(No Model.) 2 Sheets—Sheet 1.

P. K. DEDERICK.

BALING PRESS.

No. 457,635. Patented Aug. 11, 1891.

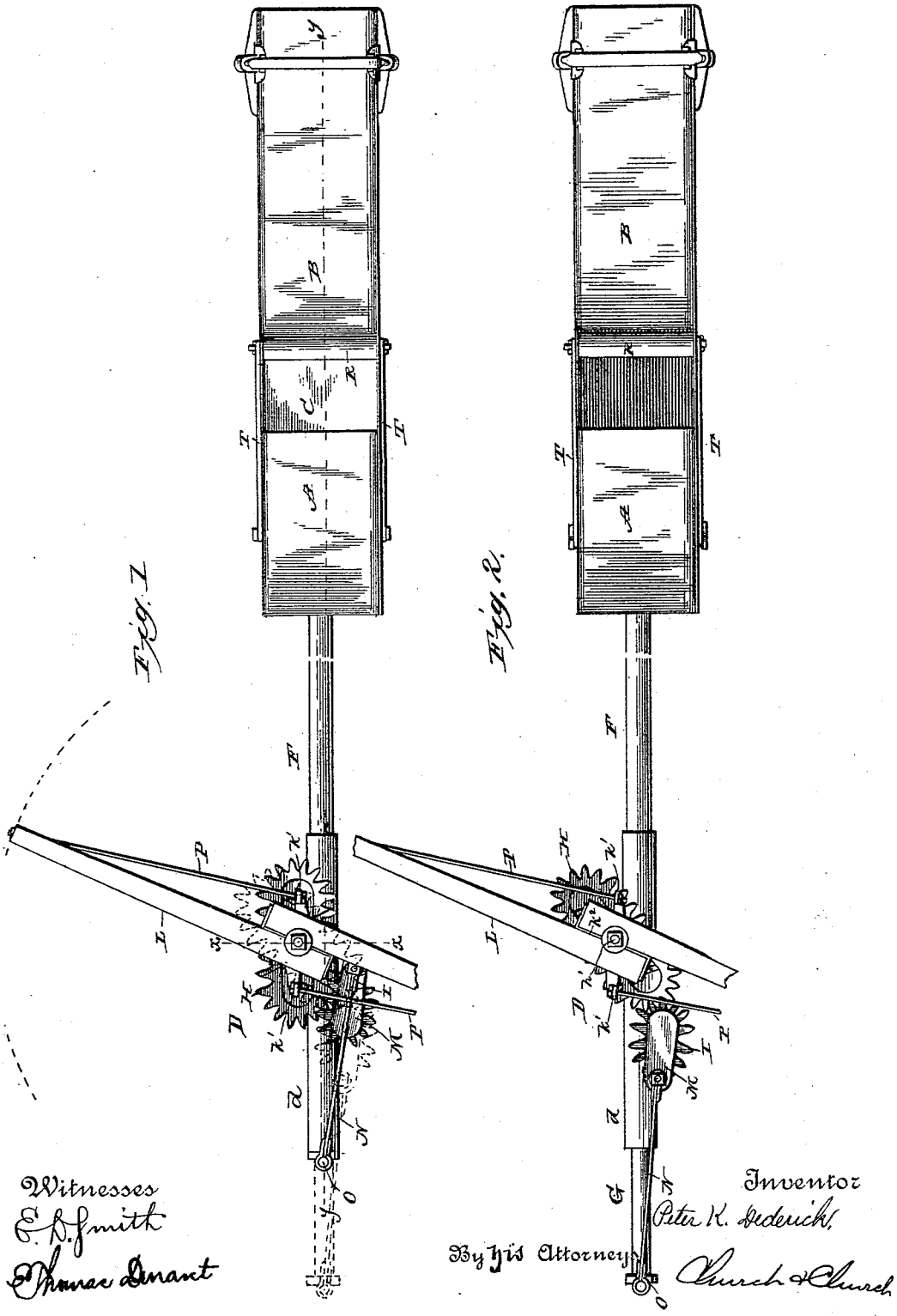

Fig. 1.

Fig. 2.

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Fig. 3.

