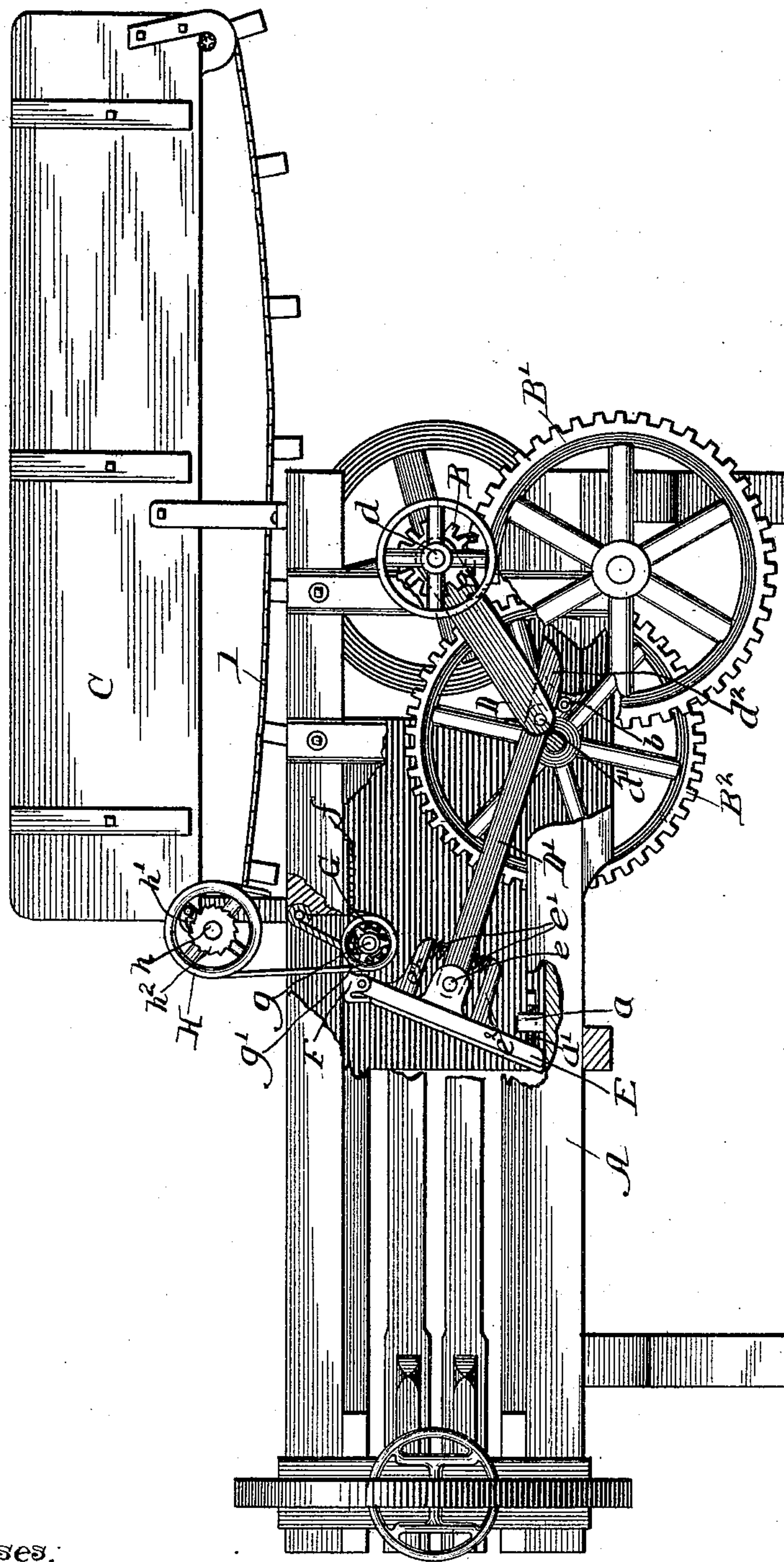


(No Model.)

A. WICKEY.
BALING PRESS.

No. 459,504.

Patented Sept. 15, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

ANDREW WICKEY, OF CHICAGO, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 459,504, dated September 15, 1891.

Application filed April 27, 1891. Serial No. 390,548. (No model.)

To all whom it may concern:

Be it known that I, ANDREW WICKEY, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

This invention relates to a press designed for baling fine and compact material, such as shavings, cut hay, &c., which if fed into an ordinary baling-press suitable for cotton or hay would be packed almost entirely into the lower part of the bale, making a very uneven and undesirable product. To properly bale fine material the plunger or beater by means of which the material is compressed must have a greater range of movement at the top than at the bottom, for two reasons: First, it is necessary to have a considerable throw at the top of the plunger to properly tuck the bale and at the same time leave a sufficient opening to receive the material fed to the press; second, the capacity of the feed-chamber at the bottom of the press must be limited to prevent all or nearly all of the material fed to the press from falling to the bottom and thence being pressed into the lower part of the bale.

