Sheet 1 2 Sheets.

C. E. Moore & M. L. Wyman.

Collar Mach.

No. 107399 Patented Sept. 13. 1870

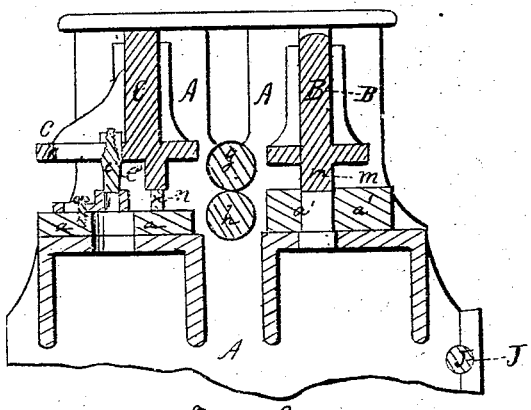

Figure 2.

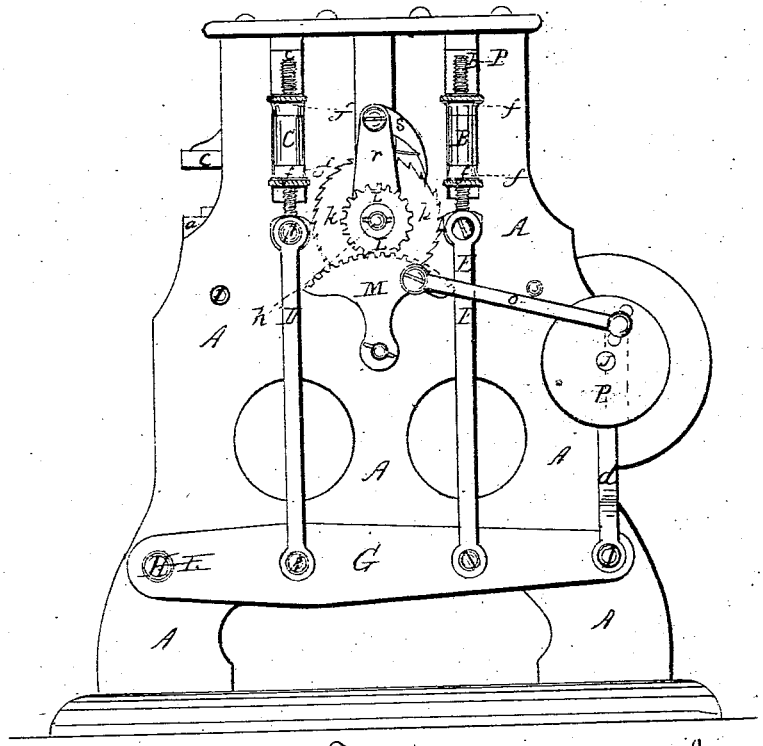

Figure 1.

Witnesses.

J. L. Haynadier

Chas. F. Sleeper.

Inventors.

Charles E. Moore

Martin L. Wyman

Sheet 2. 2 Sheets.

C. E. Moore & M. L. Wyman.

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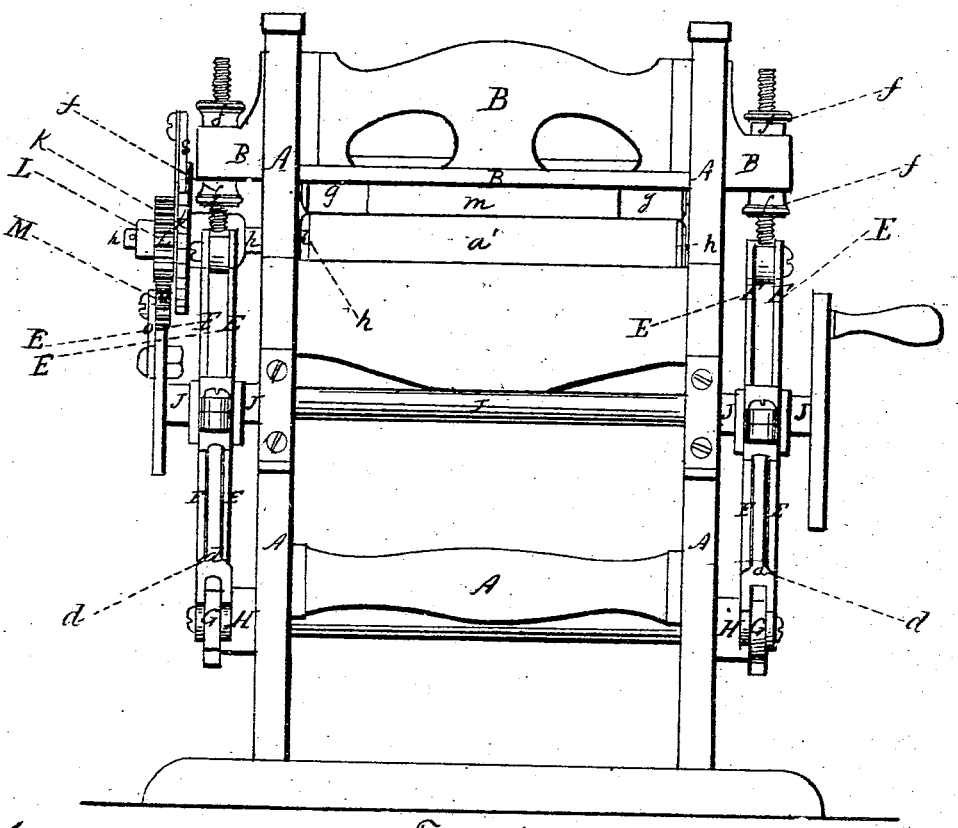

Figure 3.

