(No Model.) 2 Sheets—Sheet 1.

A. WICKEY.

BALING PRESS.

No. 424,840. Patented Apr. 1, 1890.

Fig. 1.

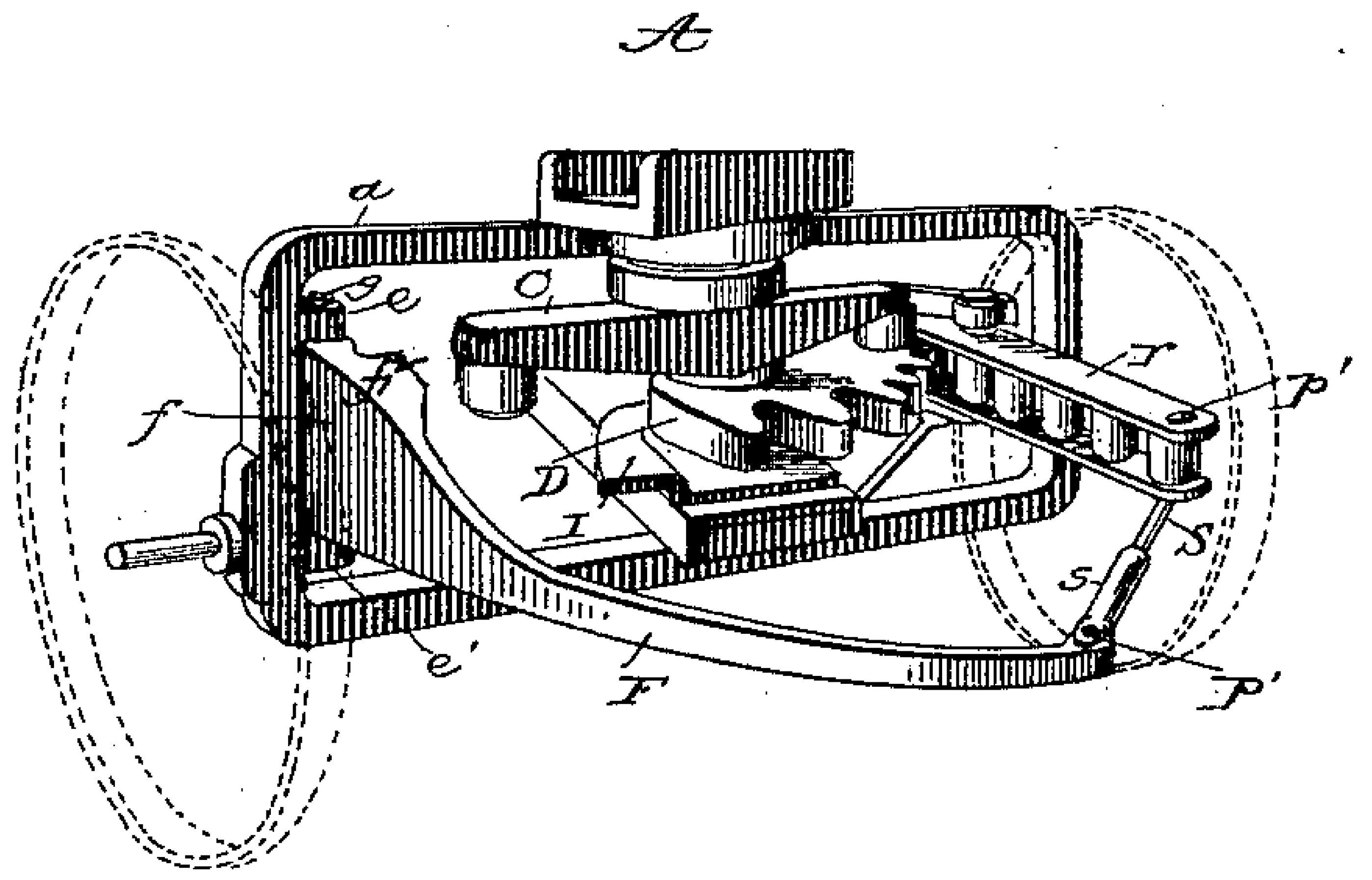


Fig. 2.