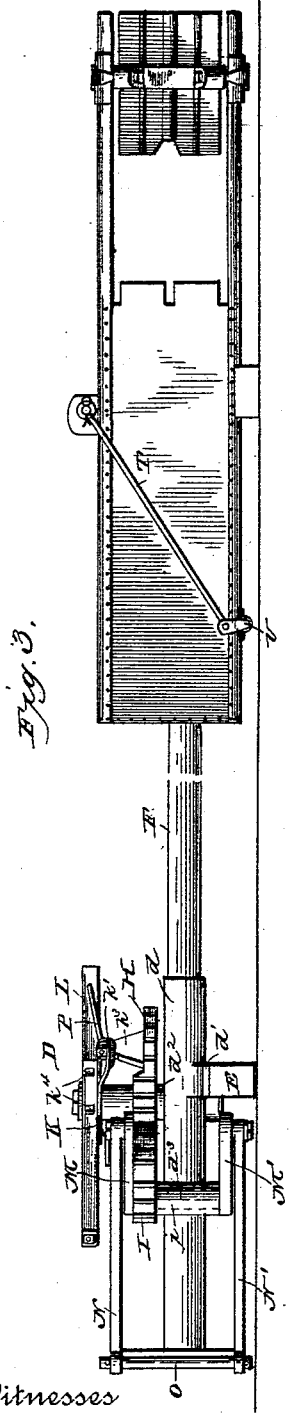


Fig. 5.

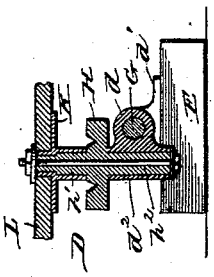


Fig. 4.

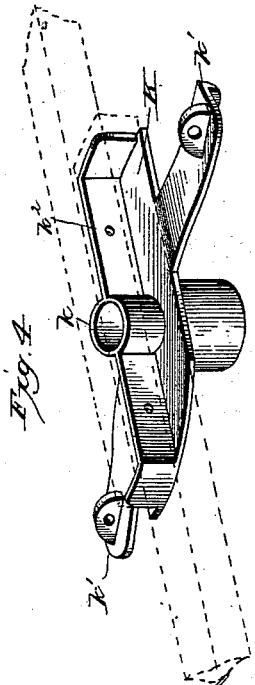
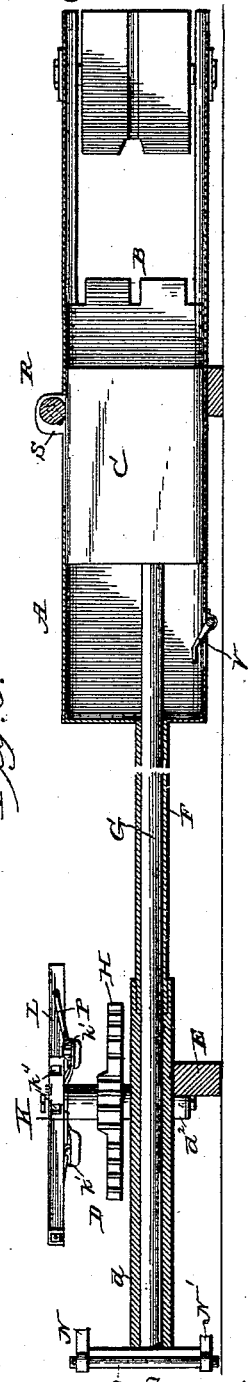


Fig. 6.



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UNITED STATES PATENT OFFICE.

PETER K. DEDERICK, OF LOUDONVILLE, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 457,635, dated August 11, 1891.

Application filed July 5, 1890. Serial No. 357,825. (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 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.

My invention relates to improvements in the power mechanism of baling-presses, and particularly of that class of presses in which the traverser is reversed by the reaction or back expansion of the pressed material; and it consists in certain novel features of construction, which will be first described, and then pointed out particularly in the claims at the close of this specification.

Referring to the accompanying drawings, Figure 1 represents a top plan view of a press embodying my improved power mechanism, the parts of the latter being shown in full lines in the position which they occupy when the traverser has reached the limit of its forward stroke and is about to be reversed or thrown back by the reaction of the pressed material and the dotted lines indicating the position of the parts after the traverser has been thrown back by said reactive force. Fig. 2 is a similar view showing the position of the parts of the power mechanism at the commencement of the forward stroke of the traverser. Fig. 3 is a side elevation of the press. Fig. 4 is a perspective view of the head or casting to which the horse levers or sweeps are connected, the latter being shown in dotted lines. Fig. 5 is a sectional view taken on the line $x\ x$, Fig. 1. Fig. 6 is a longitudinal sectional view taken on the line $y\ y$, Fig. 1.

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

The press shown is of the continuous or perpetual type.

