(No Model.) 2 Sheets—Sheet 1.

C. C. EMMONS.

MACHINE FOR FORMING PLAITS.

No. 528,468. Patented Oct. 30, 1894.

Fig. 6.

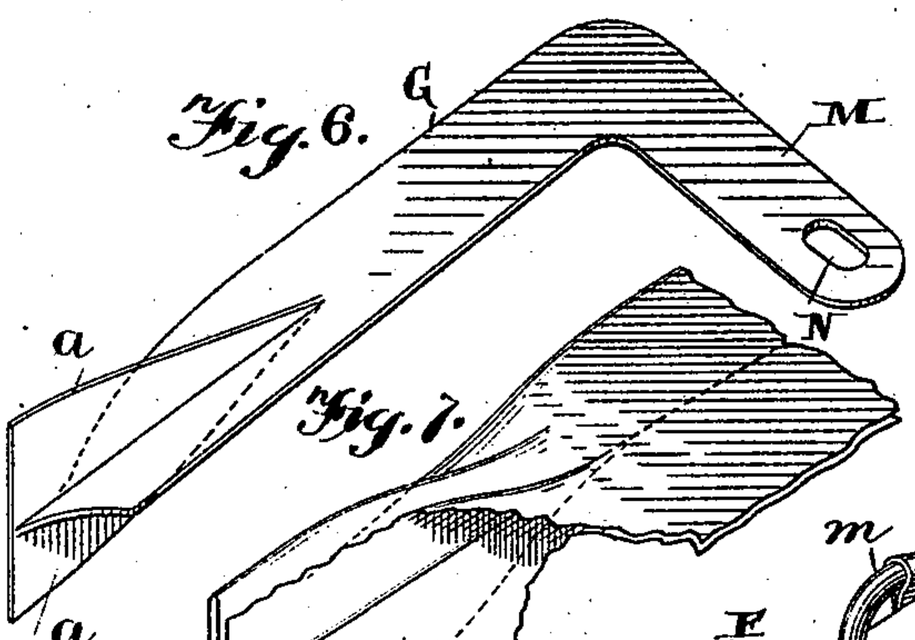

Fig. 7.

Fig. 8.