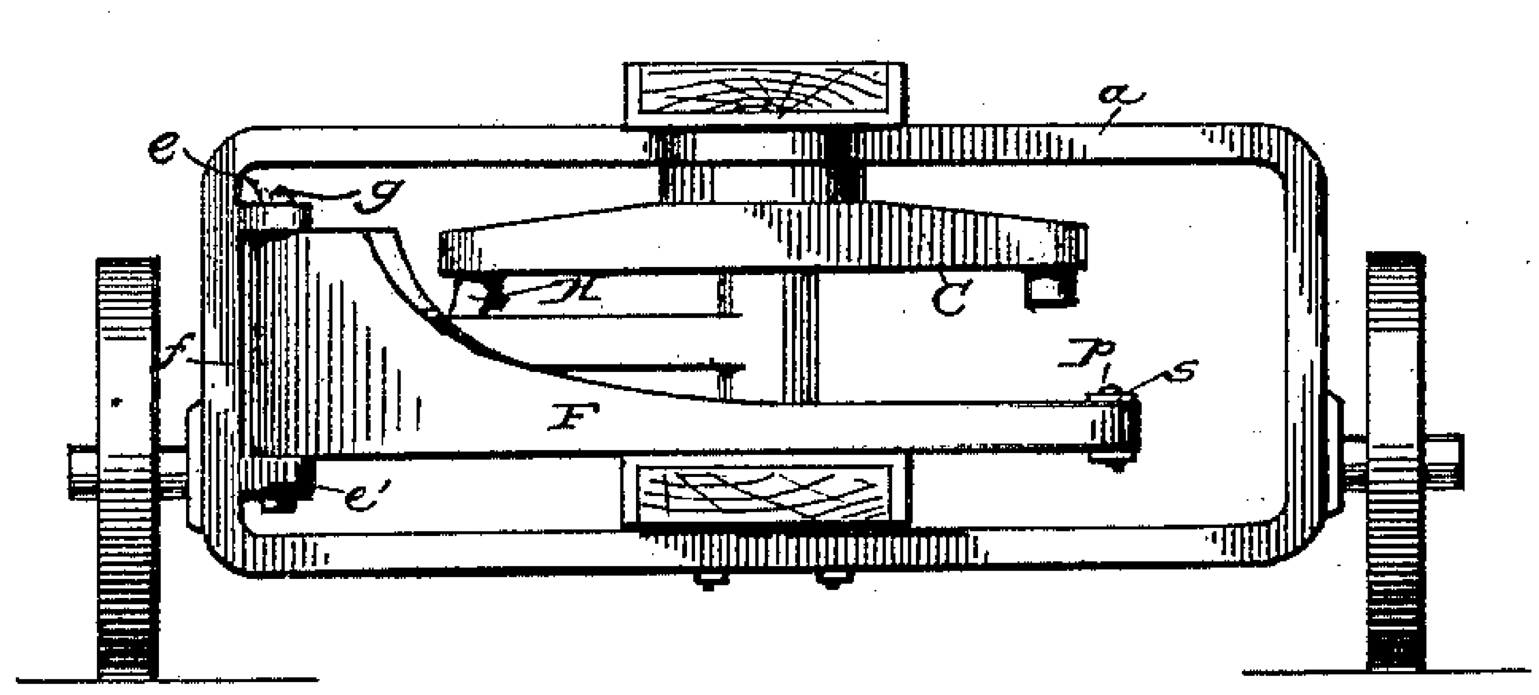
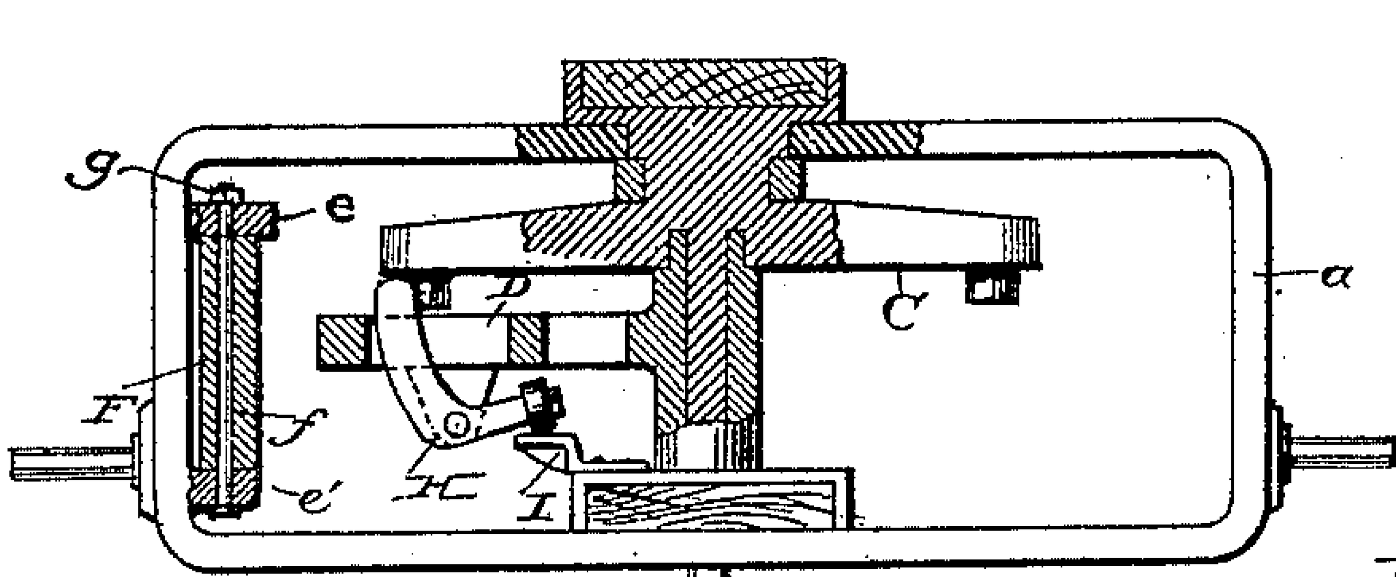


