

No. 675,439.

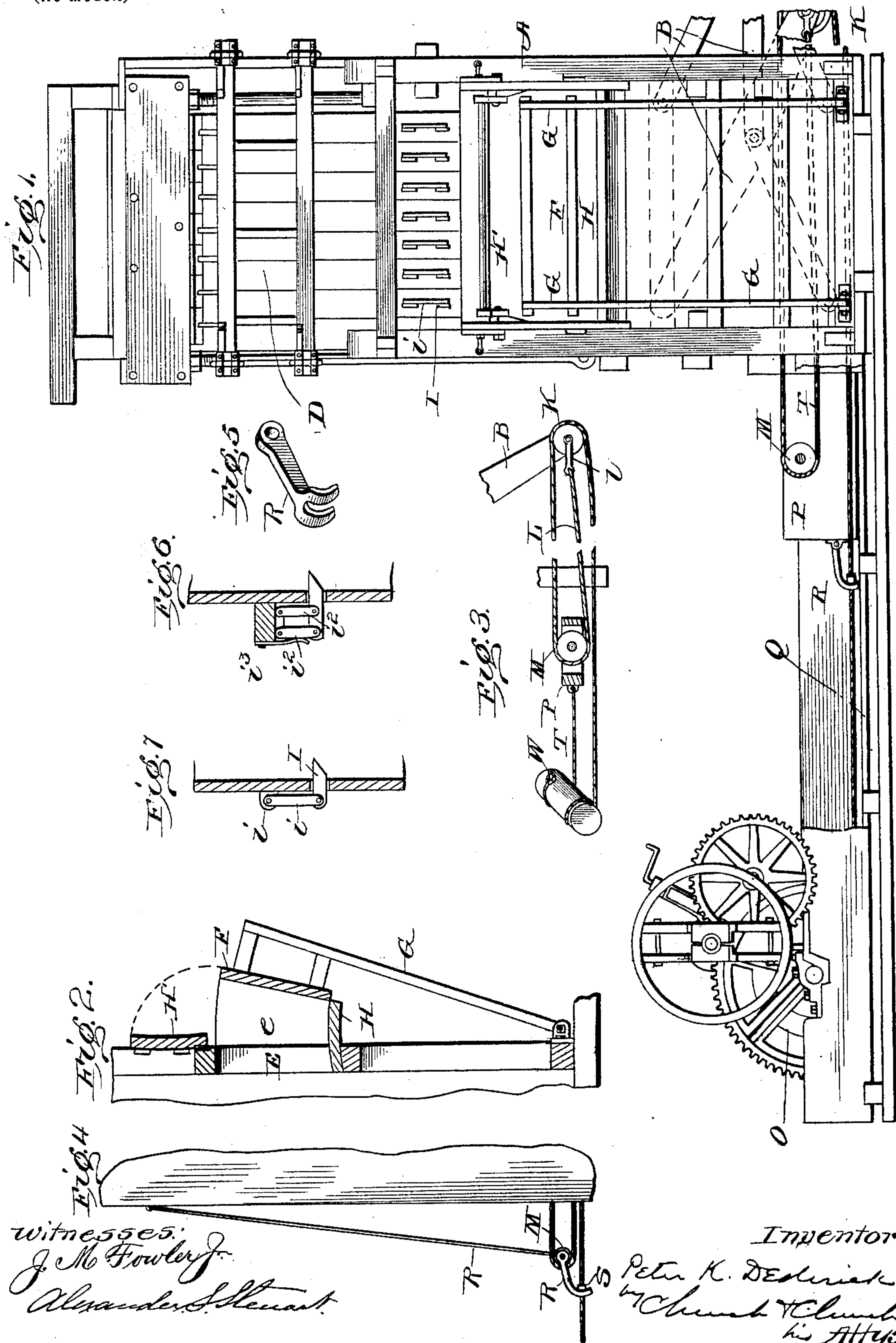
Patented June 4, 1901.

P. K. DEDERICK.

BALING PRESS.

(Application filed Nov. 15, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

PETER K. DEDERICK, OF LOUDONVILLE, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 675,439, dated June 4, 1901.

Application filed November 15, 1900. Serial No. 36,620. (No model.)

