

Shepherd & George.

Collar Machine.

N^o 49927

Patented Sep. 12, 1865.

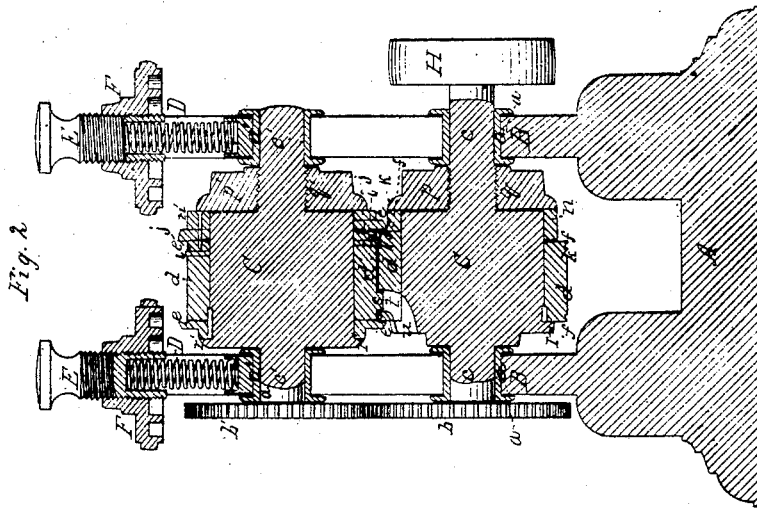


Fig. 2

Fig. 3

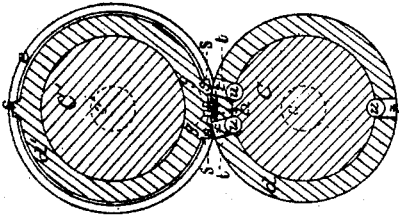


Fig. 1

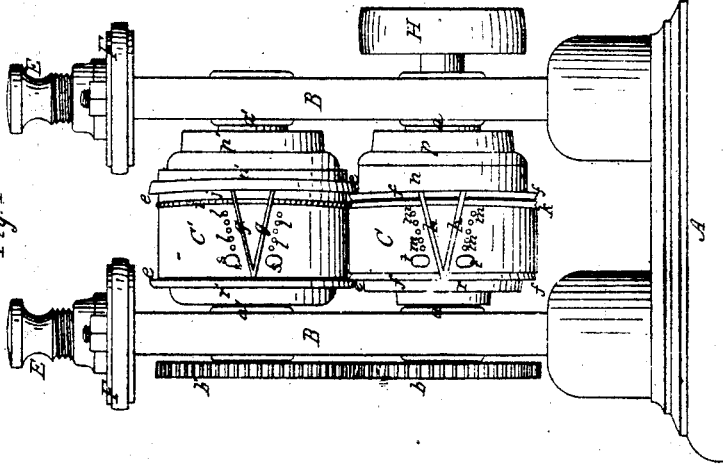


Fig. 4

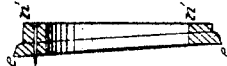
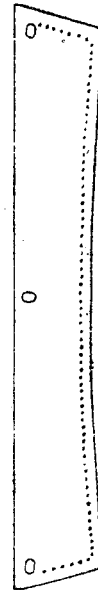


Fig. 5



Witnesses

J. W. Coombs
Attorney

Inventors

S. Shepherd

A. M. George

Per Brown Coombs & Co
Attorneys

UNITED STATES PATENT OFFICE.

SAML. SHEPHERD AND AMMI M. GEORGE, OF NASHUA, NEW HAMPSHIRE.

IMPROVEMENT IN PAPER-COLLAR MACHINES.

Specification forming part of Letters Patent No. 49,927, dated September 12, 1865.

To all whom it may concern:

Be it known that we, SAMUEL SHEPHERD and AMMI M. GEORGE, both of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Machinery for the Manufacture of Paper Collars, Wristbands, Cuffs, and other Articles of Similar Nature; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a machine constructed according to our invention. Fig. 2 is a central vertical section of the same in a plane parallel with Fig. 1. Fig. 3 is a transverse section of the cutting and embossing rolls. Fig. 4 is an axial section of one of the cutters, and of the ring by which it is held in place. Fig. 5 is a face view of a collar cut by the machine.

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

This invention consists in a machine for cutting out paper collars and other articles of a similar nature, cutting the button-holes therein and embossing the surface thereof in imitation of stitching at one operation, the principal elements of which are a pair of rollers with attached revolving cutters, punches, dies, and embossing-surfaces, the whole combined, arranged, and organized to operate as hereinafter described.

A is a bed-plate, having erected upon it two standards, B B, in which are received the boxes *a a a'* for the journals *c c c'* of the pair of rollers C C', which are arranged one above the other and geared together by a pair of spur-gears, *b b'*, in such a manner that when rotary motion is given to the lower roller, C, by a belt running upon a pulley, H, on one end of it, the two rollers rotate together at the same speed.

The boxes *a a* of the lower roller, C, rest upon fixed bearings, but the boxes *a' a'* of the upper roller, C', are fitted to slide vertically in the standards B B, under the control of pressure-springs D D, which act upon them to press down the latter roller upon the lower one, or upon a sheet or strip of paper placed between the two rollers.