Fig. 4.
on line x—x



Witnesses:

W. W. Mortimer

W. A. Kennedy

Inventor:

Andrew Wickey

By Phil. T. Dodge
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N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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BALING PRESS.

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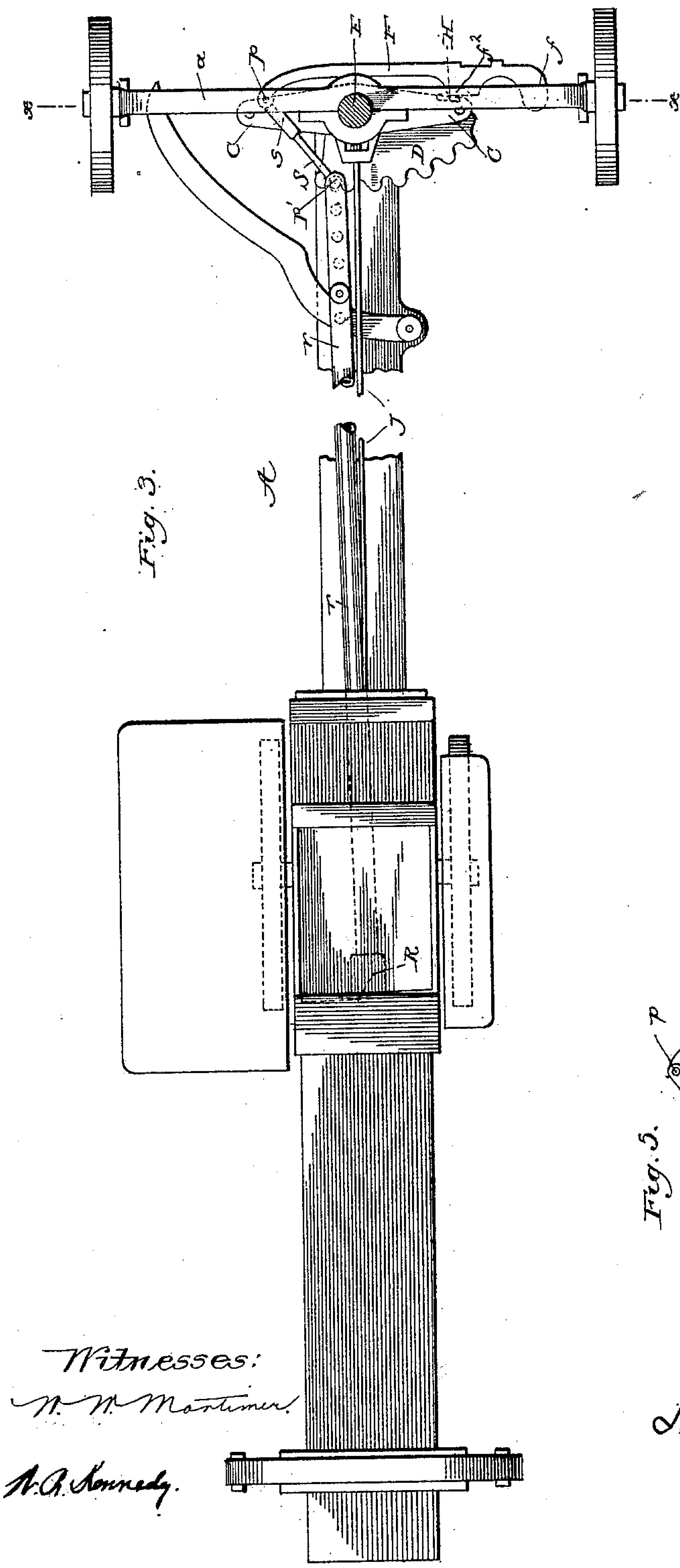

