

F. B. CUMPSTON.
AUTOMATIC COTTON PRESS AND FEEDER.

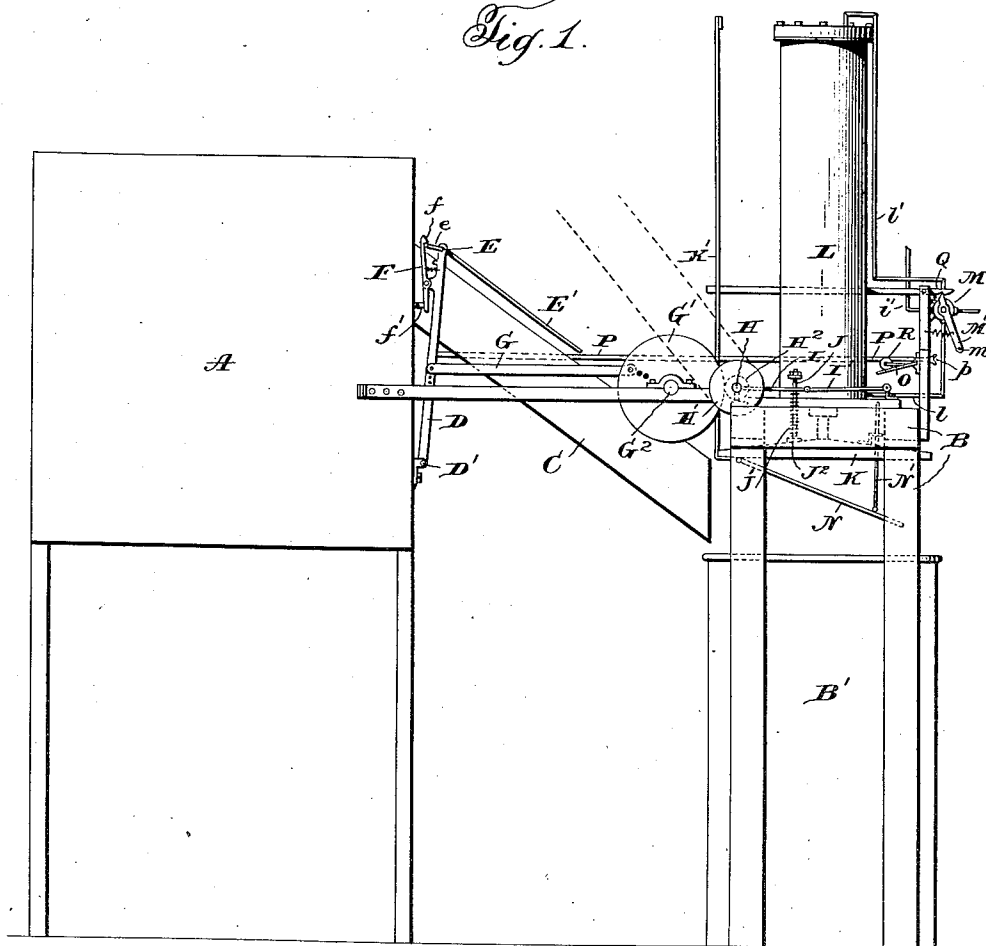
APPLICATION FILED APR. 22, 1907. RENEWED JUNE 9, 1908.

917,754.

Patented Apr. 13, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

James Hutchinson
Thos. R. Stearns

Inventor:

Frederick B. Cumpston

By John M. Spillman Attorney

F. B. CUMPSTON.
 AUTOMATIC COTTON PRESS AND FEEDER.
 APPLICATION FILED APR. 22, 1907. RENEWED JUNE 9, 1908.

917,754.

Patented Apr. 13, 1909.

3 SHEETS—SHEET 2.

Fig. 2.

