

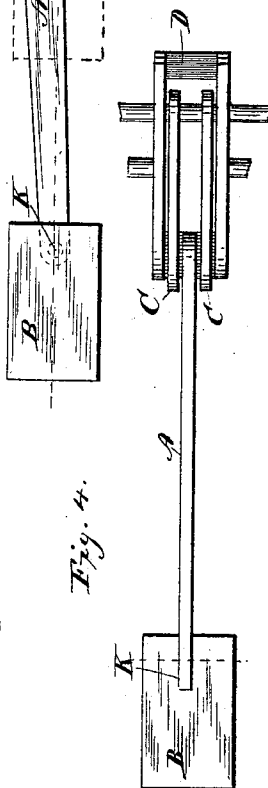
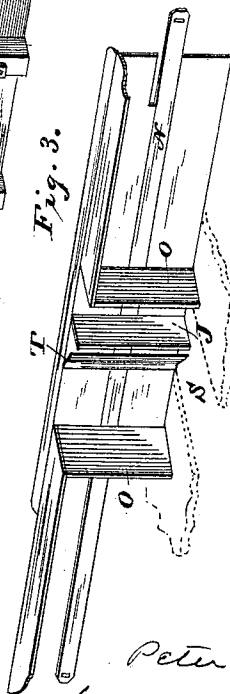
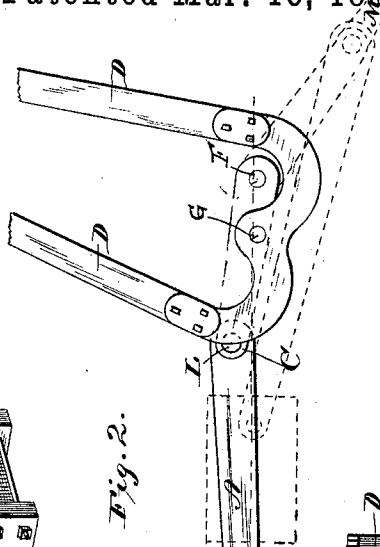
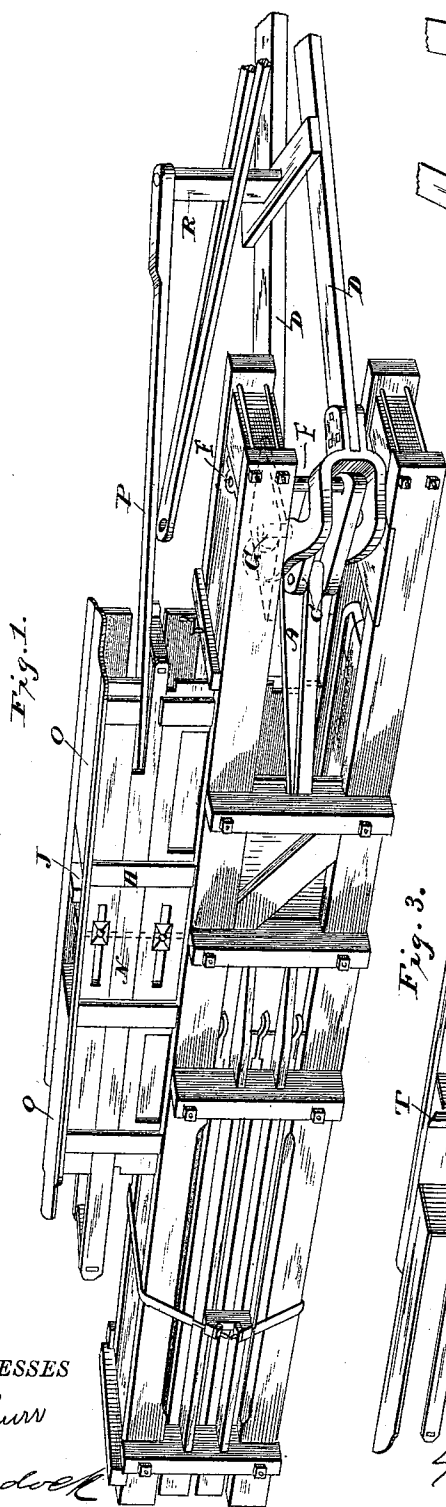
(No Model.)

