(No Model.)

P. K. DEDERICK.

BALING PRESS.

No. 270,760. Patented Jan. 16, 1883.

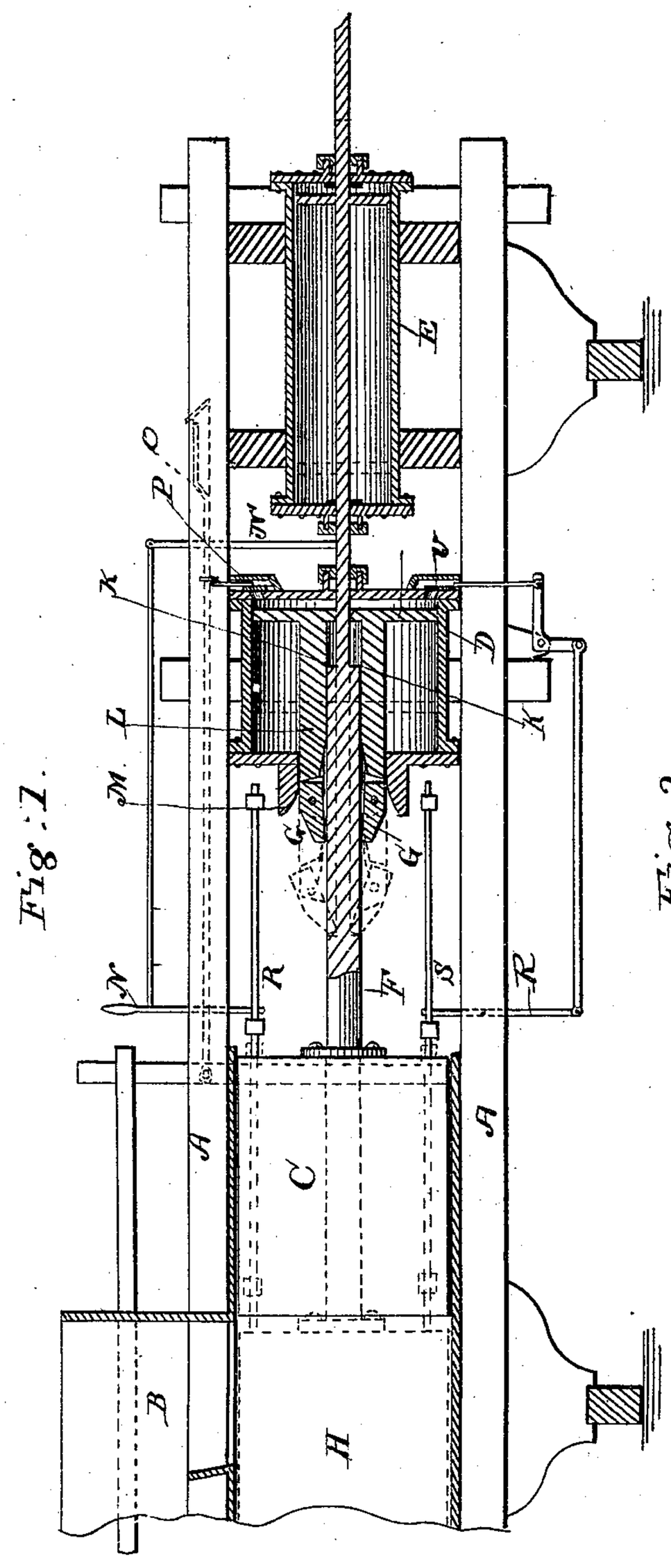

Fig. 1.

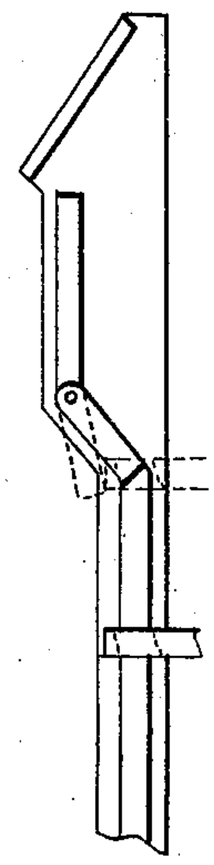

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

PETER K. DEDERICK, OF ALBANY, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 270,760, dated January 16, 1883.