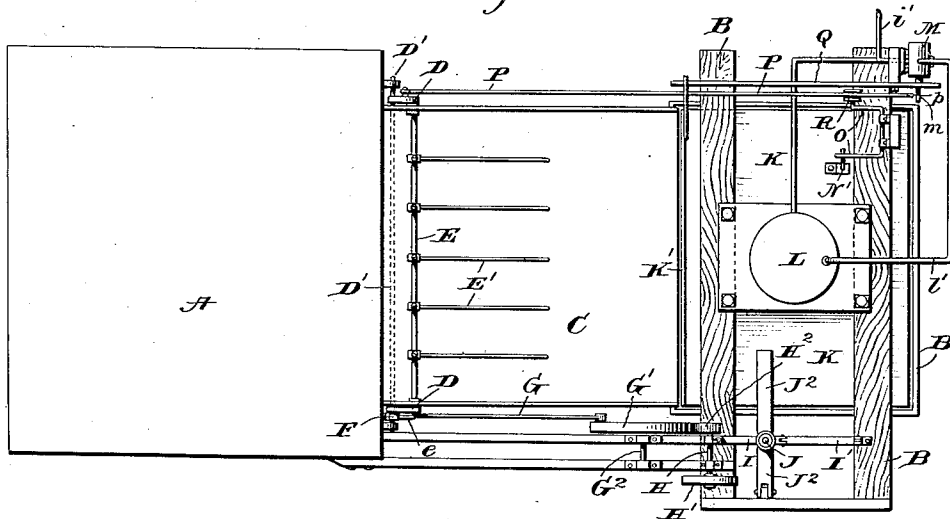


Fig. 5.

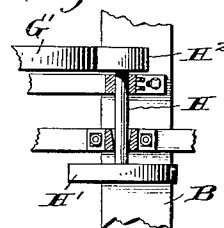
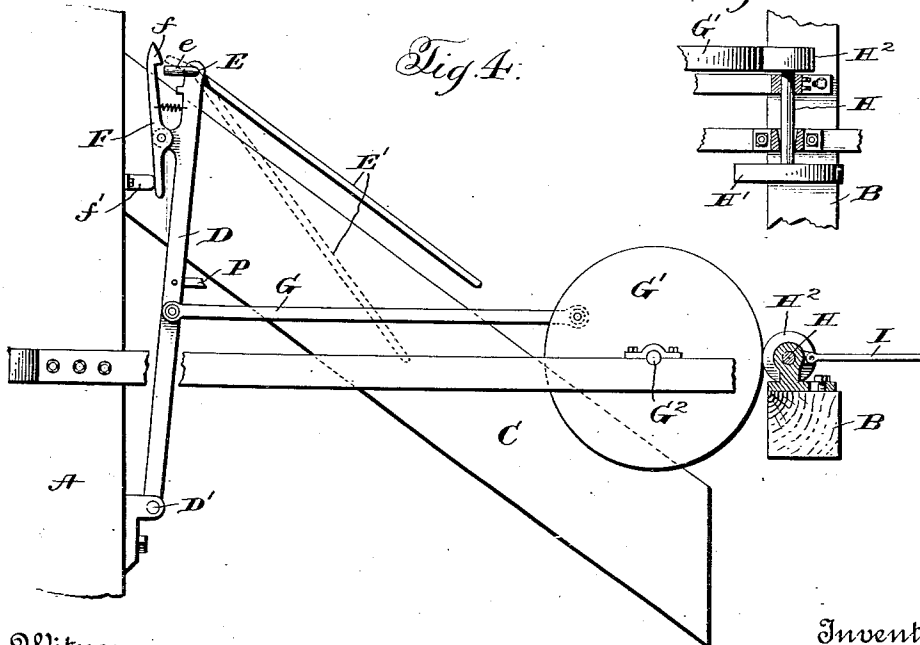


Fig. 4.



Witnesses:

Jas. C. Hutchinson:
 Thos. R. Strath.

Inventor:

