

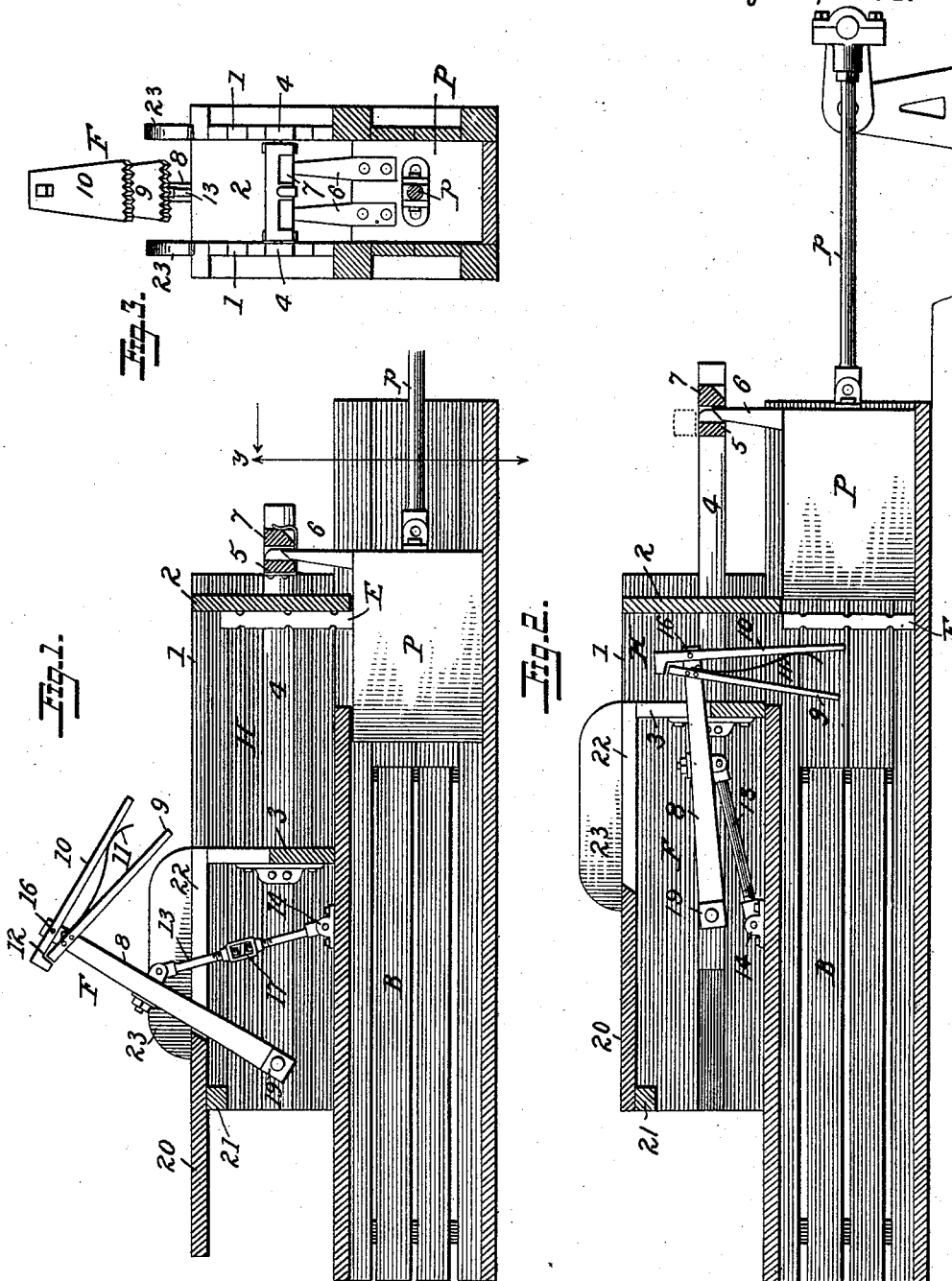
(No Model.)

2 Sheets—Sheet 1.

C. E. BATES.
BALING PRESS.

No. 455,731.

Patented July 14, 1891.