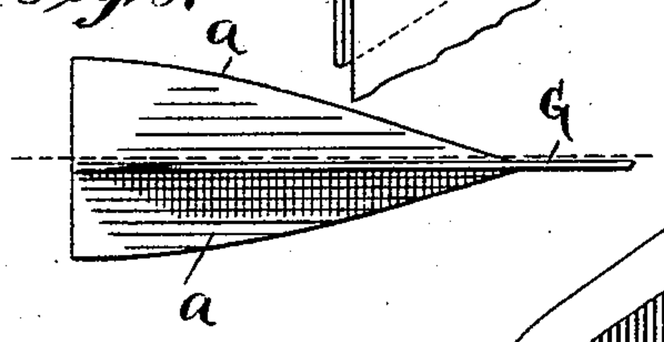

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

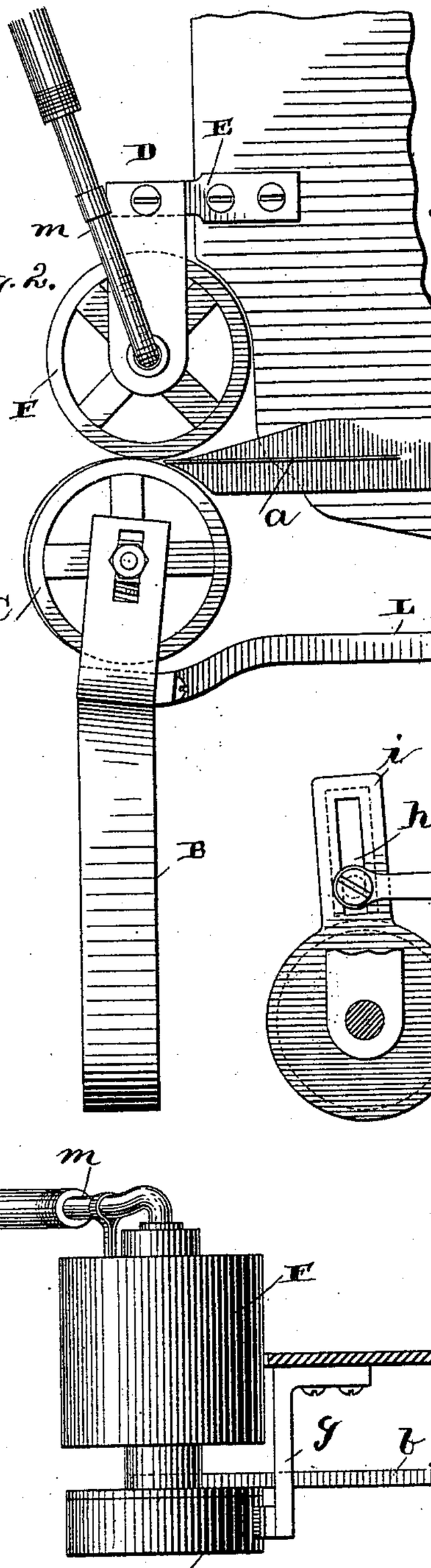

Fig. 5.

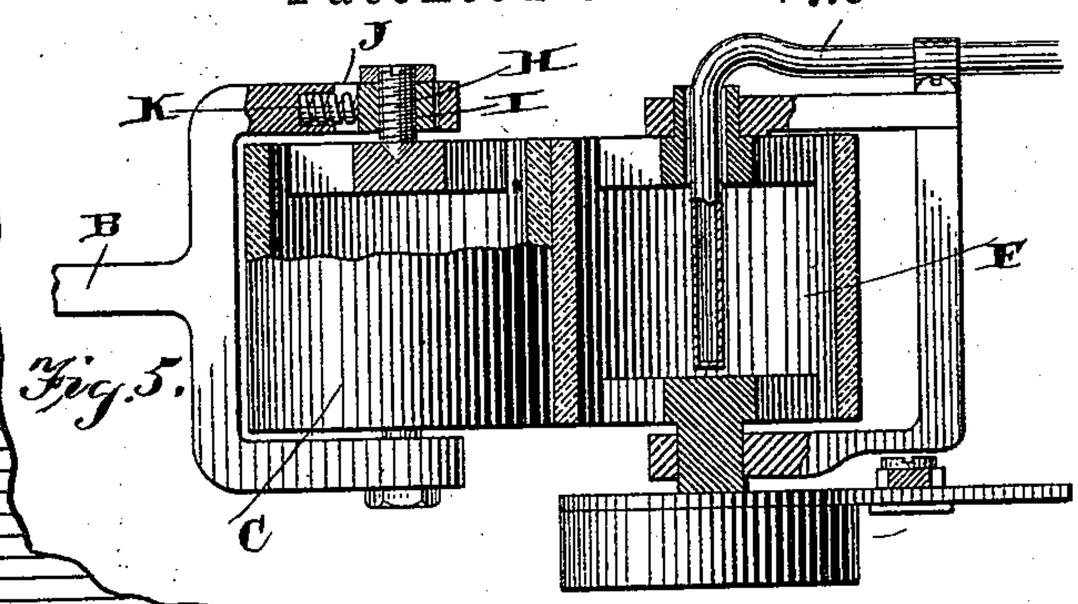

Fig. 3.