To all whom it may concern:

Be it known that I, PETER K. DEDERICK, a citizen of the United States, residing at Loudonville, in the county of Albany, State of New York, have invented certain new and useful Improvements in Baling-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in presses designed for baling hay, cotton, or other material susceptible of being compressed and bound into bales; and the invention relates particularly, although not exclusively, to that type of presses wherein a number of charges are first loosely compressed in a bale-chamber and then the whole number of charges tightly compressed to form the final bale, this type of presses being known as "repeaters."

The invention has for its object, primarily, to provide a power mechanism whereby in repeating or accumulating charges in the bale-chamber of the press the traverser may be advanced rapidly, inasmuch as at this time less power is required and during the final compressing operation advanced slowly, but with correspondingly greater power, whereby a material economy both in time and power is effected, further objects of the invention being to improve the detail construction of the press, whereby the feeding and retaining of the material in the bale-chamber are facilitated.

Referring to the accompanying drawings, Figure 1 is a front elevation, partly in section, illustrating a vertical press embodying my present improvements. Fig. 2 is a detail vertical section of the feed-door and hopper. Fig. 3 is a detail view of a modified form of power mechanism. Fig. 4 is a similar view of another modification. Fig. 5 is a detail of the hook for use in repeating. Figs. 6 and 7 are detail sections showing retainers for the material being baled.

Like letters of reference in the several figures indicate the same parts.

In said drawings the letter A indicates the press-frame, which, as illustrated, is of the vertical type and adapted to contain the usual

toggle-arms and lever B, together with the reciprocatory traverser C, (shown in dotted lines, Fig. 1,) said traverser being adapted to be reciprocated by the upward thrust of the toggle-arms and lever, so as to push the material being baled in the upper portion of the press or bale-chamber, and from which chamber the completed bale may be removed in any usual or preferred manner—as, for instance, by opening the door D in the side of the chamber. The material to be baled is introduced above the traverser through the feed-opening E, Fig. 2, being fed or thrust by hand into a hopper formed by the wings *e* at the sides and the inwardly-movable door F at the front. When said door is pushed inwardly, the material in the hopper will be forced into the press-box above the traverser and in position to be pushed up into the bale-chamber as said traverser rises.

By reference to Fig. 2 it will be seen that instead of pivoting or hinging the door F immediately adjacent to the lower edge of the opening E, as heretofore, I now mount said door on relatively long arms G, pivotally mounted or hinged near the bottom of the press-frame or remote from the feed-opening. Thus the door itself is given a bodily movement to and from the feed-opening, and the hopper is correspondingly increased in size at the bottom, thereby providing for the reception of a larger quantity of the material to be baled and at the same time insuring the proper positioning of such material in the press-box when the feed-door is closed. With this construction it is desirable to employ a bottom H to the hopper, which bottom should be formed concentrically with the movement of the door in order to form a tight joint and prevent squeezing out of any of the material beneath the door at any point, and in order to prevent the bulging out of the material at the top of the hopper a downwardly-swinging door H' is preferably employed, all as illustrated clearly in Fig. 2, before referred to, the door H' being preferably curved to conform to the movement of door F.

In the operation of the press when the material has been forced into the press-box by the closing of the door F and has been pushed up into the bale-chamber by the traverser it is retained in said bale-chamber by means of

retainers, which pass in through the side walls of the press and are adapted to be forced outwardly as the material pushes past them, but which spring inwardly again and prevent the dropping of the material. I prefer to employ retainers which have a substantially straight in-and-out movement, for which purpose said retainers are made in the form of bolts I, having their lower sides beveled or inclined where they project into the press-box, and such bolts I are held in alignment by being pivotally connected with links *i*, the links in turn being pivotally connected with the press-frame, preferably above the retainers, as shown at *i'*. Obviously if the bolts are guided in the apertures in the side walls of the press but one link is necessary for each retainer, as illustrated in Fig. 7, but where desired the bolt may be entirely supported and guided by employing two or more links, as *i*² *i*², Fig. 6, and the retainers may in each instance be yieldingly held inwardly by light springs *i*³, preferably taking a bearing against the supporting-links. With this arrangement successive charges of the material may be forced up into the bale-chamber and a sufficient quantity of material accumulated in said chamber for forming any desired size of bale without the necessity of employing a very long press-box with a traverser having a correspondingly long movement. In fact, in order to form a bale of fair size it is quite necessary to add successive charges of material, because of the impracticability of employing a press-box and power mechanism of sufficient length and range of movement to enable all of the material to be placed therein at one time, and hence it is highly desirable to provide a mechanism for moving the traverser rapidly when the charges of material are being accumulated in the baling-chamber and which shall have the capacity for exerting great power in compressing said charges during the final pressing operation.