WITNESSES

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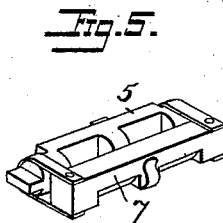
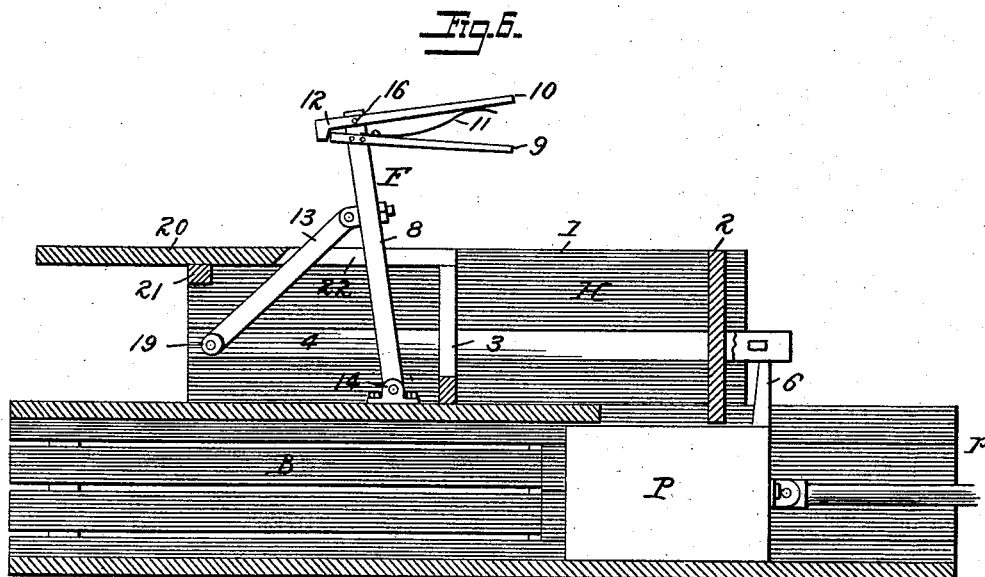
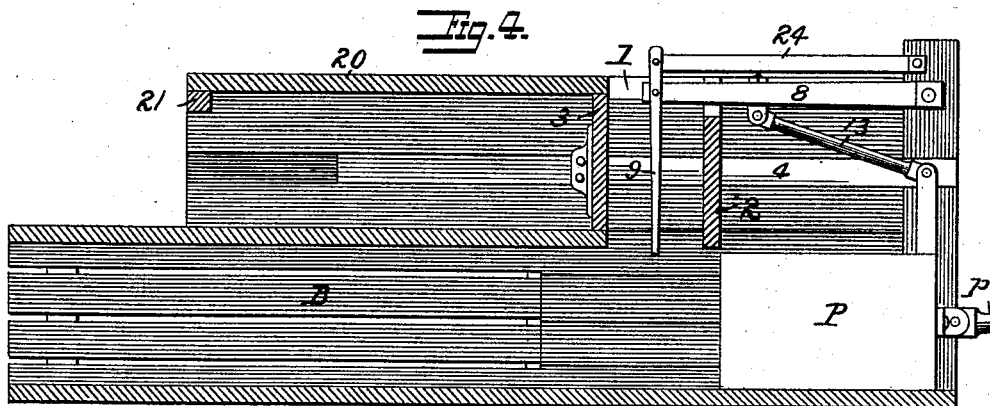
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2 Sheets—Sheet 2.

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WITNESSES

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UNITED STATES PATENT OFFICE.

CYRUS E. BATES, OF BLOOMINGTON, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 455,731, dated July 14, 1891.

Application filed February 18, 1891. Serial No. 381,923. (No model.)

To all whom it may concern:

Be it known that I, CYRUS E. BATES, a citizen of the United States, residing at Bloomington, McLean county, Illinois, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention relates to improvements in baling-presses; and it consists in the peculiar construction and arrangement of parts forming the hopper and feeding device, of which the following is a specification.

In the accompanying drawings, in which like letters and figures of reference indicate like parts throughout the several views, Figure 1 is a central sectional view of so much of a baling-press as is necessary to illustrate my improvements, the condensing-hopper being open. Fig. 2 is a similar view, the condensing-hopper being closed and the feeding device in its lowest position. Fig. 3 is a view looking in the direction of the arrow from the line *y y* of Fig. 1. Fig. 4 is a view similar to Fig. 2 of a modified form. Fig. 5 is a detail view of the latch, and Fig. 6 is a view similar to Fig. 1 of another modified form.