Witnesses.

L. Maynadier

Chas. F. Sleeper.

Inventors.

Charles E. Moore

Martin L. Wyman

United States Patent Office.

CHARLES E. MOORE, OF BOSTON, AND MARTIN L. WYMAN, OF MELROSE, MASSACHUSETTS.

Letters Patent No. 107,399, *dated September* 13, 1870.

IMPROVEMENT IN MACHINES FOR MAKING PAPER COLLARS.

The Schedule referred to in these Letters Patent and making part of the same.

We, CHARLES E. MOORE, of Boston, in the county of Suffolk and State of Massachusetts, and MARTIN L. WYMAN, of Melrose, in the county of Middlesex and State aforesaid, have invented certain Improvements in Machines for Making Paper Collars, of which the following is a specification.

The first part of our invention relates to the arrangement of the feed-rolls, so that the paper must pass the embossers before it enters between the feed-rolls, the object being to draw the paper from the embossers, instead of pushing it through from the front.

The other parts of our invention relate to the arrangement of the cutters and embossers upon two separate heads, the arrangement of the feed-rolls between these heads, and the mechanism for actuating these heads, the objects being to make the machine more certain in its operation, less likely to become deranged, and generally better and more practical.

In the accompanying drawing—

Figure 1 is a side elevation;

Figure 2, a central vertical section from front to rear; and

Figure 3, a front elevation.

The other figures show details.

B and C are two cross-heads, each operated at the same time by the levers G G, which are pivoted at their fulcrums H H, to the frame A.

These levers are connected with the heads by means of the adjustable connecting-rods D E. The heads extend through ways in the frame A.

The rods are made adjustable by means of the thumb-screws *f f*, in order to regulate the rise and fall of the heads.

The levers G G are oscillated by means of eccentrics upon the shaft J, to which they are connected by the rods *d d*, and to this shaft the motive power is applied.

The feed-rollers *g h* are actuated by means of the wheel P, which is connected by the rod O to the segmental rack M, and thus oscillates the rack and its pinion L.

This pinion is connected with the ratchet-wheel K by the pawl S and the arm *r*, and this ratchet-wheel is attached directly to the roller *h*, so that, when the pinion L is revolved by the rack in one direction, no motion is imparted to the ratchet-wheel K, but, when in the other direction, its motion is imparted to this ratchet-wheel, and to the roller to which it is attached.

The button-hole cutters and the embossers are actuated by the head C, and the cutters, for cutting out the collar, by the head B.

These button-hole cutters are composed of a punch and die, as shown in figs. 4 and 5.

e e are the end button-hole cutters, capable of adjustment for the different sizes of collars. The matrix of the central button-hole cutter is shown in fig. 5, and both punch and matrix in fig. 2.

The paper is fed into the machine beneath the head C, and between the feed-rolls. The head C descends and embosses one collar and button-holes another, while the head B descends and cuts out the collar, which has been embossed and button-holed, so that each is acted upon three times; twice by the head C, first, to button-hole it, and second, to emboss it, and thirdly, by the head B, to cut it out, three separate collars being acted upon at each revolution of the machine. While the heads rise, the feed-rolls are revolved, and thus feed the paper the proper distance, to bring the collar which has just been embossed, into the proper position to be cut out.

The button-hole cutters may be arranged in relation to the embossers, so that the same collar may be both button-holed and embossed at the same time, or the button-holing may be done in the old way, on a separate machine; we prefer, however, the way shown.

So far as we know, the paper has, heretofore, always passed between the feed-rolls before it was acted upon by the embossers, or, indeed acted upon at all, except in those cases where the embossers were a part of the feed-rolls; consequently, it was always pushed toward, and never has heretofore been drawn away from the embossers by the feed-rolls, which latter arrangement is obviously highly preferable to the former.

When the cutters and embossers are upon the same head, the cutters are liable to be disarranged by the action of the embossers. To obviate this difficulty, we put them upon separate heads, and, by so doing, we are also enabled to arrange the feed-rolls between these two heads, and to apply to the heads a varying amount of power, as it is well known that less power is required to actuate the cutting-head than the embossing-head.

We do not claim all means of imparting a different degree of power to the heads, as the principle of this part of our invention consists in the use of a lever, which drives the heads, so that one head shall have less motion and more power than the other, by reason of the heads being connected at different points of the lever. The mechanism for connecting the levers and the heads is the best known to us, but it is obvious that other mechanisms for this purpose may be devised.

We do not claim the combination of a feeding-mechanism with an embosser and plunger, and punch and die, as this is old, and is described in the patent granted to D. M. Smyth, December 5, 1865; but the mechanism described in that patent was imperfect, for the

reason that a very accurate feed is required where the paper is first embossed, and then fed forward to be operated upon by the punch and die, to insure the proper relation between the stitching and the edge of the collar.

This part of our invention is an improvement upon the Smyth machine, and consists wholly in substituting for the reciprocating table and griping fingers of Smyth's machine, the feed-rolls, whereby we make a much more accurate and practical machine, the number of imperfect collars, *i. e.*, imperfect by reason of the stitching not being in the proper relation to the edge, being reduced more than three-quarters.

1. The arrangement, as above described, of the feed-rolls and the embossers, so that the paper shall be drawn away from the embossers by the feed-rolls.

2. The arrangement of the feed-rolls between two separate heads, the first of which actuates the embossers, and the second the cutters, as described.

3. The combination of the levers and the two separate heads, substantially as described.

CHARLES E. MOORE.
MARTIN L. WYMAN.

Witnesses:
J. E. MAYNADIER,
CHAS F. SLEEPER.