The pressure of the springs D D is regulated by screws E E fitted to caps F F secured on the top of the standards B B.

The rollers may be made of steel, but are represented in Figs. 2 and 3 as made of iron, and fitted with steel bands *d d'*, which are keyed onto them to form hard smooth-working peripheral faces, the circumferences of which somewhat exceed the length of the collars or other articles to be cut.

At the opposite end of its band *d'* or working-face the upper roller, C', is fitted with rotary cutters *e e*, consisting of rings of steel having sharp edges, which overlap sharp edges *f f* formed at the ends of the working-face of the lower roller, the said cutters combining with the said edges *f f* to form two pairs of rotary shears to cut paper or other material passing between the two rollers to a proper width and longitudinal profile to form the collars or other articles. When the collars or other articles to be cut are intended to have their edges parallel the edges *f f* and the lapping edges of the cutters *e' e'* will be in planes perpendicular to the axis of the rollers; but when the said articles are to have their edges curved the said edges will be so formed that if projected on a plane they would present the requisite curvature.

The cutters represented are intended to produce a collar of the form represented in Fig. 5, having one straight and one curved edge, and hence the edge of the cutter *e* at the left-hand end (see Figs. 1 and 2) and the corresponding edge *f* are in planes perpendicular to the axis of the rollers to cut the straight edge of the collar, and the edge of the cutter *e* at the right-hand end of the corresponding cutting-edge *f* are curved to conform to the required curvature of the other edge of the collar.

To provide for the cutting of the collar or other article to the desired length and its ends to the proper shape, two cutters, *g g*, are inserted into grooves provided across the face of the upper roller, C', the said cutters being parallel with the axis of the roller, or oblique thereto, as shown in Fig. 1, according as the ends of the collar or other article are to be at right angles with or oblique to the longitudinal edges. These cutters operate with a shears-like action, in combination with the sharp edges of two

grooves, *h h*, correspondently arranged in and across the working-faces of the lower roller *C*.

To produce the imitation of stitching on the collar or other article male embossing-dies are provided upon the upper roller, *C'*, and female embossing-dies in the lower roller, *C*. These male dies may consist of rings or strips having toothed edges, or of pins inserted into the one roller, and the female dies of grooves or holes in the other roller.

In the example of our invention represented the male die for producing the appearance of stitching lengthwise of the collar or other article consists of a toothed ring, *i*, having a lateral curvature corresponding with that of the rotary cutter *e*, and is fitted between the end face of the band *d* and a packing-ring, *j*, having a corresponding lateral curvature, and the female die consists simply of a groove, *k*, having a corresponding lateral curvature cut around the periphery of the band *d* of the lower roller.

The male dies for producing the imitation of stitching along the ends of the collar consist of pins *l l* inserted and secured in the band *d'* of the upper roller parallel with the cutters *g g*, and the corresponding female dies consist of holes *m m* in the band *d* of the lower roller.

The bands *d d* of the two rollers, and the cutters *e e* and die *j* on the upper roller, are held in place by packing-rings *p p'* screwed onto screw-threads *q q'* on the right-hand journals of their respective rollers, the said nuts holding the bands *d d'* against shoulders *r r'* on their respective rollers, and the packing-rings *n n'*, having their inner sides curved laterally to conform to the curvature of the right-hand cutters *e* and *f*, and their outer faces flat and perpendicular to the axis of the rollers.

The punches *s s* for cutting the button-holes are secured in or formed upon the band *d* of the upper roller, and the corresponding dies *t t*, in conjunction with which the said punches operate, consist of holes in the band *d* of the lower roller, with lateral openings *u* through the rollers, as shown in Figs. 2 and 3, for the clearance and escape of the burrs cut out in cut-

ting the button-holes. These punches and dies are to be on and in the rollers themselves when the rollers are made of steel without the bands *d d'*.

The operation of the machine is as follows: The paper or other material from which the collars or other articles are to be made is first cut from a roll of any length into strips of a width somewhat greater than that required for the said articles, and on the roller being set in motion and the end of a strip being presented between them the strip is drawn between the rollers by their rotary motion and cut up into pieces of such length, width, and form as to produce the collars or articles desired, the proper width and longitudinal profile being produced by the cutters *e e*, and the proper length and form of the ends being produced by the cutting-edges of *g g* and *h h*. At the same time the embossing, to represent stitches, is produced by the dies *i k l m*, and the button-holes are cut by the punches *s s* and dies *t t*.

By making the rollers of sufficient length in an axial direction and furnishing them with a suitable number of cutters, embossing-dies, and button-hole-cutting punches and dies, a roll of proper or suitable width may be so cut up as to produce two or more collars or other articles at once, the said articles being cut side by side, two or more from the width of the paper.

What we claim as our invention, and desire to secure by Letters Patent, is—

A machine for cutting out, punching the button-holes in, and embossing an imitation of stitching on paper collars, composed of a pair of rollers, *C C'*, furnished with steel bands *d d'*, cutting-rings *e e'*, embossing rings *i i'*, packing-rings *j n n'*, punches *s s*, and dies *t t*, the whole constructed and operating substantially as herein specified.

SAMUEL SHEPHERD.
A. M. GEORGE.

Witnesses:

W. W. BAILEY
GEO. F. ANDREWS.