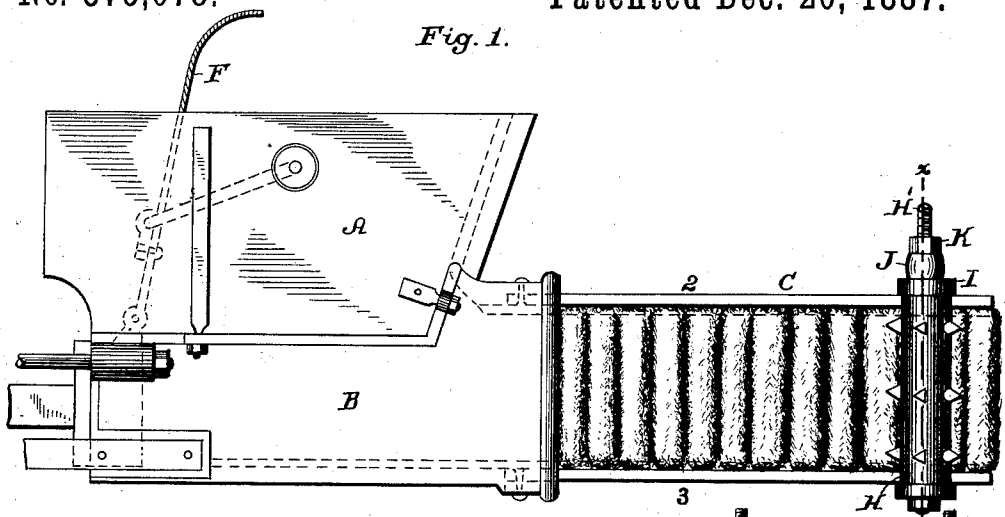
(No Model.)

W. S. LIVENGOOD.

BALING PRESS.

No. 375,078. Patented Dec. 20, 1887.

Fig. 1.



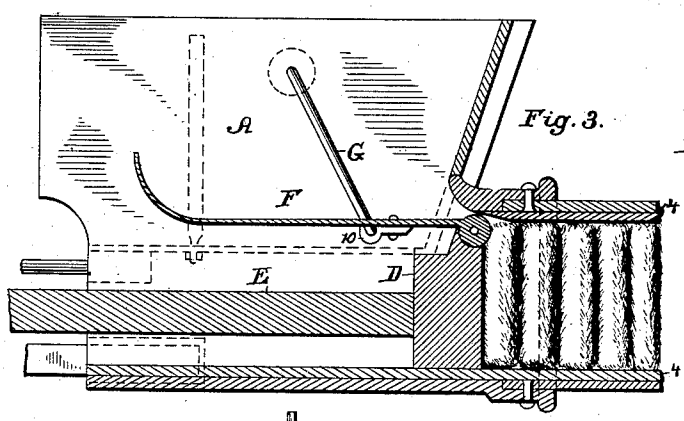


Fig. 3.

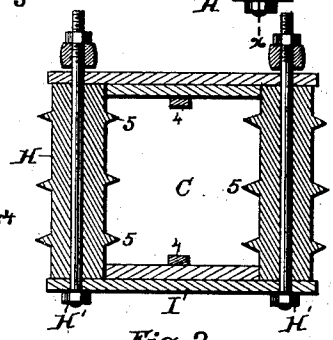


Fig. 2.

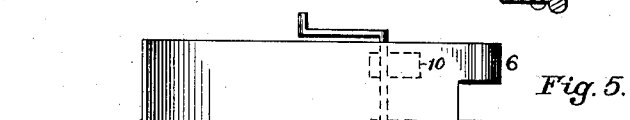


Fig. 5.

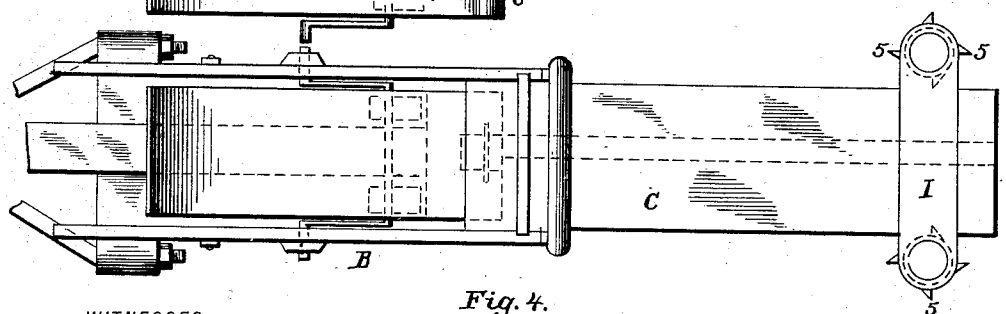


Fig. 4.

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UNITED STATES PATENT OFFICE.

WINFIELD S. LIVENGOOD, OF KANSAS CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS TO CHARLES L. BALLINTINE AND HORACE W. SEVERANCE, BOTH OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 375,073, dated December 20, 1887.

Application filed April 28, 1887. Serial No. 236,408. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD S. LIVENGOOD, of Kansas City, Jackson county, State of Missouri, have invented an Improvement in Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates, particularly, to a novel construction of the baling-chamber of a press and to devices for feeding the material thereto; and it may be said to consist in the devices and the combination and arrangement of devices hereinafter set forth and pointed out in the claims.

In the drawings, which illustrate the manner of carrying out my invention, Figure 1 is a side elevation of a portion of a press having my invention applied thereto. Fig. 2 is a transverse section through the baling-chamber, the section being taken on line *x x*, Fig. 1. Fig. 3 is a broken longitudinal section through the press. Fig. 4 is a plan view of the same, and Fig. 5 is a detail view of the feeding-apron that is located in the feed-hopper of the press.