It has heretofore been attempted to gain the proper motion for the plunger by pivoting it below the bottom of the press and suitably connecting it with the driving-gear, so as to produce an oscillation back and forth upon this pivot. This is seriously objectionable for the reason that it necessitates the cutting away of the bottom of the press, and as the lower portion of the plunger must have some motion it necessarily in the back-stroke leaves a gap between its face and the bed of the press which must be filled in some way. Then, too, it is desirable first that the relative motion of the plunger at its top and bottom be adjustable, in order that it may be adapted to compress any material which may be desired. Thus in baling shavings a different adjustment is often necessary, according as the shavings contain more or less sawdust or fine chips. The finer and heavier the material the less movement should be given to the bottom of the plunger, and, vice versa, the looser the material the greater the movement at the bottom should be. Furthermore,

it is quite an advantage to give the face of the plunger an opportunity to adjust itself slightly to the face of the material against which it presses, as such an adjustment often avoids straining the machine when one portion of the plunger-face strikes an unusual resistance. When the plunger is pivoted beneath the press, it is impossible to change the throw of the bottom of the plunger without also changing that of the top, and the connections between the plunger and the driving-gear cannot be such as to allow the plunger a self-adjustment on account of the pivotal connection between it and the press. I purpose to overcome these difficulties and to also gain certain minor advantages by providing the press with a reciprocating plunger having a loose oscillating face whose range of movement at the top shall be made sufficient to clear the feed-opening and also tuck the bale and whose throw at the bottom shall be limited by an adjustable stop, and to also connect this face with the driving-gear by means of a yielding joint, which can be made as stiff as desirable, and which, if desired, may be a universal joint, although I do not think that is necessary, and I intend to make merely a hinge-joint, which shall enable the plunger-face to oscillate upon a horizontal pivot within certain limits and against a yielding force.

My invention is illustrated in the figure of the drawing by means of a side elevation of a complete press having portions of the frame cut away to reveal the interior thereof.

A is the frame of the press; B B' B², the driving-gear, and C a conveyer by means of which the material to be compressed is automatically fed into the bale-chamber. A swinging arm D is pivoted at *d* to the frame of the press and at *d'* to a second arm D', which in turn is pivoted to the plunger E. The two arms form a toggle-joint operated by a pin *b* upon the wheel B² in position to engage with an extension *d*² of the swinging arm D'. The plunger E is pivoted to the arm D' at *e*, and is yieldingly held at right angles to said arm by means of two springs *e'*, bearing against lugs *e*² on the plunger. The swinging of the arm D' would of itself oscillate the plunger as it draws it back and forth; but to render the oscillation governable I provide upon the bottom of the press a lug *a*, in which is threaded

a screw a' , adapted to limit the motion of the bottom of the plunger. The springs e' enable the plunger to yield to the stop a^2 and also to any accidental unevenness in the face of the material in the bale-chamber. Upon the top of the plunger and pivoted thereto is a sliding gate F, having upon its under side a rack f , which runs over a pinion G, by means of which the gate is kept against the top of the press, and which pinion is carried by a shaft g , journaled in the frame of the machine and carrying outside thereof a pulley g' , belted to a second pulley H, loose upon a shaft h , journaled in the conveyer C and carrying a conveyer-belt I. The pulley H is provided with a pawl h' , adapted to engage with a ratchet h^2 , fast upon the shaft h , in the proper direction to advance the conveyer-chain within the conveyer, but not in the opposite direction. This connection renders the conveyer automatic and causes it to deliver at each forward stroke of the plunger the desired quantity of material, which falls into the compression-chamber at the next back-stroke of the plunger.

It is not essential to the broad features of my invention that the entire plunger be made to oscillate, as the face of an ordinary sliding-block plunger might be pivoted at the top and left loose at the bottom, where its motion could be limited by a stop in the same manner as shown in the drawing. I should not consider such a change a departure from my invention at all; but believe that the same is clearly defined in the following claims, which point out what I believe to be new and desire to secure by Letters Patent.

I claim—

1. In combination with the frame of a press and suitable driving mechanism, a plunger operated by said mechanism and having a face capable of oscillation upon a horizontal pivot and a stop adapted to limit the throw of the bottom of said face, substantially as described.

2. In a baling-press, the combination, with the frame and suitable driving mechanism, of a driving-pitman D' and a plunger E, pivotally connected therewith and normally held in proper relation thereto by a spring force capable of yielding sufficiently to allow the

plunger-face to adapt itself to occasional unevennesses in the material baled, substantially as described.

3. The combination, with the frame of a press and a reciprocating plunger, of a sliding gate F, secured to the plunger and provided with a rack f and a pinion G, meshing with said rack and fast upon a shaft journaled in the frame, a conveyer C, adapted to furnish the loose material to the press, and suitable connections between the shaft and the operating mechanism of the conveyer to transmit the motion of the pinion G thereto, substantially as described.

4. In combination with the frame of a press with suitable driving mechanism, a plunger connected with said mechanism having a face capable of oscillation and an adjustable stop adapted to limit the range of movement of the bottom of the plunger-face, substantially as described.

5. The combination, with the frame A and wheel B², provided with the pin b , suitably connected with proper driving mechanism, of the toggle D D' and the plunger E, secured to the arm D' of the toggle, substantially as described.

6. The combination, with the frame A and wheel B², having the pin b and connected with suitable driving mechanism, of the toggle D D' and the plunger E, pivotally connected to the arm D' of the toggle, substantially as described.

7. The combination, with the frame A and wheel B², having the pin b and connected with suitable driving mechanism, of the toggle D D', the plunger E, pivotally connected to the arm D', and an adjustable stop a' upon the bottom of the press, substantially as described.

8. The combination, with the frame A and the wheel B², having the pin b and connected with suitable driving mechanism, of the toggle D D', having the projection d^2 , and the plunger E, secured to the arm D' of the toggle, substantially as described.

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Witnesses:

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