A is the press-box, B the bale-chamber, and C the traverser.

D is the frame or casting upon which the power mechanism is supported, said frame consisting, preferably, of an elongated tubular portion d, having flanges d' by which to connect it to a cross piece or bolster E, and two short vertical tubular portions or sockets d^2 d^3, which are adapted, respectively, to receive the studs or shafts of the power-gears H and I. The horizontal tubular portion d is connected to the body of the press by means of a tubular connection F, as shown, and through it and said tubular connection passes a rod or staff G, (which is also preferably tubular,) that is attached at one end to the traverser C.

The power-gear H is provided at its center with a downwardly-projecting stud h, which enters the socket d^2, and with an upwardly-projecting stud h', that constitutes the support and bearing for the casting or head K, to which the horse levers or sweeps L are attached.

The gear I, with which the power-gear H co-operated, is formed with or has connected to it a short shaft or stud i, that has its bearings in the socket d^3. A crank M is formed upon or secured to the upper side of this gear I, and a corresponding crank M′ is secured to the lower end of the shaft or stud i, while rods N and N′ connect the said cranks M M′ to the upper and lower portions of a cross-head O, attached to the rod or staff G, Fig. 3.

As shown in Fig. 4, the sweep head or casting K is formed with a central tubular portion k for the reception of the stud h', with arms k' k' for co-operating with lugs h^3 h^3 on the gear H and for the attachment of the brace-rods P, and with vertical flanges k^2 k^2 for securing, in connection with bolts k^4, the horse-levers or sweep-arms L.

The gears H and I are preferably so proportioned that one revolution of the former will cause two revolutions of the latter, and consequently two strokes of the traverser connected by the described intermediate connections. The particular gears shown are similar to those illustrated in my previous patent, No. 240,894, dated May 3, 1881; but, if desired, they may be constructed like those shown in my patent, No. 227,617, dated May 18, 1880, or like those shown in my patent, No. 134,592, dated January 7, 1873, or like other forms designed to produce similar effects. Where but one revolution of the driven gear is required at each revolution of the driving-gear, the gearing shown in my patent, No. 132,609, may be used.

The operation of my improved power is as follows: A horse or horses is or are attached to one or both of the horse levers or sweeps L and caused to travel around in a circle, as indicated by the dotted lines in Fig. 1, so as to give motion to the gears H and I and the connected parts. When the traverser is about to start forward, so as to carry the next charge of material from the press-box into the bale-chamber of the press, the teeth of the gear H that are farthest from its center or axis engage with the teeth of the gear I that are nearest the latter's axis, as shown in Fig. 2, and the result is that the gear I is given a rapid motion, which, being communicated to the cranks M M', causes the rods N N' to be drawn upon and effects through the intermediate connections the quick advance of the traverser toward the bale-chamber. When the traverser nears the limit of its forward throw, where, of course, the greatest pressure is required, the teeth of the gear H nearest the axis engage the teeth of the gear I that are farthest from the latter's axis, as shown in Fig. 1, the effect of which is to slow down the movement of the traverser and at the same time greatly increase the pressing power. As the cranks M M' go over the center, the reaction or back expansion of the pressed material forces back the traverser and turns the gears into the position shown by the dotted lines in Fig. 1. If the sweep-head were rigidly connected to the gear H, this rebound of the traverser would throw the sweeps against the horse's legs and injure them severely, but by loosely mounting the sweep-head and causing it to act on the gear H only by forward contact with the lugs on the gear the advance of the gear, due to the rebound, is not communicated to the sweep-head at all.

In comparing this power mechanism with my former patented power devices it will be found that while heretofore the crank on the driven gear has always pushed a pitman during the pressing forward of the traverser the crank or cranks in the present machine pull upon the rod connections N N', thereby putting them under tension instead of compression strain and enabling much smaller and less cumbersome connections to be employed.

I have shown herein two cranks and two connecting-rods combined with a cross-head, and for some reasons prefer such construction; but it is obvious that one crank and one connecting-rod may be used with effect, connected in any suitable way to the part to be moved without departing from the principle of my invention.

In this class of presses, wherein the bales are built up of separate charges or sections forced into the bale-chamber by the reciprocations of the traverser, a portion of the material of each charge usually overlaps the top of the traverser when the charge is pressed forward into the bale-chamber, and after the traverser is withdrawn said overlapped portion should be folded down before the next charge or section is advanced, in order to make the pressed sections neat and uniform.