2 Sheets—Sheet 1.

P. K. DEDERICK.
BALING PRESS.

No. 337,935.

Patented Mar. 16, 1886.



WITNESSES

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(No Model.)

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Fig. 5.

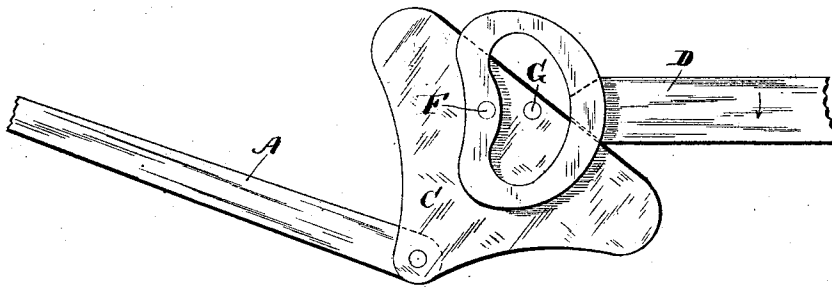
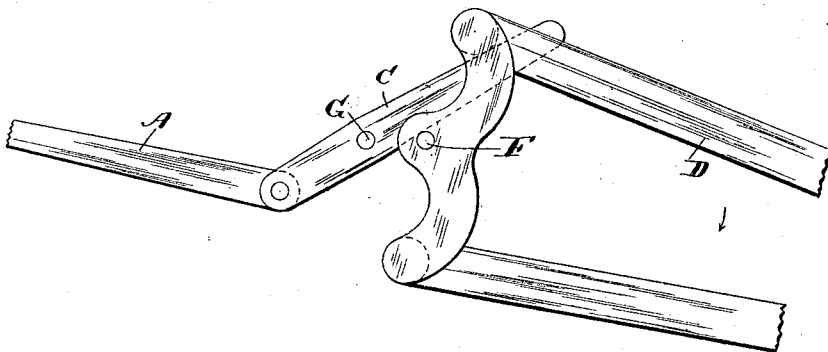


Fig. 6.



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UNITED STATES PATENT OFFICE.

PETER K. DEDERICK, OF LOUDONVILLE, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 337,935, dated March 16, 1886.

Application filed September 10, 1884. Serial No. 142,639. (No model.)

To all whom it may concern:

Be it known that I, PETER K. DEDERICK, of Loudonville, in the county of Albany and State of New York, have invented certain Improvements in Baling-Presses, of which the following is a specification.

My invention relates to that class of presses for which Letters Patent were granted me October 29, 1872, No. 132,566 and No. 132,639, and the various modifications of the same for which Letters Patent have since been granted me.

The first part of my invention consists of improvements in the power devices, and the second part of improvements in the condensing-hopper.

Figure 1 represents a perspective view of the press; Fig. 2, a plan view of the power devices; Fig. 3, a perspective, partly in section, of the condensing-hopper. Fig. 4 is a side elevation of the power devices. Figs. 5 and 6 are views of modifications of the power devices.

Similar letters represent the same parts.

A represents the pitman; B, the traverser; C, the crank-arms; D, the horse-lever; F, the pivot or bearing of horse-lever; G, the pivot or bearing of the crank-arms; H, the condensing-hopper; O, the movable condensers; J, the hopper-partition.

The frame of the press may be constructed in any ordinary manner, or as shown. The pitman A is pivoted to the traverser at K and to the crank-arms at L, and the crank-arms are pivoted to the frame at G and the horse-lever at F.

In Letters Patent No. 126,394, May 7, 1872, there is shown a double-acting toggle operated by a horse-lever firmly attached. Also, in Letters Patent No. 199,052, January 8, 1878, there is shown a double-acting toggle operated by a horse-lever loosely attached. Also, in Letters Patent No. 257,153, May 2, 1882, there is shown a double-acting toggle operated by a loose horse-lever applied in such a manner as to form a cam with the same, thereby greatly increasing the power.