Frederick B. Cumpston,

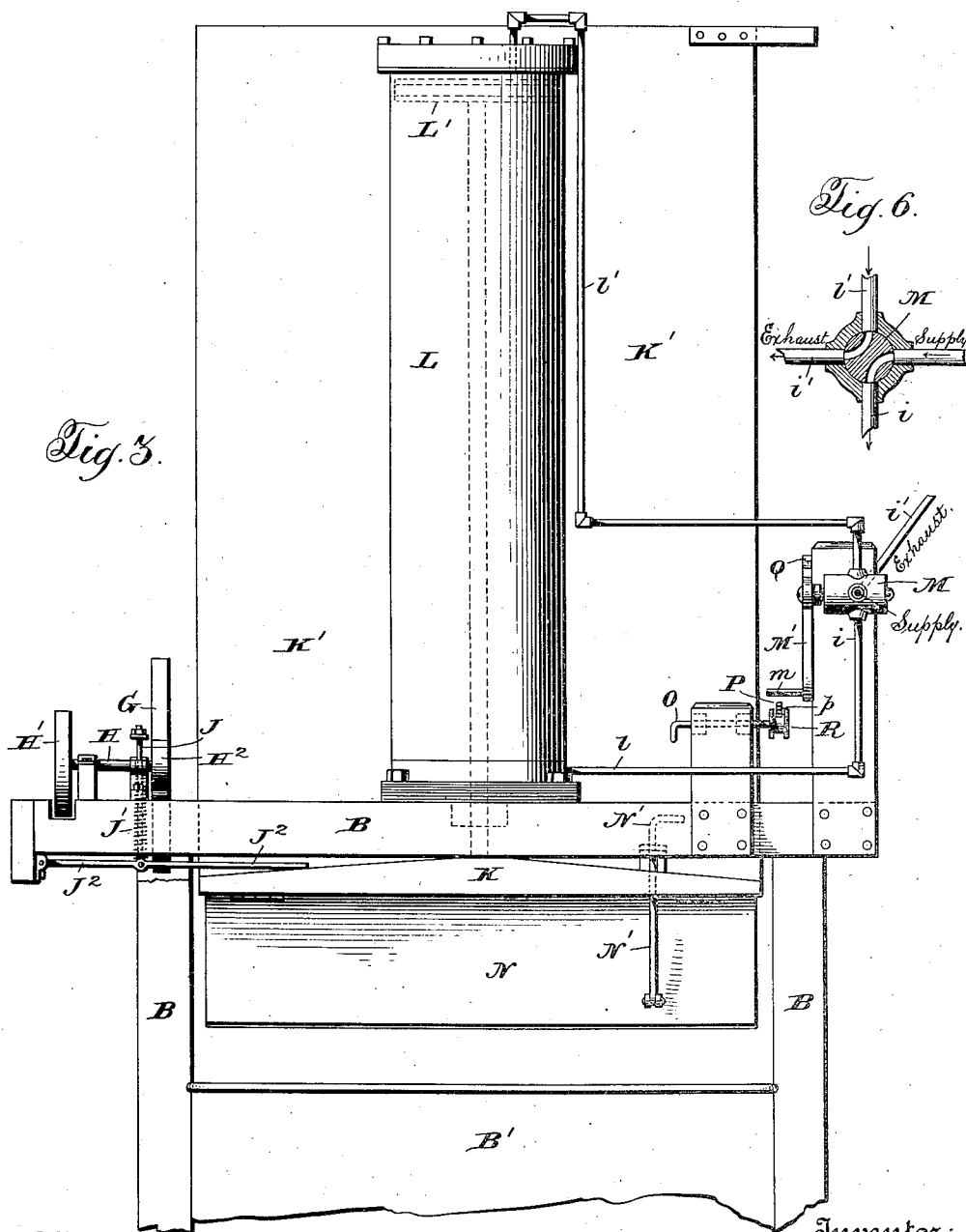
By John M. Spellman Attorney

F. B. CUMPSTON.
 AUTOMATIC COTTON PRESS AND FEEDER.
 APPLICATION FILED APR. 22, 1907. RENEWED JUNE 9, 1908.

917,754.

Patented Apr. 13, 1909.

3 SHEETS—SHEET 3.



Witnesses:

James Hutchinson.
 Thos. R. Strath.

Inventor:

Frederick B. Cumpston

By John M. Spellman Attorney

UNITED STATES PATENT OFFICE.

FREDERICK BERNARD CUMPSTON, OF BLOOMING GROVE, TEXAS.

AUTOMATIC COTTON PRESS AND FEEDER.

No. 917,754.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed April 22, 1907, Serial No. 369,620. Renewed June 9, 1908. Serial No. 437,553.

To all whom it may concern:

Be it known that I, FREDERICK BERNARD CUMPSTON, a citizen of the United States, residing at Blooming Grove, in the county of Navarro and State of Texas, have invented certain new and useful Improvements in Automatic Cotton Presses and Feeders, of which the following is a specification.

This invention relates to an improvement in cotton presses and more particularly to that type of cotton pressers designed to be actuated by fluid pressure.

The object of the present invention is the provision in a press of this character of improved means for feeding the cotton to the press and of improved mechanism operable upon the filling of the press box for causing the downward movement of the plunger and automatic means for effecting the reversal of the plunger.

Other objects of the invention will be apparent from the detailed description hereinafter when read in connection with the accompanying drawings forming a part hereof wherein a preferable embodiment of my invention is shown and wherein like characters of reference refer to similar parts in the several views.