Application filed December 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, P. K. DEDERICK, of the city and county of Albany, 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, Nos. 132,566 and 132,639, and the various modifications of the same for which Letters Patent have since been granted me; and it consists in the adaptation and manner of application of steam or hydraulic cylinders and pistons to the pressing of the sections, so as to economize the steam by the use of a long-stroke small cylinder to move the traverser until the more compact pressing is required, and then finish the pressing operation by applying the power of one or more large-size short-stroke cylinders, the whole arranged so as to work automatically or otherwise.

It should be observed that in this class of presses but little power is required to condense the section for three-fourths of the stroke of the traverser, and the remaining one-fourth of the stroke would require greatly-increased power, so that the use of one or more cylinders of the same diameter for the entire stroke on each section would occasion a loss of full three-fourths of the steam or power, and the same amount be saved by the use of my improvements, whether applied directly or indirectly by means of gearing or other suitable machinery.

Following I shall illustrate and describe a method of carrying my invention into effect, although these devices may be varied by the substitution of any well-known devices used in steam and hydraulic machinery.

Figure 1 represents a side sectional elevation of a baling-press with the large and small cylinders attached, and Figs. 2 and 3 represent detail views of the connections which operate the live-steam valve of the large cylinder.

Similar letters represent similar parts.

A A are the posts of the frame; B, the condensing-hopper; C, the traverser; D, the large cylinder; E, the small cylinder. G are pawls; F, the piston-rod. The end of the piston-rod F next the traverser is preferably larger than the portion extending through the second cylinder, E, and it thus forms a shoulder, K, which engages with pawls G as the traverser and piston move forward. The piston-head sleeve L is not secured to the piston-rod F, but the rod moves through it, so that the pistod-head of the cylinder E may continue the reverse stroke when the head attached to sleeve L reaches the limit of its stroke. The pawls G are pivoted to the piston-head sleeve L, as shown, and are made to act as pawls to engage with the shoulder K by their own gravity or by means of springs, and are detached or raised on the reverse movement by the inclined or wedge surfaces M, with which they come in contact as the piston-head nears the limit of its stroke backward, as shown. The shipping connections may be automatic, if preferred; but in this instance I have shown a simple hand-lever, N, for starting the machine, the movement of which, through its connections, admits the steam to the cylinder E and starts the piston F and traverser C toward the baling-chamber H. At the point where the shoulder K passes the pawls G a connection from the traverser (shown by the dotted lines O) admits the steam into the cylinder D at the point P, when the large piston at once applies its power at the time when the traverser C reaches the limit of its stroke. Trips R and S, with connections shown, reverse the operation by opening the port of cylinder D at U and reversing the piston of the cylinder E.

I deem it best to apply power to but one side of the piston of cylinder D and to both sides of the piston of cylinder E; but steam or hydraulic power may be applied to one or both sides of the pistons of one or both cylinders, or to but one side of either, so that each shall execute its respective movements to accomplish the purpose set forth.

It will be understood that the cylinder E is adapted to be supplied with steam through ports at its opposite end from a steam-chest located back of it, the valve in which steam-chest is controlled by the arm N′, so as to properly open the ports and cause a forward and backward movement of the piston F, as required.

In operation the material is brought in front of the traverser C at H, and steam admitted to cylinder E, which carries the piston F and

traverser C forward, condensing the section with the use of but little steam; but when the pawls G engage with shoulders K the section has by this time become so compact that much more power is required, and steam is now admitted into the cylinder D, which furnishes the power required to complete the section for the last fourth of the stroke of the traverser. But for the combined use of the two cylinders the large cylinder would require to have four times the stroke, and would entail a ruinous loss of steam.

I claim as my invention—

In a baling-press in which the bales are built up of separate and successive compressed sections by the operation of a reciprocating traverser, the combination, with the traverser, of the piston-rod, the piston-head of small diameter fixed to said rod, and the cylinder in which said smaller piston works, by means of which a portion of the forward stroke and the full back stroke of the traverser are made, and the large cylinder and the piston therein, with the devices for connecting said large piston to the piston-rod during the latter part of the forward stroke, and disconnecting it therefrom before the completion of the back stroke, with the valves controlling the admission of steam to said two cylinders, the whole arranged and operated substantially as described.

P. K. DEDERICK.

Witnesses:
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