In the present application I produce the same result as in the last patent mentioned and simplify and lighten some of the parts, and to this end I mount the horse-lever D on a separate bearing, F, instead of on the same

bearing with the crank-arms at G, as in the previous patents referred to, thereby creating a movable contact of the horse-lever against the crank-arms C, as shown in Fig. 2, the horse-lever and the crank-arms being shown in the position of pushing the toggle over the center, when by the expansion of the pressed material it is forced back, as indicated by the dotted lines. The horse being reversed the crank is moved forward by the horse-lever from the position indicated by the dotted lines, and the point of contact between the two moves away from the crank-arm center as the operation progresses, thus gradually increasing the power and diminishing the motion of the crank until it is again pushed over the center in the reverse direction. The crank-arms might be extended past the bearing-pin G, as shown in Fig. 6, and the bearing F also moved to the opposite side of the bearing G and brought to bear against the extended end.

The power of the cam and toggle might be still further increased by extending the crank-arm, as shown at M, Fig. 2, and proportionally increasing the reach of the horse-lever at the bearing-point, or the power might be varied and increased and diminished by the shape of the crank-arm, which might be concave, convex, or any other suitable form; or, by widening the crank-arm sufficiently it might be brought to bear against the sweep at the center, as shown in Fig. 5, thus admitting of the use of a single bar or timber instead of a forked sweep.

In Letters Patent No. 151,477, June 2, 1874, I have shown a condensing-hopper with a single slide and condenser connected to the traverser.

In all baling-presses wherein an entire bale is pressed at one operation a gradual increase of power is required from the start to the finish of the pressing operation, thus rendering the toggle-joint, as shown in Letters Patent No. 126,394, May 7, 1872, peculiarly effective for accumulating the power in proportion as the resistance increases; but where the bales are formed by sections, scarcely any power is required during two-thirds of the stroke of the traverser, and the toggle should be therefore moved at the start much faster than by applying the motive power direct to the joint or the

equivalent, so that a slight movement of the horse-lever at the start will move the toggle and traverser the greater share of the distance or stroke and accumulate the power, or reserve the greater part of the movement of the horse-lever for the balance of the stroke of the traverser.

By the improvement herein set forth, as clearly shown in Fig. 2, I accelerate the movement of the toggle at the start to several times the velocity obtained by direct application of motive power, as shown in Letters Patent No. 126,394 referred to, so that very little of the power or movement of horse-lever is consumed to move the toggle and traverser the greater share of its stroke, and the power is reserved and applied as required to press the section, which in fact about quadruples the effective power of the machine with the same movement of the horse-lever.

In all presses wherein a bale is pressed or completed against a solid unyielding head the resistance gradually increases as the operation progresses, and is greatest at the close or finish, and the greatest power is then required; but in the class of presses shown and referred to, wherein the bale is pressed in sections against a yielding resistance or the pressed column, or wherein the bales are forced through an open-end chamber or tube and retarded by friction against its walls, or otherwise, to secure resistance, then the extreme power is not required at the finish of the stroke, but is required when completing the pressing of a section which is just before or at the time the resistance yields and the previously pressed sections or bales commence to move forward, after which the traverser must move a distance the exact thickness of the section and deposit it in the bale chamber, and during this movement, which is at the finish of the stroke of the toggle, less power is required than when completing the pressing of a section before the column starts.

Now, it is clear that by direct application of power, as in Letters Patent No. 126,394 referred to, the toggle-joint will not have assumed a very effective position at the stage of the operation when the section is pressed and the column or previously pressed material commences to move; and it is also clear that the power of the joint will continue to increase instead of diminish, so that at the finish of the stroke it is multiplied to many times what it was when the pressing of the section was completed where the greatest power is required.

Now by my application of the horse-lever to the toggle-joint, as shown in Fig. 2, it will not only be seen that I accelerate the movement of the toggle-joint several times faster at the start, and thus reserve and accumulate the power, as required, to press the section when the horse-lever is in position of greatest cam-power, (proven by most rapid movement outward from center G along the arm C,) but thereafter, although the power of the toggle increases, still the efficiency of the cam or

wedge of lever diminishes so rapidly that at the limit of the stroke of the toggle it almost or nearly ceases, (proven by the fact that the outward movement along the arm about ceases at this time.) Thus by this improved application of the horse-lever to the toggle-joint the power is exactly adapted and applied to this class of presses.