The power mechanism ordinarily employed for operating the toggle or power levers of the press is a rope tackle consisting of a rope or flexible connection which is connected with said power-levers and after passing around a suitable series of pulleys is run off to a winding-drum or capstan. The series of pulleys referred to ordinarily consist of a fixed series (one or more) at the side of the press-frame and a movable series (one or more) in or connected with one of the power-levers, and in running the traverser up the whole length of the flexible connection is put in motion by draft applied to one of its ends, thereby securing great power, but a relatively slow movement of the power-levers and traverser. In accordance with my invention now while I utilize this same system in securing the final pressure on the bale in repeating or accumulating the charges in the bale-chamber I operate the power-levers with a direct connection to the winding-drum or capstan, or,

in other words, I cut out the pulley feature in the flexible connection by making the pulleys which are ordinarily fixed at the side of the press-frame movable toward and from the press-frame and detachably connecting them with the winding-drum or capstan, whereby they may be bodily moved and the whole tackle operate as a unit when the winding-drum or capstan is turned in repeating and whereby they may be allowed to rest in their fixed position during the final pressing operation.

Referring to said drawings, it will be seen that a pulley K is mounted in one of the power-levers, and a flexible connection L, attached at one end to a loop or clevis on said power-lever, extends thence around a pulley M at the side of the press-frame, thence back around the pulley K, and thence out to the winding-drum or capstan O; but the pulley M instead of being mounted in a fixed portion of the frame A, as heretofore, is now movably mounted, either as shown in Figs. 1 and 2, in a sliding frame P, which may move in right lines on guides Q toward and from the press-frame, or in the ends of links R, Fig. 4, which are pivotally connected at their upper ends near the top of the press-frame, in each instance said pulley M being movable toward and from the press-frame, but in its innermost position being arrested and held against further inward movement by the press-frame itself. In the final pressing operation the strain on the pulley is all inward. Hence it remains in what might be termed a "fixed" position, and the power operates as in the ordinary baling-press; but in the repeating operation the pulley M is adapted to be connected so as to move outwardly in unison with the movement of the power-lever, and this may be accomplished either by connecting its frame P with that portion of the flexible connection L which runs adjacent to the pulley on its way to the drum, as by a hook R, adapted to take over an enlargement or stop S on said flexible connection, or by a separate flexible connection T, Fig. 3, which may be extended outwardly to the winding-drum or capstan O and be detachably connected therewith in any suitable manner, as by a projection W. With this construction when the hook R is down, so as to engage the stop S, or when the flexible connection T is connected with the drum or capstan the tackle operates as a unit and the power of the capstan is applied directly to the power-levers, said levers being moved directly in unison with the movement of the drum or capstan, thereby securing a rapid movement of the traverser, but of course diminishing the power as compared with the action of the tackle in the final pressing operation. Having accumulated the desired number of charges in the bale-chamber, the hook R or the flexible connection T is disengaged and the power applied from the winding-drum or capstan through the flexible

connection and system of pulleys, so as to compress the accumulated charges into a bale having the desired solidity.

Obviously any desired number of turns of the flexible connection may be made about a corresponding number of pulleys at the side of the press-frame and in or connected with the power-levers to secure greater or less power, and it is further obvious that with my present improvements in repeating the movement of the traverser will be just as many times faster as there are turns in the flexible connection around the aforesaid pulleys, and therefore in the operation of the press a corresponding economy in time and power is effected.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a baling-press, the combination with the press-frame, reciprocatory traverser and power-levers for reciprocating said traverser, of a tackle for moving said power-levers, consisting of a pulley movable with said levers, a second bodily-movable pulley, a flexible connection passing around said pulleys and means for moving said second bodily-movable pulley bodily in unison with the movement of the flexible connection, whereby the power may be applied to said power-levers by a movement of the tackle as a unit, or by a movement of the lever, flexible connection, and pulley mounted on the levers alone; substantially as described.