Fig. 3.

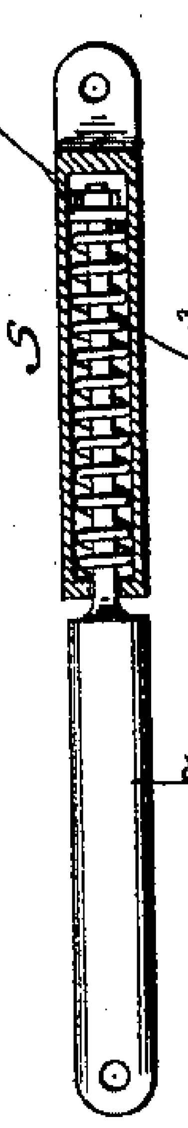

Fig. 6.

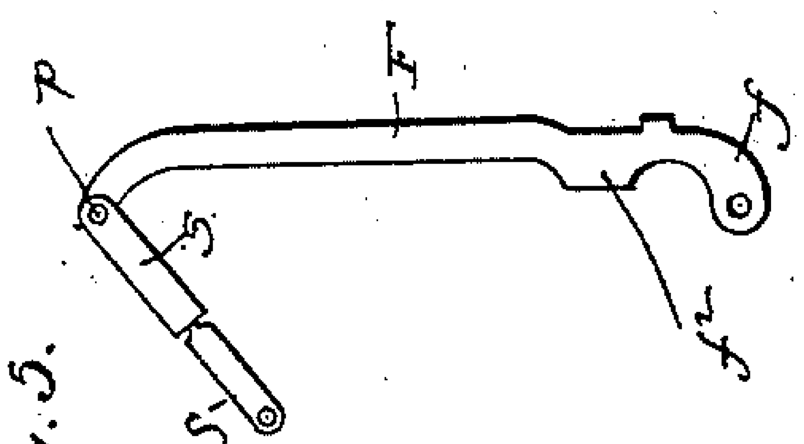

Fig. 5.

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UNITED STATES PATENT OFFICE.

ANDREW WICKEY, OF QUINCY, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 424,840, dated April 1, 1890.

Application filed September 26, 1889. Serial No. 325,133. (No model.)

To all whom it may concern:

Be it known that I, ANDREW WICKEY, of Quincy, in the county of Adams and State of Illinois, have invented certain Improvements in Baling-Presses, of which the following is a specification.

The invention relates generally to that class of baling-presses which are employed for compressing hay, straw, excelsior, and analogous light substances into bales for more convenient handling and more economical transportation, and it relates particularly to improvements in the class of "rebounding-plunger" presses, of which an example is presented in an application for a patent filed by me in the United States Patent Office on the 11th day of March, 1889, and serially numbered 302,773.

In the application above referred to is described a compressing piston or plunger, the connecting-rod or pitman of which is rigidly attached to the body of the piston; but in its main outer portion is loosely connected to the parts by which it is actuated, so that in operation it is given lateral curvilinear motion in such manner that, as a whole, the pitman has a movement in a horizontal plane which partakes both of the longitudinal in-and-out motion due to its function as an actuating-arm and of the lateral or right-and-left motion imparted to it by the mechanism through which it is directly impelled.

In the class of rebounding-plunger baling-presses the rebound is caused by the reaction of the material under compression at the instant when the power which causes the instroke ceases to act, the force of the rebound varying somewhat as charge after charge is introduced and the bale approaches completion.