In the drawings: Figure 1 is a side elevation of my improved cotton press. Fig. 2 is a plan view. Fig. 3 is an enlarged front elevation, with parts broken away. Fig. 4 is an enlarged detail view of the feeding mechanism, and Figs. 5 and 6 are detail views.

Referring now more particularly to the drawings, A designates a condenser which may be of any suitable form or construction.

B designates the press frame, which is positioned at one side of the condenser and is connected therewith by suitable girders and in the lower portion of which is supported a press box B', which may be of any suitable construction.

C designates a cotton chute which extends from the condenser into proximity to the top of the press box B' and is adapted to convey the cotton from the condenser thereto.

D D designate a pair of rocking arms, the lower ends of which are secured to a rock shaft D' journaled in suitable bearings mounted on the condenser, and the upper ends of which project a slight distance above the sides of the cotton chute on each side thereof, when the arms are in their upright position.

E designates a bar which is journaled

loosely in the upper ends of the rocking arms D and from which extend a plurality of fingers E', the free ends of which normally rest on the bottom of the cotton chute. Extending rearwardly from the bar E is a finger e with which is designed to cooperate a spring pressed catch F which is fulcrumed intermediate its end on the back of one of the rocking arms D. The spring pressed catch F is provided with an overhanging head f, which is at times adapted to engage the finger e heretofore referred to. Secured to the condenser is a stop or projection f' which is designed to engage the rear end of the catch F when the rocking bars are moved to their upright positions to release said catch from engagement from the finger e and consequently permit the fingers E' to fall to the bottom of the chute. The forward movement of the catch F is limited by a stop of any suitable character secured to the rear edge of one of the rocking bars.

A reciprocatory movement is imparted to the rocking arms D and consequently to the feeding fingers E' by means of a pitman G which extends from one of said arms to an idler wheel G' secured to a shaft G² journaled in suitable bearings mounted on the press frame. When a rotary movement is imparted to the idler G', in the manner to be hereinafter set forth, it will be apparent that the rocking arms D will be reciprocated and that during the forward movement of said arms the fingers E' will cause cotton to be fed from the cotton chute into the press box. During the forward movement of said arms, however, the catch F will have assumed such a position that the overhanging head f thereof will have engaged the finger e on the bar E so that during the return movement of the arms the feeding fingers E' will be lifted bodily from the cotton chute until the arms reach the limit of their rearward movement when the stop f' on the condenser will engage the lower end of the catch and release the same thus permitting the feeding fingers E' to again drop to the bottom of the chute.

H designates a shaft which is journaled in suitable bearings mounted in the press frame and to one end of which is secured a pulley H' which is adapted to be constantly driven from any suitable source of power and to the other end of which is secured a friction wheel H², which is designed to be moved into and out of engagement with the idler G', the shaft H being movably secured to the press frame

to permit such movement of the friction wheel H^2 . Pivotally secured to one of the bearings supporting the shaft H is a link I which is pivotally secured at its free end to one end of a link I', the other end of which link is pivotally secured in any suitable manner to a fixed portion of the press frame. The links I and I' are of such a length that when they are in their aligned position the friction wheel H^2 will be maintained in engagement with the idler G' to cause the same to rotate with the shaft H but when permitted to buckle they will move the friction wheel H^2 a sufficient extent to withdraw the same from driving contact with the idler G'. Passing loosely through the link I is a rod J and interposed between the lower end of said rod and the under side of the link I is a coil spring J'. The lower end of the rod J is secured to a lever J², one end of which is fulcrumed to a fixed part of the press frame and the other end of which is designed to overlie the press plunger to be hereinafter described, so that when said plunger is elevated it will contact with said lever thereby raising the rod J and through the medium of the spring J' bringing the links I and I' into alinement and causing the friction wheel H^2 to be moved into engagement with the idler G'.

K designates the plunger of the press which has secured to one edge thereof an upwardly extending plate K', which is adapted to slide across the discharge end of the cotton chute and to constitute a cut-off to prevent the cotton therein from passing to the press box except when the plunger is in its elevated position.

L designates a steam cylinder, which is supported in any suitable manner upon the top of the press frame and working within which is a piston L' which is connected by a suitable piston rod with the plunger K. The ends of the cylinder are connected by pipes l and l' with a valve casing in which works a throttle valve M, which is designed to admit steam from a boiler to either the pipe l or the pipe l', to effect the raising and lowering of the plunger K. The throttle valve M is provided with an operating lever M', the free end of which is provided with a cranked portion m for a purpose to be hereinafter more particularly set forth. The throttle lever M' is normally held by a suitable spring in a position to admit steam from the boiler through the pipe i to the lower portion of the cylinder to normally maintain the plunger in its elevated position. Pivotally secured to the under side of the plunger K is an apron N and extending upwardly from the free end of said apron through the plunger is a rod N'.