In Letters Patent No. 257,153, May 2, 1882, I have shown a condensing-hopper with a single slide and condenser connected to the horse lever or shaft.

In the present case I use a double condenser, whereby I condense the hay from both ends of the hopper, H, Fig. 1, being the condensing-hopper, and shown in sectional view in Fig. 4. N is the slide, of which I preferably use two, one at each side of the hopper, and secure the condensing-heads O O to them. This slide and condensing-heads are moved by the pitman P and horse-lever D by means of standard R, as described in Letters Patent No. 257,153 referred to. Over the feed-orifice S, I place a partition or third head, J, and either secure it firmly over the feed-orifice S, or make it movable, so that its position over the orifice may be varied. This partition may be a solid head or in two pieces projecting from each side toward the center, more or less, but sufficiently to arrest the movement of the charge, so that the movement of the condensing-heads will condense it, and any shoulder or retarder will work more or less effectually.

I prefer to use a head of two sections projecting toward the center, but leaving room sufficient to admit of passing a hand-fork or automatic feeder or other device to pass the hay down between the sections of partitions in order that it may be done at one stroke.

To both sides of the hopper, over the feed-orifice, I secure spring-retaining plates T, to retain the condensed charge when pressed past them, or any form of shoulder or retainer—such as used to retain the pressed hay in the bale-chamber of this class of presses—will answer, their office being to retain the condensed charges when the condenser reverses and before the feeder pushes the charge into the press-box, as without such retainer the charge would expand so as to increase the labor in pressing it down.

In operation the condensing-heads O O move alternately toward the center partition or stop, condensing a charge from each end. At the one side the retainers T retain the condensed charge when the slide is reversed to move the other condensing-head toward the partition, and when accomplished both charges are then pushed into the press-box through the feed-orifice S.

Double condensing-heads might be used, so as to move toward and away from each other instead of together, as last described; but this would require separate slides or connections, as they must move in opposite directions, and as both condense a charge at the same time over the feed-orifice the center partition might

be dispensed with, although the section thus formed would not be divisible, as by use of the partition.

5 The peculiar construction of hopper and condensers above described is not claimed herein, but is made the subject of a separate application numbered 161,478.

I claim as my invention—

10 1. In a bailing-press, the combination of a pitman connected to the traverser, an arm or arms pivoted to the frame and forming with the pitman a toggle-joint capable of being worked back and forth across a central line or dead-point, and an independent reversible
15 horse-lever mounted on a separate pivot or center, and adapted when swung in either direction to bear upon the said arm or arms, with a sliding or rolling contact shifting outward from the pivot or fulcrum of the same,
20 and to carry the toggle across the central line and permit it to separate from the horse-lever, and be automatically projected at the other side of the press by the expansion of the pressed material, substantially as described.

25 2. In a baling-press, the combination of a pitman and an arm or arms, forming a double-acting toggle with a reversible horse-lever mounted on a pivot which is eccentric to that of the pivot of the arm or arms, and having
30 two remote bearing-points which alternately act upon the arm or arms as the lever is vibrated from side to side of the press, to force the toggle over the central line or dead-point and permit it to be reversed automatically by
35 the expansion of the pressed material independently of the horse-lever, substantially as described.

3. The combination, substantially as described, of the traverser, pitman, and swinging arm or arms, with the reversible horse-lever mounted upon a pivot separate and independent from that of the arm or arms and in front of it, and having the remote bearing for alternately acting upon the arm or arms, and having, also, the curved inner portion for
40 accommodating the pivot of the latter, substantially as described.

4. A pivoted arm or arms having an extended free end, in combination with a pitman pivoted to said arm or arms and a horse-lever
50 pivoted to one side of the pivotal point of said arm or arms, substantially as and for the purpose specified.

5. A horse-lever with a pivoted broad end or head having stops thereon, in combination
55 with an arm or arms pivoted to one side of the lever-pivot, and having an extended free end and a connecting rod or pitman pivoted to said arms, substantially as and for the purpose specified.

6. A V-shaped lever pivoted at its broad
60 end and provided with stops thereon, in combination with an arm or arms pivoted to one side the pivotal point of the lever and a connecting rod or pitman pivotally secured to the
65 arm or arms at a distance from the free end thereof, substantially as and for the purpose specified.

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