Under the construction presented in the application above referred to a tooth and pivoted detent or holding-plate is caused to engage the successive charges and to hold them against displacement through the natural tendency of the loose material to resume its former dimensions. As the compression is increased by the addition of material, the rebound becomes slight when the bale-chamber is nearly filled.

To facilitate the return movement of the plunger and its rod in an apparatus of the character described, I have devised an auxiliary withdrawing attachment or retracting-arm for the same, so attached and actuated that upon the completion of the instroke of the rod and its plunger, and simultaneously with the inception of the rebound resulting from the expansive action of the substance under compression, it shall forcibly withdraw such rod and plunger to the limit of their outward movement, and in this retracting attachment and the combinations incident to its connection with the carriage and other related parts of the apparatus the invention consists.

In the drawings, Figure 1 represents a perspective and elevation of a baling apparatus in which my improvements are applied, the plunger and its rod being in their outer adjustment. Fig. 2 is an end view, the plunger and its rod being in their inner adjustment. Fig. 3 is a top plan view, the pitman or plunger-rod being represented as at the extremity of its instroke at the instant preceding the beginning of the rebound. Fig. 4 is a vertical section on the line x x of Fig. 3. Fig. 5 is a plan view showing the retracting attachment detached. Fig. 6 is a detail further illustrating the spring mechanism of the attachment.

Upon the inner face of the vertical portion of the axle-frame a of the baling-press A at the right of the machine are provided vertically-perforated hinge lugs or ears e e', which may be cast with such portion or attached thereto in any suitable manner. Between the lugs e e' is received the vertically-perforated inner extremity f of the retracting-arm F, which is pivotally secured between the lugs by the hinge-rod g and provided near said rod with shoulder f^2. The arm F is of such length that when the plunger is at the extremity of its instroke its unattached end will extend along the axle nearly to the left of the extremity of the cross-head C, and at this point it is secured by a pivot-pin p to the outer extremity of the clevis or open-sided sleeve s, through an opening in the opposite extremity of which is loosely projected the reduced portion of a sliding connecting-shaft S, which at its unattached end has a shoulder s^2, which constitutes a seat for one end of an encircling spring s^3, the opposite end of which bears against the bent portion of the clevis or sleeve s. At its inner end the connecting-shaft S is secured by pivot-pin p' to the plunger-rod r of the plunger or piston R.

The cross-head C and its anti-friction rollers, the eccentric tooth power-segment D, the vertical shaft E, the tripping-dog H and the cam-plate I, and the tie-rod J are all as in my former application above referred to.

In the operation of the machine, as the power is applied in the process of compression, the outer or free end of the retracting-arm is brought into the position represented in Fig. 3 simultaneously with the engagement of the other extremity of such arm at its shoulder f^2 by the cross-head C and immediately preceding the beginning of the outstroke of the plunger. The sudden stoppage and reversal of the movement of the plunger and attendant parts at this instant and the impact of the parts C and H would be attended with an objectionable shock and strain were it not for the presence of the spring s^3, which, yielding momentarily, relieves the various parts connected therewith. In the next movement, the impelling power being no longer exerted, the previously-compressed spring instantly reacts, withdrawing the plunger-rod from its position upon the dead-center and forcing it outward by a quick movement to the position represented in Fig. 1.

Having thus described my invention, what I claim is—

1. In a plunger baling-press, the plunger-rod, the arm pivotally attached at one end to the frame, the spring-connection between the free end of the arm and the plunger-rod, and means to limit the movement of the arm, whereby the spring is compressed as the plunger completes its advance and is caused to assist in retracting the plunger.

2. In a baling-press, the plunger, its rod, the rotary cross-head, and intermediate connections through which the cross-head advances and releases the plunger-rod, as usual, in combination with the arm F, pivoted to the frame in position to be acted upon by the cross-head, and the spring-connection between the arm and plunger-rod, substantially as described and shown.

3. In combination with the plunger-rod having a rack at its end, the pinion to advance the same, the cross-head and latch for turning and releasing the pinion, and a spring acting laterally on the plunger-rod to prevent the same from remaining "on the center" when released.

In testimony whereof I hereunto set my hand this 23d day of August, 1889, in the presence of two attesting witnesses.

ANDREW WICKEY.

Witnesses:
H. M. SWOPE,
W. G. MCDAVID.