point, the follower D' having been raised to the top of the chamber C, the sweep N releases the hook N' from the lever O and permits the follower to drop on the hay in the hay-baling chamber and places the lever O in position to receive the hook N' of the sweep N as it accomplishes its circuit, and while in such circuit the pressing device, as described, operated by means of the chains and rod E G H, presses the hay compactly in the hay-baling chamber C.

The pressing device is again put in operation by means of the latch-lever I' and pin I^3 dropping so as to engage with part k' of the slide until the roller I^4 comes in contact with and rolls up the inclined plane of the head of the slide J, which elevation of the roller I^4 and lever I' lifts the pin I^3 and releases the slide portion $k k' k^2$ from engagement with said pin, the slide part k allowing the same to slide back, thereby slacking the chain H and relieving the draft upon the connecting-rod G, the chain E, connected to said rod and to the angular levers d , and allowing the said angular levers to swing upward and raise the follower-arms a , and consequently the follower D, thus releasing the pressure upon the hay in the hay-chamber C, and the sweep N, by means of its hook N' , again engages with the lever O, as before stated, and the rope m is again attached to the hook l for the purpose of again operating the fork L^3 , also again to raise the follower D' . When there is a sufficient amount of hay deposited by means of the above device in the chamber to form a bale of proper size, the slide is drawn back sufficiently far over the stop J^3 out of the way of the latch-lever I' , so that any movement of the team would not disturb the bale while being tied and discharged from the chamber C. When the door V is opened and the ties are on the bale, the latch-lever I' is raised manually and the slide J is replaced in its original position, ready for the repetition of the operation described to pack the hay for another bale. While the bale is being tied and removed the ground-brace W prevents the sweep N from moving backward.

Having thus described our invention, what we claim is—

1. The combination of the press-box, the follower D, the elevating-chains therefor, guiding-sheaves for the said elevating-chains, the two-part levers b , the follower-arms and angular braces pivoted to the two-part levers, the lever-chains attached between the elbows of

the angular levers and the press-box, guiding-sheaves therefor, and a suitable horse-power operating the elevating and lever chains, substantially as described.

2. In a hay-press, the combination, with the press-box, of the follower D D', the follower connecting-rods *a*, the two-part lever *b*, the angular lever *d*, the rod *e*, the pin *c*, the roller and clevis *f g*, the chain E, the two-part guide-sheaves *h*, the guiding-sheaves *i*, the rod G, and the chain H, suitably connected with the horse-power, all substantially as described.

3. The combination, with the press-box having a hay-chamber therein, of the follower traveling in said box, the elevating-chains for said follower guided by sheaves in the frame and connected at one end to the follower and at the other to the lever O, which is adapted to be engaged and carried by a hook upon the horse-sweep, whereby the follower is raised and lowered, the follower-arms attached at their upper ends to the follower, the two-part levers pivotally connected to said follower-arms and to the frame, the angular braces, also pivotally connected to the follower-arms and the frame, the chains E, connected to said angular braces and to the three-part slide portion of an eccentrically-mounted wheel, and a means for exerting a draft upon said chain, substantially as specified.

4. The combination, with the frame of a hay-press having a hay-pressure chamber therein, of the follower traveling in said chamber, the lever-arms connected to said follower at its opposite ends, the two-part levers pivotally connected with said follower-arms and to the frame, the angle-levers pivotally connected to the frame and to the two-part levers, and the follower-arms, the looped chain E, carrying friction-rollers which travel on the horizontal branch of the angle-levers, and having its looped portion connected to the swinging portion of an eccentrically-mounted grooved wheel, the said eccentrically-mounted wheel adapted to engage said swinging portion and carry said chain, whereby pressure is brought to bear upon the hay in the pressure-chamber and to automatically release the same at the proper time, substantially as specified.

5. The combination, with the frame of a hay-press and its operating mechanism, of the platform S, the feed-platform R², pivotally connected to said platform S at a point adjacent to the frame, the rope R³, connected to said platform R² at the outer end thereof and

passing over the guide-sheaves *r* and fastened in the eye *s*, the rope R, also attached to the platform R² at the outer end thereof and passing over the guide-sheave R' and attached to the elevating-chain of the follower, and the pulley D², attached to the follower-bar D and adapted to engage with the rope R³, substantially as specified.

6. In a hay-press, the combination, with the press-box provided with suitable pressing devices, of the bed-piece A, the horse-power arranged thereon and composed of the vertical shaft K, the power-sweep N, the lever O, adapted to be engaged and carried by the sweep, the eccentrically mounted and grooved wheel on said shaft, the three-part slide *k*, *k'*, and *k''*, traveling on the periphery of said eccentrically mounted and grooved wheel, the latch-lever I', fulcrumed in a standard rising from the face of the grooved wheel, the pin I³, carried by said lever and adapted to engage the slide portion, the roller I⁴, journaled at the outer end of the lever, the slide-bar 5, provided with the angular inclined arm adapted to engage the end of lever I', and the chains and ropes connecting the horse-power to the press-body and its mechanism, whereby motion is transmitted to the latter, substantially as specified.

7. In a hay-press, the combination, with the press-chamber and the follower traveling therein, of the lever-arms connected to said follower, the two-part levers and the angular levers connected to said follower-arms and to the frame of press, and means for raising and lowering the said levers, whereby pressure is brought to bear upon the follower, all adapted to operate substantially as described.

8. In a hay-press, the combination of a vertical shaft, a wheel eccentrically mounted thereon and having a grooved periphery, a three-part slide portion traveling on the periphery of said wheel, a lever fulcrumed on the wheel and carrying a pin for engaging the slide portion, and suitable means for turning the vertical shaft and for connecting the slide portion of the eccentrically-mounted grooved wheel with the pressure mechanism of the press, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL H. MILLER,
CHARLES L. MILLER.

Witnesses:

JOSHUA B. WEBSTER,
JAMES T. SUMMERVILLE.