2. A power mechanism for baling-presses comprising a tackle having a pulley moving in unison with the lever, a second movable pulley and means for holding it in fixed position or permitting it to move bodily in unison with the lever, a flexible connection passing around said pulleys and means whereby said tackle may be moved as a unit for repeating or as a tackle for accumulating power in pressing; substantially as described.

3. A power mechanism for baling-presses embodying the following instrumentalities, to wit; a tackle comprising a pulley movable with the power-levers, an independently-movable pulley, a flexible connection passing around said pulleys, a winding-drum for said flexible connection, and means whereby the independently-movable pulley may be connected with the winding-drum for moving said tackle as a unit in repeating and disconnected from said winding-drum for heavy pressing; substantially as described.

4. In a baling-press, a reciprocatory traverser and power-levers for reciprocating the traverser combined with a tackle embodying a bodily-movable pulley independent of the power-levers and movable bodily to vary the distance between the same and the power-levers, a flexible connection intermediate the pulley and levers and working around the pulley, and means for moving said pulley bodily to vary the speed and power; substantially as described.

5. In a baling-press, a reciprocatory traverser and power-levers for reciprocating the traverser, combined with a tackle embodying a flexible connection, a pulley carried by the power-levers, an independent bodily-movable pulley and around which pulleys the flexible connection passes, a winding-drum for said flexible connection and a detachable connection between said bodily-movable pulley and the flexible connection whereby in repeating said bodily-movable pulley may be connected with the flexible connection and the tackle moved as a unit; substantially as described.

6. In a baling-press, the combination with the press-frame, reciprocatory traverser, power-lever, winding-drum and flexible connection between said winding-drum and power-lever, of a pulley bodily movable toward and from the press-frame and around which the flexible connection passes, a supporting-guide for said pulley and a hook and stop for connecting the pulley and flexible connection whereby it may be moved away from the press-frame in repeating; substantially as described.

7. In a baling-press, the combination with the press-frame, reciprocatory traverser, power-lever, winding-drum and pulley-supporting guide connected with the press-frame, of a pulley movable bodily farther from or nearer to the lever and carried by said guide, a flexible connection between the winding-drum and power-lever passing and working around said bodily-movable pulley to vary the length of the connection between the lever and pulley and means for connecting the pulley and drum in repeating; substantially as described.

8. In a baling-press the combination with the press-frame having a feed-opening therein, a traverser and power mechanism for reciprocating said traverser, of a door for closing the feed-opening and supporting-arms for said door hinged to the press-frame near the bottom thereof and remote from the feed-opening whereby the door is given a bodily movement toward and from the feed-opening; substantially as described.

9. In a baling-press the combination of the press-frame, reciprocatory traverser and power mechanism for reciprocating the traverser, a feed-opening in the side of the press-frame at an intermediate point, a hopper surrounding said feed-opening and having a curved bottom, a door forming the front wall of said hopper and adapted to close the feed-opening when moved inwardly and supporting-arms for said door hinged to the press-frame at a point remote from the bottom of the hopper whereby the door is given a bodily movement toward and from the feed-opening to form a hopper of greater capacity at the bottom; substantially as described.

10. A retainer for baling-presses comprising a bodily-movable bolt having one of its ends beveled and a pair of supporting-links pivotally connected with said bolt at one end

and with the press-frame at the opposite end whereby the bolt is held in its alinement at right angles to the press-frame; substantially as described.

- 5 11. In a baling-press the combination of the press-frame reciprocating traverser and power mechanism for reciprocating the traverser, a feed-opening in the side of the press-frame at an intermediate point, a hopper sur-
10 rounding said feed-opening, a hinged door

forming the front wall of said hopper adapted to close the feed-opening when moved inwardly, and a downwardly-swinging door hinged to the press side over the hopper, whereby the hopper-top is closed; substan- 15
tially as described.

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Witnesses:

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