O designates a crank lever which is fulcrumed in suitable bearings secured to the press frame one arm of which overlies the

upper end of the rod N' extending upwardly from the apron N and upon the other end of which is journaled a roller R over which travels a bar P, one end of which is pivotally secured to one of the rocking arms D so as to reciprocate therewith, and the free end of which is provided with a bifurcated portion p. When the plunger is in its elevated position and the trip apron is in its lowered position, the roller secured to the crank lever O will likewise be in its lowered position and the bar P when reciprocated will clear the throttle lever M'. When, however, the trip apron is elevated, the bifurcated portion of the rod P will on the next forward movement of said rod engage the cranked portion of the throttle lever M' and move said lever to a position to permit the steam in the cylinder to exhaust from below the piston through the pipe i' and to admit steam through the pipe l' to the upper portion of the cylinder and thereby effect the downward movement of the plunger. The throttle lever M' is locked in this position by a pivoted latch Q, one end of which lies in the path of a laterally extending finger secured to the plate K' so that when the plunger reaches the limit of its downward movement, said finger will contact with said latch and actuate the same thereby permitting the spring of the throttle lever to restore said lever to its normal position and effect the elevation of the plunger.

Having described the construction of my improved press, I will now set forth the operation thereof. Assuming that the plunger K is in its elevated position, said plunger having contacted with the lever J² and through the rod J and spring J' having moved the links I and I' into alinement to cause the friction wheel H^2 to engage the idler G', it will be apparent that the rocking bars D and the feeding fingers E' will be reciprocated and that cotton will be fed from the cotton chute into the press box. After the press box has been filled, the incoming cotton will engage the trip apron N and elevate the same, which will raise the rod N' and consequently the roller journaled to the crank lever O, so that during the next reciprocation of the bar P, the bifurcated portion p thereof will engage the crank portion of the throttle lever M' and move the same to a position permitting the downward movement of the plunger. As soon as the plunger starts on its downward movement, it draws away from the lever J² thereby permitting the links I and I' to buckle, which withdraws the friction wheel H^2 from engagement with the idler G' and stops the feeding operation. The downward movement of the plunger continues until the laterally extending fingers secured to the plate K' contact with the pivoted latch Q, raising said latch out of engagement with the throttle lever M' and per-

mitting the spring of said lever to restore the valve to its normal position, thereby permitting the steam above the piston to exhaust and admitting steam beneath the piston to effect the elevation thereof. It will be seen that as soon as the piston reaches the limit of its upward movement the feeding mechanism will again be set in operation so that the entire action of the press is automatic.

I do not desire to limit myself to the precise form and construction shown in the accompanying drawing, as it is obvious that many minor changes may be made thereto without departing from the spirit of the invention as defined in the appended claims.

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

1. In a device of the character described, a press box, a plunger, means for feeding material to the press box, and means operable directly by said feeding means for effecting the lowering movement of the plunger.

2. In a device of the character described, a press box, a plunger, means for feeding material to the press box, means operable directly by said feeding means for effecting the lowering movement of the plunger, and means operable by the lowering movement of the plunger for automatically effecting the reversal thereof.

3. In a device of the character described, a press box, a plunger, means for elevating said plunger, means for automatically feeding material to the press box when the plunger is elevated, and means operable directly by said feeding means for effecting the lowering movement of the plunger.

4. In a device of the character described, a press box, a plunger, a feeding device for feeding material to the press box, means for automatically actuating said feeding device when the plunger is moved to its elevated position, and means operable directly by the feeding device for automatically effecting the lowering movement of the plunger.

5. In a device of the character described, a press box, a plunger, a feeding device for feeding material to the press box, means for automatically actuating said feeding device when the plunger is moved to its elevated position, means operable directly by the feeding device for automatically effecting the lowering movement of the plunger, and means operable by the lowering movement of the plunger for automatically effecting the reversal thereof.

6. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder, means for normally maintaining said valve in a position

to effect the elevation of the plunger, means for intermittently engaging the valve and shifting the same to effect the lowering movement of the plunger, a catch for holding the valve in its shifted position, and means operable by the lowering movement of the plunger for releasing said catch.

7. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder, means for normally holding said valve in a position to effect the elevation of the plunger, means for feeding material to the press box, and means operable directly by said feeding means upon the filling of the press box for shifting said valve to effect the lowering movement of the plunger.

8. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder, means for normally holding said valve in a position to effect the elevation of the plunger, means for feeding material to the press box, means operable directly by said feeding means upon the filling of the press box for shifting said valve to effect the lowering movement of the plunger, a catch for holding the valve in its shifted position, and means operable by the lowering movement of the plunger, for releasing said catch.

9. In a device of the character described, a press box, a plunger, a reciprocatory feeding device for feeding material to the press box, and means operable directly by said feeding device upon the filling of the press box for effecting the lowering movement of the plunger.

10. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder and provided with an operating lever, a reciprocatory feeding device for feeding material to the press box, a member connected to the feeding device and adapted to normally miss the operating lever of the valve, and means operable upon the filling of the press box for shifting said member to engage the operating lever of the valve upon the next reciprocation of the feeding device.

11. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder and provided with an operating lever, means for normally maintaining said valve in a position to effect the elevation of the plunger, a reciprocatory feeding device for feeding material to the press box, a mem-

ber connected to the feeding device and adapted to normally miss the operating lever of the valve, means operable upon the filling of the press box for shifting said member to engage the operating lever of the valve upon the next reciprocation of the feeding device, a catch for holding said valve in its shifted position, and means operable upon the lowering of the plunger for releasing said catch.

12. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder and provided with an operating lever, a reciprocatory feeding device for feeding material to the press box, a member connected to the feeding device and adapted to normally miss the operating lever of the valve, an apron movably supported above the press box and adapted when elevated to shift said member to engage the operating lever of the valve upon the next reciprocation of the feeding device.

13. In a device of the character described, a press box, a plunger, a fluid pressure cylinder, a piston therein, a connection between said piston and plunger, a valve controlling the admission of fluid to the opposite ends of said cylinder and provided with an operating lever, a reciprocatory feeding device for feeding material to the press box, a member connected to the feeding device and adapted to normally miss the operating lever of the valve, an apron movably secured to the under side of the plunger, and a connection between said apron and the member connected to the feeding device, whereby upon the elevation of the apron said member will be shifted to a position to engage the operating lever of the valve upon the next reciprocation of the feeding device.

14. In a device of the character described, a press box, a chute adapted to communicate therewith, a pair of rocking arms supported adjacent the upper end of said chute and extending upwardly on opposite sides thereof, a shaft mounted to turn loosely in the upper ends of said rocking arms and provided with a plurality of feeding fingers adapted to normally rest in said chute.

15. In a device of the character described, a press box, a chute adapted to communicate therewith, a pair of rocking arms supported adjacent the upper end of said chute and extending upwardly on opposite sides thereof,

a shaft mounted to turn loosely in the upper ends of said rocking arms and provided with a plurality of feeding fingers adapted to normally rest in said chute, means for reciprocating said arms, and means for holding said shaft against rotation in said arms during the rearward movement thereof.

16. In a device of the character described, a press box, a chute adapted to communicate therewith, a pair of rocking arms supported adjacent the upper end of said chute and extending upwardly on opposite sides thereof, a shaft mounted to turn loosely in the upper ends of said rocking arms and provided with a plurality of feeding fingers adapted to normally rest in said chute, means for reciprocating said arms, means for locking said shaft against rotation in said arms during the rearward movement thereof, and means for releasing said shaft.

17. In a device of the character described, a press box, a chute adapted to communicate therewith, a pair of rocking arms supported adjacent the upper end of said chute and provided with a plurality of feeding fingers adapted to normally rest in said chute, means for reciprocating said arms, a catch for engaging said shaft and holding the same against rotation in said arms during the rearward movement thereof, and means for releasing said catch when the arms reach the limit of their rearward movement.

18. In a device of the character described, a press box, a plunger, a feeding device, a shaft for actuating said feeding device, a friction wheel carried by said shaft, a constantly rotating shaft movably supported adjacent the operating shaft of the feeding mechanism and provided with a friction wheel adapted to engage the friction wheel thereon, a pair of pivoted links connecting the movably supported shaft and a fixed part of the machine, and means operable when the plunger is moved to its elevated position for straightening said links to cause the friction wheel of the constantly rotating shaft to engage the friction wheel of the shaft for actuating the feeding device.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK BERNARD ^{his} X CUMPTON.
mark

Witnesses:

WM. A. CATHEY,
E. V. HARDWAY.