A indicates the hopper for receiving the loose material.

B is the press-box, into which the loose material is fed and pressed.

C is the baling-chamber, into which the material is deposited after pressing.

H is a pair of friction-rollers, which are located on opposite sides of the baling-chamber for the purpose of retarding the issue therefrom of the bale, and which are provided with teeth 5 upon their outer surfaces. In lieu of the teeth 5, however, I may form the outer surface of said rollers with longitudinal corrugations or with a serrated outer surface of any desired description. Said rollers are mounted upon vertical journals or shafts H′, so that they may be revolved by the passing material, which in turn are mounted in transverse bars I, arranged at the top and bottom of the baling-chamber, as shown. Sufficient friction is imparted to the ends of the rollers by a nut, K, which is threaded on the upper end of said vertical shafts, and which is to be screwed down so as to press the bars I, or any device which may be inserted between the ends of the rollers and the bars, forcibly against the ends of said rollers, and thereby cause them to impart the necessary amount of resistance to the material issuing from the said baling-chamber.

The press-box B can be made of cast iron or any suitable material, and the top and bottom of the baling-chamber C are bolted securely thereto.

It will be particularly observed that my bale-chamber consists simply of a top and a bottom, 2 and 3, respectively, and that it is constructed with perfectly-open sides. A pair of strips, 4, are oppositely located upon the interior of the bale-chamber for the purpose of guiding the bale in its passage through the chamber.

Rubber or other springs, J, are to be imposed between the bar that is located on top of the baling-chamber and the nuts K, for the purpose of imparting an undeviating pressure to the end of the rollers. Such springs may be dispensed with, if so desired, however, and the rollers will still operate satisfactorily.

The feeding-apron F is pivoted or hinged at its lower end to the upper side of the plunger D, and a swinging stirrup, G, supports it in operative position within the hopper A, the ends of said stirrup being journaled in opposite sides of said hopper and its body portion passing around the said apron and being loosely attached thereto by suitable bearings, 10. The upper or outer end of said apron is curved inwardly, as shown.

If so desired, I may attach the lower end, 6, of the apron F to the front end of the pitman E in some way instead of hinging it to the plunger, as shown and before described. In this connection I may say that other devices than the stirrup F can be arranged to support and guide said feeding-apron in its movements—such, for instance, as a pair of levers having one end hinged to the apron and the other hinged to the sides of the hopper—and the result will be substantially the same as it would if the stirrup were used.

With this construction the operation of the invention will be as follows: The plunger D

being withdrawn, as indicated in Fig. 1, the feeding-apron F will be raised to nearly a vertical position and ready to receive the charge of material, which, being fed into said hopper, passes down into the press-box B. The plunger is now forced forward, pressing the material in the press-box to a small compass in the usual manner and carrying the lower end of the apron with it until said apron assumes the position shown in Fig. 3—to wit, its body lying in a horizontal position with relation to the press-box, the curve on its free end projecting upward. The operation being repeated, the apron will again assume the vertical position, and so on.

It will be observed that the main object of the apron is to form a support for the loose material which is placed in the hopper until the proper time arrives for its discharge into the press-chamber and thereby prevent it from falling down behind the head-block and interfering with the operation of the press. Still, in some instances, I may so arrange the said apron that after it has assumed the vertical position before described its free end will be caused to move downward and forward until it again lies in a horizontal position, or nearly so, the head-block being withdrawn, and thereby cause it to press the material into the press-box.

Having thus described my invention, what I claim is—

1. In a baling-press, a guiding-apron pivotally secured to a compressing-plunger, in combination with a feed-hopper and a press-box in which said plunger operates, substantially as described.

2. In a baling-press, a guiding-apron having its free end curved, in combination with a compressing plunger or follower to which one end of said apron is pivotally connected, for the purpose substantially as described.

3. In a baling-press, the combination of a hopper and press-box, a plunger operating within the press-box, a guiding-apron adapted to intermittently close the opening to said press-box, and a stirrup provided with bearings in said hopper and being hinged to said guiding-apron, for the purpose substantially as described.

4. In a baling-press, the combination of a baling-chamber open on two sides, retarding-rollers provided with projecting teeth located on said open sides, bolts or shafts upon which said rollers are mounted, cross-bars in which said bolts or shafts are mounted, nuts upon the ends of said bolts or shafts, and cushions located between said nuts and cross-bars, for the purpose substantially as described.

5. In a baling-press, the combination of a feed-hopper, a guiding-apron loosely swung therein, a press-box in communication with said hopper, a compressing-plunger adapted to reciprocate within said press-box and being pivotally connected with said apron, a baling-chamber in communication with said press-box, and retarding-rollers journaled upon opposite sides of the baling-chamber for the purpose of resisting the passage of the compressed material, substantially as described.

6. In a baling-press, the combination, with hopper A and press-box B, of plunger D, apron F, having its lower end attached to said plunger, and stirrup G, having bearings on opposite sides of the hopper, for the purpose substantially as set forth.

7. In a baling-press, the combination of bale-chamber C, composed of top and bottom walls, strips 4, located upon the interior of said walls, and rollers which engage the compressed material and resist its passage through said chamber.

8. In a baling-press, the combination of a bale-chamber composed of top 2 and bottom 3, strips 4, located upon the interior of said top and bottom, rollers H, which engage the compressed material and resist its passage through the chamber, and devices, substantially as described, for imparting friction to the rollers.

In testimony whereof I affix my signature in presence of two witnesses.

WINFIELD S. LIVENGOOD.

Witnesses:
C. L. BALLINTINE,
J. D. BORNBECK.