In my present machine I have provided an appliance for automatically and positively folding down and retaining the overlap of each charge until it is caught and held by the advance of the next succeeding charge. Such appliance consists, preferably, of a cylindrical roller R, (though it may be, a wedge or of other form,) guided at its ends by slots S or in any other suitable manner and having a downward movement given to it by means of rods T and a shaft U, having a crank-arm V, which projects in the path of the traverser and is adapted to be operated thereby. As the traverser advances to force a charge of material into the bale-chamber, the roller R is raised, and when the traverser reverses it strikes the arm V, and through the shaft U and rods T moves the roller downward and causes it to fold down and retain the overlap until the latter is caught by the next advancing charge, whereupon the traverser moves off the arm V, and thereby again frees the roller, so that it may rise as the charge passes beneath it. It will thus be seen that the folding down of the overlap is accomplished automatically and positively, and each overlap is held by the roller until the next charge catches it.

Instead of the arm V any other device moved by the traverser and operating upon the rods T and roller R will accomplish the result.

I claim as my invention—

1. In a baling-press, the combination, with the press-box, plunger, and the rod or staff for operating the plunger, of the power-gears located between the press-box and end of the staff, the crank connected to one of said gears, and the connecting-rod uniting said crank and the end of the plunger-operating staff, whereby said connecting-rod is put under tension during the pressing operation, substantially as described.

2. In a baling-press, the combination, with the press-box, plunger, and the rod or staff for operating the plunger held in bearings against lateral movement, but free to move longitudinally, of the power-gears located between the press-box and end of the staff, with means for rotating the gears, the crank connected to one of the gears, and the connecting-rod uniting said crank and the end of the plunger-operating staff, substantially as described.

3. In a power mechanism for baling-presses, the combination, with the horizontal guide and the plunger-operating staff projecting entirely through said guide, of the power-gears supported in bearings rigidly connected with the guide, means for rotating said gears, the crank on one of the gears, and the connecting-rod uniting said crank and the end of the staff on the side of the gears opposite from the plunger, substantially as described.

4. In a power mechanism for baling-presses, &c., the combination, with the power-gears, of the upper and lower cranks connected to the driven gear, the upper and lower connecting-rods, and the cross-head to which the connecting-rods are jointed mounted on the end of the plunger-operating staff, substantially as described.

5. In a power mechanism for baling-presses, &c., the combination, with the frame provided with the vertical tubular sockets on opposite sides, of the gears having their bearing in said vertical sockets, with means for rotating said gears, the crank connected to the driven gear, the connecting-rod, and the part pulled thereby, substantially as described.

6. In a power mechanism for baling-presses, &c., the combination, with the frame provided with the vertical tubular sockets, of the power-gears having their bearings in said sockets, with means for rotating said gears, the two cranks moving with the driven-gear, and the two connecting-rods of the traverser-staff, substantially as described.

7. In a power mechanism for baling-presses, &c., the combination, with the frame having the horizontal tubular portion and the two vertical tubular sockets, of the power-gears journaled in said tubular sockets, with means for rotating said gears, the cranks, the connecting-rods, the cross-head, and the traverser-staff, substantially as described.

8. In a power mechanism for baling-presses, &c., the combination, with the power-gear having the upwardly-extending or elongated hub formed integral therewith and provided with the projecting lugs, of the sweep-head journaled loosely upon said hub, the arms on said head engaging the lugs and the sweep bolted directly to the head, substantially as described.

9. The combination, with the frame having the horizontal tubular portion and the vertical sockets, of the power and driven gears, the loose sweep-head, with co-operating engaging portions on the head and gear, the cranks on the driven-gear, the connecting-rods operating under tension, as described, the cross-head, and the traverser-staff, substantially as described.

10. In a power mechanism for baling-presses, the combination, with the power-frame having the vertical bearing therein and the traverser-operating staff, of the power-gear having the downwardly-projecting stud journaled in the said vertical bearing, and also having the upwardly-projecting stud or hub and the sweep-head loosely journaled thereon, co-operating projections on said head and gear, and connections between the gear and staff, substantially as described.

11. In a baling-press, the combination, with the press-chamber and traverser, of the movable folding roller journaled in slot-bearings in the press-chamber, the lever projecting into the path of the traverser when retracted, and connections between said lever and roller, whereby the latter will be moved down bodily and positively in its bearings by the return of the traverser, substantially as described.

PETER K. DEDERICK.

Witnesses:
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F. X. CLEMENT.