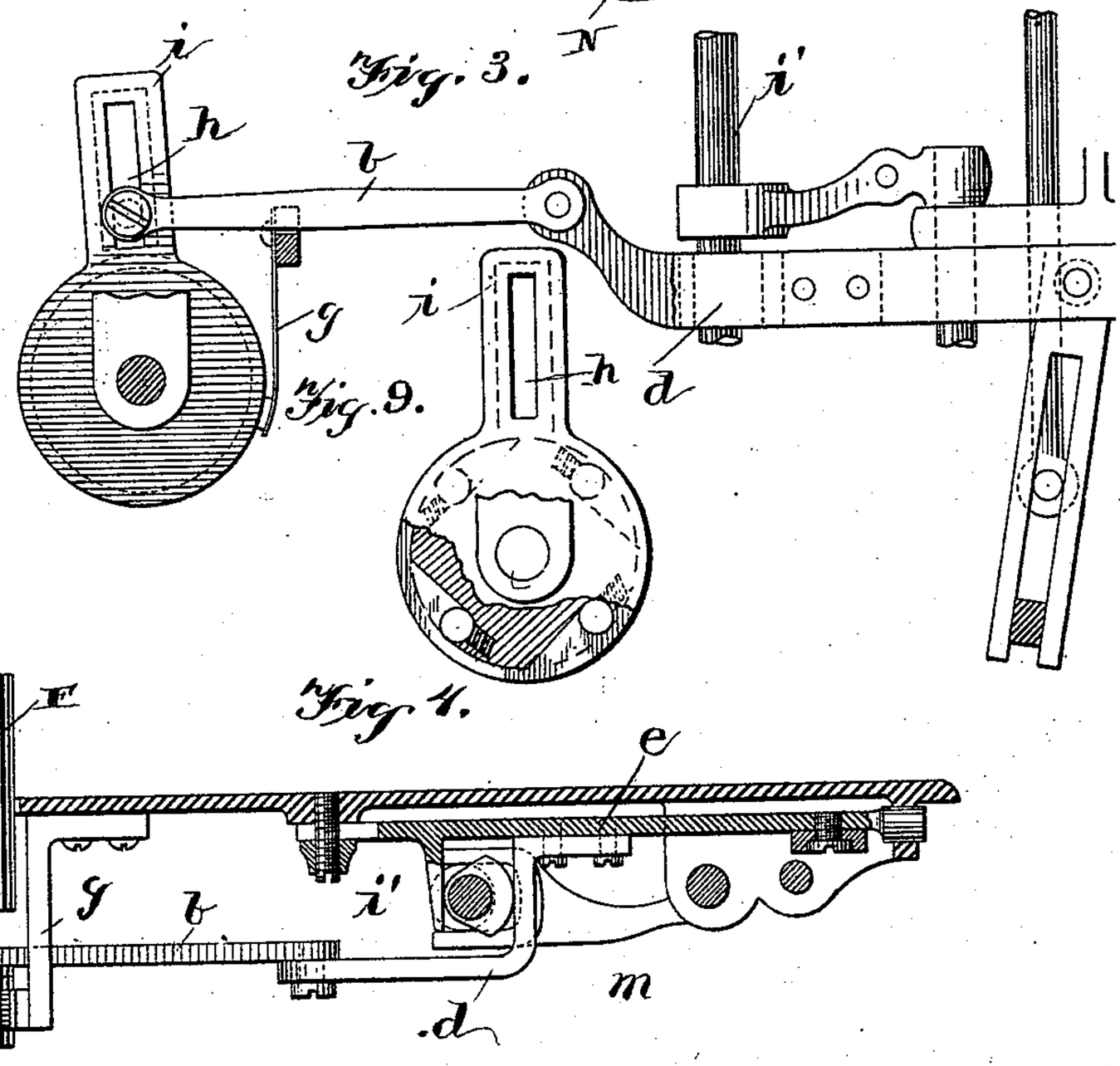

Fig. 9.

Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES C. EMMONS, OF PITTSBURG, PENNSYLVANIA.

MACHINE FOR FORMING PLAITS.

SPECIFICATION forming part of Letters Patent No. 528,468, dated October 30, 1894.

Application filed December 20, 1892. Serial No. 455,781. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. EMMONS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Forming Plaits; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in machines for forming plaits, and it consists in the combination and arrangement of parts which will be fully described hereinafter and particularly pointed out in the claims.

The object of my invention is to provide a machine which by a continuous and uninterrupted action, stitches the seam to form a tuck, expands it from the interior to the desired shape, and receives the goods immediately as it passes from the former or expander and presses it into the converted shape.

In the accompanying drawings:—Figure 1 is a perspective view of a machine which embodies my invention. Fig. 2 is a plan view of part of the same. Fig. 3 is a plan view showing the connection between the clutch for operating the ironing roll, and the feed mechanism of a sewing machine, the bed plate being omitted. Fig. 4 is a partial sectional view of Fig. 3, the bed plate being shown. Fig. 5 is a sectional view of the ironing rolls. Fig. 6 is a a detached perspective view of the former or shaper. Fig. 7 is a view of the goods being operated upon, showing the change which takes place in converting the tuck into a box plait. Fig. 8 is a side view of the outer end of the former, looking in the direction indicated by arrow in Fig. 6. Fig. 9, is a detached sectional view of the clutch.

