

P. W. RICHARDS.

MACHINES FOR MAKING PISTON-PACKING.

No. 188,952.

Patented March 27, 1877.

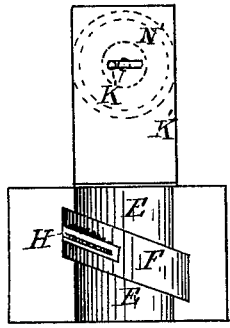
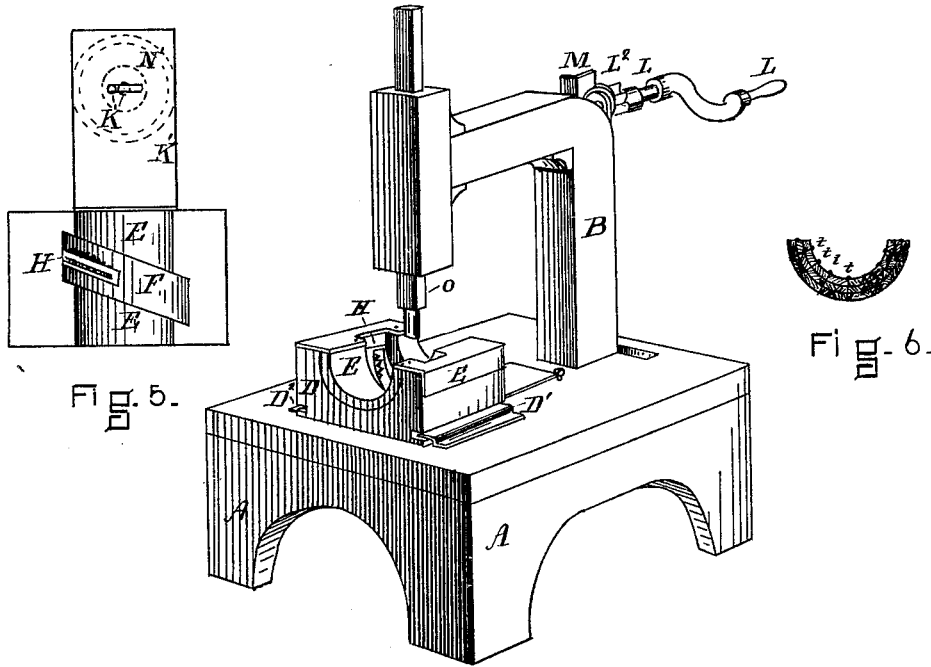


FIG. 5.



FIG. 6.

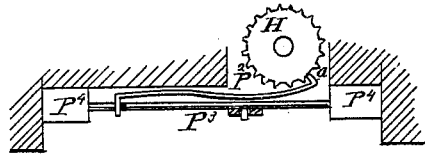


FIG. 4.

FIG. 1.

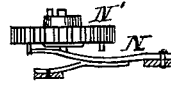


FIG. 3.

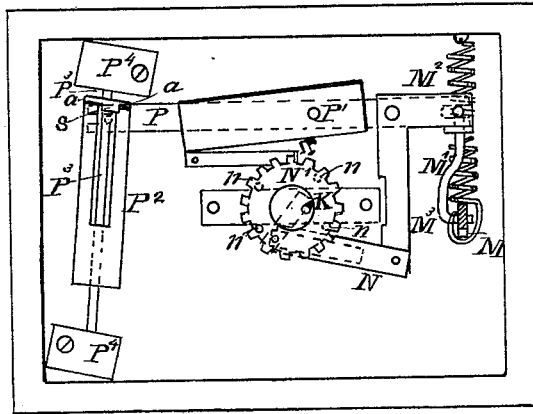


FIG. 2.

WITNESSES

Frank C. Parker  
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PHILLIP W. RICHARDS, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR MAKING PISTON-PACKING.

Specification forming part of Letters Patent No. 188,952, dated March 27, 1877; application filed February 19, 1877.

*To all whom it may concern:*

Be it known that I, PHILLIP W. RICHARDS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement on Machine for Making Piston-Packing for Engines, of which the following is a specification:

The nature of my invention consists in the peculiar construction of the machine, the device being a concave feed-block in which the packing is placed for the purpose of being filled with metallic points, screws, or nails, &c.