In the drawings, B indicates the baling-chamber, which is of ordinary construction and within which the usual plunger P is caused to reciprocate by any suitable mechanism connected to a source of power. As shown, the plunger is connected to a crank and crank-shaft by a pitman *p*.

The hopper H, which is of the condensing-type, is composed of fixed side and end pieces 1 2 and a sliding end piece 3, which is connected with the plunger-operating mechanism so as to be reciprocated with the plunger. As shown, the movable piece 3 is fastened at either side to rods or bars 4, which slide in grooves in the sides 1. These grooves are of equal depth with the rods, so that the rods are flush with the sides of the hopper and do not interfere with the passage of material through the hopper. The bars 4 are connected at their outer ends by a cross-piece 5, and through the medium of this cross-piece and a stud or studs 6, extending upward from the plunger and connected to the cross-piece, the sliding end of the hopper is caused to reciprocate in unison with the plunger. The studs 6 are connected detachably to the piece 5, so

that the feeding device and the hopper may be readily disconnected while the plunger remains in motion. This may be accomplished in various ways. For instance, the cross-piece 5, as seen in Figs. 1 and 3, has hinged to it a latch 7, in the form of a bar, which extends parallel to the cross-piece and which, when lowered, as shown in full lines, Fig. 1, engages the rear side of the stud or studs 6, at the same time locking the forward side against the cross-piece 5. When the latch-bar is raised, as shown in dotted lines, the studs will carry the cross-piece forward, thereby opening the hopper to its full extent and leave it in that position, the plunger in the meantime continuing to reciprocate. The upper ends of the studs are beveled, and the lower side of the latch-bar is also beveled, so that when the latch-bar is dropped the contact of the beveled faces of the studs will raise it, the studs will pass underneath, and the latch-bar will then drop and automatically couple the movable side of the hopper to the plunger.

The feeding device F is so constructed that as the hopper opens to receive a fresh charge of hay or other material it recedes or moves back to a position in which it is entirely out of the way of the attendants. It is, moreover, constructed of few and simple parts and made adjustable, so that it can be readily adapted to different grades and classes of material. In the preferred form an arm 8, which carries the plates or forks 9 10, is pivotally connected at one end to the slides 4, which carry the movable side of the hopper. A link 13 is pivoted at one end to the upper side of the baling-chamber at a point 14 near the forward limit of the travel of the pivotal end of the arm 8. The other end of this link is pivotally connected to the arm 8 at a point near its center. The inner fork or plate 9 is fixed to the arm near its outer end and the outer fork is pivoted to the arm at 16. A spring 11 is interposed between the forks to normally keep them apart, their distance apart being limited by their extended rear ends 12 abutting, or in any other suitable way. The link 13 is made adjustable in length by means of a turn-buckle 17 or other adjusting device in order to vary the depth to which the forks penetrate the baling-chamber.

The arm 8 is preferably connected to the sliding bars 4 through the medium of a cross-piece 19, to which the arm is attached, and which is provided at its ends with pintles or journals which enter bearings in the bars.

A cover 20, which is fixed to the upper edge of the movable part 3 of the hopper at one end and rests upon a support 21 near its other end, serves to keep the hay or other material from interfering with the operation of the arm and link. This cover and the side piece 3 are provided with slots 22, through which the arm projects. As an additional guard to keep the material from getting into the slot 22, I provide wing-boards 23, which extend upward from the cover 20 upon either side of the slot.

The mechanism so far described operates as follows: As the hopper is moved to its open condition, as shown in Fig. 1, the arm 8 recedes, carrying the forks or plates away from the mouth of the hopper. When in this position the hopper is charged with material, and as the plunger is drawn back the hopper closes, partially condensing the material, until the movable side comes flush with the shoulder 18 of the baling-chamber. As this side approaches the shoulder 18, the arm 8 descends and forces the material down into the baling-chamber. The parts are so proportioned and the operation so timed that as the plates or forks descend the side 3 comes flush with the shoulder 18 and no obstruction is offered to the passage of the material to the hopper. The fork or plate 10 being pivoted easily yields should material tend in any way to bind between it and the stationary side 2 of the hopper as the forks or plates 9 and 10 descend.