A indicates the bed of the machine which incloses the feeding and shuttle mechanism, both of which may be of any desired construction, without in any manner affecting or modifying my invention, and to which no claim *per se* is made in this application. Extending upward from the base of the bed A is a standard B, which has its upper end extending inward in a horizontal line, and journaled in the upper horizontal end of said standard is a vertical ironing roll C. Extending outward from the rear side of the bed A is a short arm E to which are attached two arms D, and between these two arms D a second ironing roll F is journaled, and coacts with the ironing roll C, for the purpose of drawing the goods over the former or shaper G, and of pressing the goods into the converted shape, as will more fully appear presently.

By reference to Fig. 5 it will be seen that the roll C is journaled by means of conical screws H, which pass through blocks I, and that these blocks I are placed in elongated openings or slots J, made in the bifurcated upper end of the standard B. Springs K are placed in the slots J, and bear against the blocks I, so that the roll C is yieldingly held against the roll F by means thereof.

The former or shaper G, extends parallel or substantially parallel with the travel of the goods being stitched by the needle Q, and at the inner side of the said needle, its inner end extending outward from the bed of the machine as shown at M, and adjustably connected to the inner end of an arm L, by means of a screw passing through a slot N, into the said arm. The opposite end of this arm is connected with and supported by the standard B as clearly illustrated. In order to allow the goods to pass under the shaper and the shaper through the tuck being sewed, the shaper is supported above the bed of the machine a suitable distance. The outer end of the shaper is provided with vertically extending fins or blades *a*, at its upper and lower sides, and these fins or blades taper inward toward the needle, so that the tuck sewed is gradually forced into the shape as clearly illustrated in Fig. 7, and the goods separated beyond the seam, as also illustrated, to pass between the ironing or pressing rolls. The outer ends of the horizontal portion of the shaper adjacent the fins are tapered as shown, so that the tuck is allowed to be spread vertically by the fins as it passes to the rolls to be pressed. By reference to Fig. 7 it will be seen that the tuck is forced outward in opposite directions from the stitching, which forms it into a plait as clearly illustrated. It will be noticed that the tuck is not sewed until the adjacent faces of the goods have passed the portion M of the former

or shaper, so that the former is entirely inclosed within the tuck when it has been sewed.

The ironing rolls are revolved at the same speed that the feed of the machine feeds the goods, so that they receive the goods passing from the former and draw it at the same speed as it is stitched. This is accomplished by means of a connecting link *b*, which has its outer end pivoted in a slot *h*, of an arm *i*, which extends from any desired style of clutch *f*, which clutch surrounds the shaft of the ironing roll F, the opposite end of the link *b*, being connected with a reciprocating part *d* and *e*, engaged by a cam *m*, upon the driving shaft *i'* of the machine. In this way the link is reciprocated by the same cam which serves to reciprocate the feed, as will be clearly understood.

g, is a friction brake engaging the clutch casing to overcome the momentum when the same is moved.

For the purpose of heating the roll F, a gas jet *m*, projects thereinto through the journal thereof, and the goods after being shaped is ironed.

The particular kind of feeding mechanism used does not enter into any part of my invention, for all of them are provided with a reciprocating portion, and to this reciprocating portion a link *b*, will be connected, and therefore any description of the feed mechanism is unnecessary, and not essential to the understanding of my invention.

In order to allow the two edges of the goods to separate as the tuck passes over the former, and to pass between the rolls in the position shown in Fig. 7, the end of the bed of the machine is cut away as clearly shown so that it will not interfere therewith.

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

1. A machine for forming plaits comprising a stitching mechanism, a former extending in a line parallel with the line of feed of the stitching mechanism, its receiving end being in front of the stitching point and its exit end in rear of said point and formed into a shaper, and presser rolls at the exit end of the shaper.

2. The combination with a stitching and pressing mechanism of a former for converting tucks into plaits, consisting of a horizontal plate having vertical fins at its rear end which taper inwardly from their outer ends, the said horizontal plate extending at opposite sides of the fins.

3. The combination with a stitching and pressing mechanism of a former for converting tucks into plaits, consisting of a horizontal bar having at its outer end vertical fins which taper inwardly from their outer ends, the said horizontal plate having its end tapered outwardly and extending at opposite sides of the fins.

4. The combination with a sewing machine and a pressing mechanism of a former for converting tucks into plaits, the former being supported above the bed of the machine to allow the passage of the goods beneath it, and having a longitudinal portion extending in a line parallel with the feed of the goods, and its outer end formed into a shaper.

In testimony whereof I affix my signature in presence of two witnesses.

CHAS. C. EMMONS.

Witnesses:
L. F. WYATT,
H. C. AVERY.