My invention also consists in the mode or process of manufacturing the packing, which is involved in the idea of uniting the different layers when curved.

Figure 1 is a perspective view of my invention. Fig. 2 is a plan of the operating part, the top of the table supposed to be removed. Fig. 3 is an elevation, showing the pawl for moving the lateral feed. Fig. 4 is an elevation, showing the pawl for the longitudinal feed. Fig. 5 is a plan of the feeding-block. Fig. 6 shows a piece of my improved packing, partly made.

The frame A A B of my machine is made in any desirable shape and size.

The packing which I propose to make with this machine consists of one or more strips of webbing, as shown in Fig. 6. This webbing is curved in the feed-box D E E, Figs. 1 and 5, and while curved receives the nails, screws, or pins *t t t*, Fig. 6. The feed-box D E E slides on the table A A, and is guided by the ways D<sup>1</sup> D<sup>2</sup>, Fig. 1. The part E E is provided with a spiral groove, F, and is made adjustable.

H, Figs. 1, 5, and 4, is a feed-wheel running in the spiral groove F, and serves to move the webbing longitudinally, so that as the nailing progresses the stock is fed along and winds itself up as a spiral, in which condition it may be cut up into rings for use.

The feed-box D E E gives another motion—that is, one at right angles or diagonally to the length of the stock, so that the nails may be driven in cross-rows, the rows being at any desired angle with the length of the packing. This motion is produced by the action of the wheel N' working through the crank-pin K

and slot in the plate K'. (See Figs. 5 and 2.) The wheel N' is driven with an intermittent motion, by means of a pawl, N, Figs. 2 and 3, said pawl N acting upon pins *n n n n*, Fig. 2. This pawl is operated by the bent lever *m<sup>3</sup> m<sup>2</sup>*, link M<sup>1</sup>, and cam-lever M. (See Fig. 2.) The lever M is operated by the cam L<sup>2</sup> on the shaft L. (See Fig. 1.)

As the wheel N' revolves, the crank-pin K, working in the slot in the plate K' causes it and the feed-box D, to which it is attached, to move with an intermittent motion a number of steps in one direction, and then reverse. The feed-wheel N is checked by a pawl, T, Fig. 2.

The stock to be operated upon is fed along in the spiral groove F, by means of the feed-wheel H, which is operated by the pawl P<sup>2</sup>, Figs. 2 and 4. The pawl P<sup>2</sup> has two hooks, *a a*, Fig. 2, which act on the feed-wheel H, Fig. 4, and has a guard, *s*, Fig. 2, in its center, so that as the feed-wheel H, moving laterally with the feed-box D E E, is in such a position as to be hit by the part *s* of the pawl P<sup>2</sup> then the feed-wheel H will not be moved.

This arrangement is necessary, as I do not want to feed the stock longitudinally while the nails in the center part are being driven. It is only after the extreme side nail has been driven that I wish the stock to be moved longitudinally; hence the feed-wheel H only acts when the lateral feeding of the box D E has reached one or the other of its extremes of motion. Thus the feeding is lateral until the whole width of the stock is nailed, then one step longitudinally, and so on.

If desirable to feed longitudinally only, it is necessary to disconnect the pawl, N, and the lateral feeding will cease.

The pawl P<sup>2</sup> is operated by the lever P and link M<sup>1</sup>, (see Fig. 2,) the link M<sup>1</sup> being operated as above described.

Having now described the construction and operation of my invention, what I desire to secure by Letters Patent, is as follows:

1. The combination of the curved reciprocating feed-box D E E with the nailing mechanism O, operating substantially as described, and for the purpose set forth.
2. The combination of the curved reciprocating feed-box D E E with the feeding de-

vices K' K N' N M<sup>3</sup> M<sup>2</sup> M<sup>1</sup> M L<sup>2</sup> L, all arranged substantially as described, and for the purpose set forth.

3. The combination of the reciprocating feed-box D E E with the feed-wheel H, operating substantially as described, and for the purpose set forth.

4. The combination of the sliding pawl P<sup>2</sup>

a a s with the feed-wheel H, operating substantially as described, and for the purpose set forth.

PHILLIP W. RICHARDS.

Witnesses:

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