The division-boards E are of the usual form. When it is desired to insert one of the division-boards, it is placed against the fixed side 2 of the hopper, with its lower edge resting upon the plunger while the hopper is open. When the hopper closes and the plunger is withdrawn, the division-board drops into the baling-chamber, and at the same time an additional charge of material may be forced down. I am thus enabled to insert the division-board without stopping the machine or interfering with the feeding device, the boards being put down each time along with a charge of the material to the bale. The receding or rear feeding device (shown in Figs. 1 and 2) greatly facilitates the insertion of the boards, being one reason why this form of my invention is preferable to that shown in Fig. 4, and to the ordinary feeding devices used in this class of machines.

When it is desired to stop the movement of the hopper and the feeder, the latch 7 is raised. The hopper will then be forced open and left in that condition until the latch is again dropped to automatically engage the moving studs upon the plunger.

Although I prefer to use the receding feeder shown in Figs. 1 and 2, which moves back with the movable side of the hopper, I some-

times reverse the arrangement of the arm and link of the feeder, as shown in Figs. 4 and 6. In Fig. 4 the arm is connected pivotally to a stationary part of the frame of the press, and the link has its lower end pivoted to a stud extending upward from the plunger, while its upper end is connected to the arm, as in the previously-described form. In this view I have shown a single plate or fork pivoted to the outer end of the arm and guided by a link 24, which acts as a second arm to give the lower end of the fork a vertical or nearly vertical motion. In this modification the link 13 may of course be pivoted to the sliding bars 4, as in Fig. 1, or to any other reciprocating part of the machine.

The form shown in Fig. 6 is the same as that shown in Figs. 1 and 2, excepting that the arm 8 is pivoted to the stationary part 14 and the link 13 is placed back of the arm and pivotally connected thereto and to the slides 4.

Without limiting myself to the precise construction and arrangement shown, I claim—
1. In a baling-press, in combination with a condensing-hopper, a feeding device consisting of an arm carrying plates or forks upon its outer end and pivotally mounted at its inner end to a suitable support, and a link pivotally connected to said arm between the forks and its pivotal support, substantially as described.

2. In a baling-press, in combination with a condensing-hopper, a feeding device comprising an arm carrying plates or forks at its free end and pivotally connected at its inner end with the movable side of the hopper, and a link connecting the middle portion of said arm with a fixed portion of the frame of the press, substantially as set forth.

3. In a baling-press, in combination with the baling-chamber, a condensing-hopper comprising the fixed sides and end and the movable side connected to slides 4, which run in grooves in the inner walls of the hopper flush with and forming parts of said inner walls, said slides being connected with a moving portion of the press to move with the plunger, substantially as described.

4. In a baling-press, the combination of the baling-chamber, the hopper having the movable side fixed to the slides 4, said slides being connected with a moving portion of the press, and the feeding device comprising the arm 8, pivotally connected to said slides and carrying plates or forks at its outer end, and the link 13, connecting the arm with a fixed part of the machine, substantially as described.

5. In a baling-press, the condensing-hopper having a movable side 3 and the cover fixed to said side, slots 22 in said parts, and a feeding device comprising an arm extending through said slots and carrying forks or plates upon its outer end, and means for rocking said arm, substantially as described.

6. In a feeding device for baling-presses, the pivoted arm 8, carrying the fixed plate or fork 9, the movable fork 10, and means ar-

ranged to keep said forks normally separated, substantially as and for the purpose set forth.

7. In a feeding device for baling-presses, the combination, with a condensing-hopper, 5 of the arm 8, pivoted to a movable part of the press and provided with feeding-plates, and the link 13, connecting the arm with a fixed portion of the press, said link being provided with adjusting means, substantially as de- 10 scribed.

8. In a baling-press, the combination, with the baling-chamber and plunger carrying the

studs 6, of the hopper, the slides 4, connected to the hopper, the cross-piece 5, connecting said slides, and the latch 7 for detachably con- 15 necting the slides to the studs 6, substantially as described.

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

CYRUS E. BATES.

Witnesses:

O. A. LOWENTROUT,
J. F. STRICKER.