

(No Model.)

2 Sheets—Sheet 1.

J. G. CRAWFORD.

Machine for Folding and Shaping Collars and Cuffs.  
No. 238,656. Patented March 8, 1881.

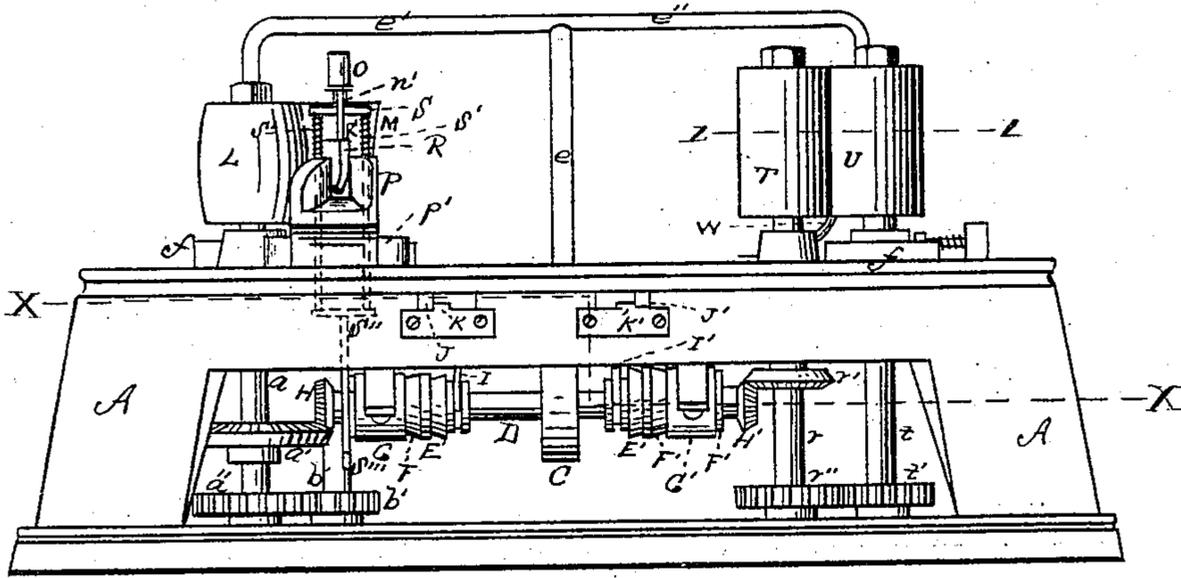


Fig. 1.

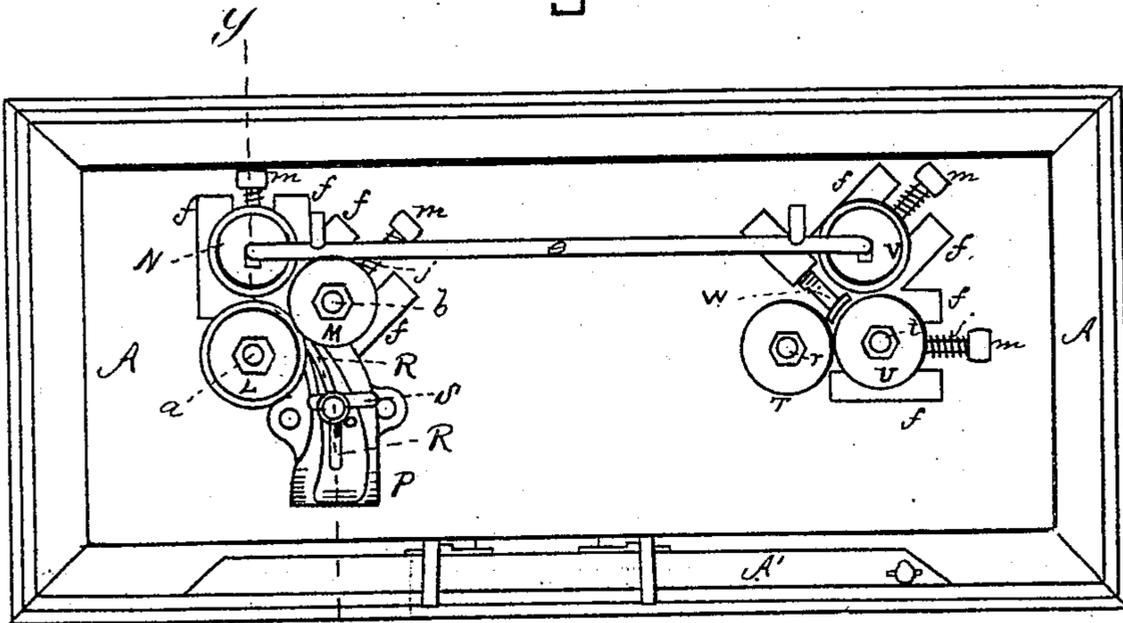


Fig. 2.

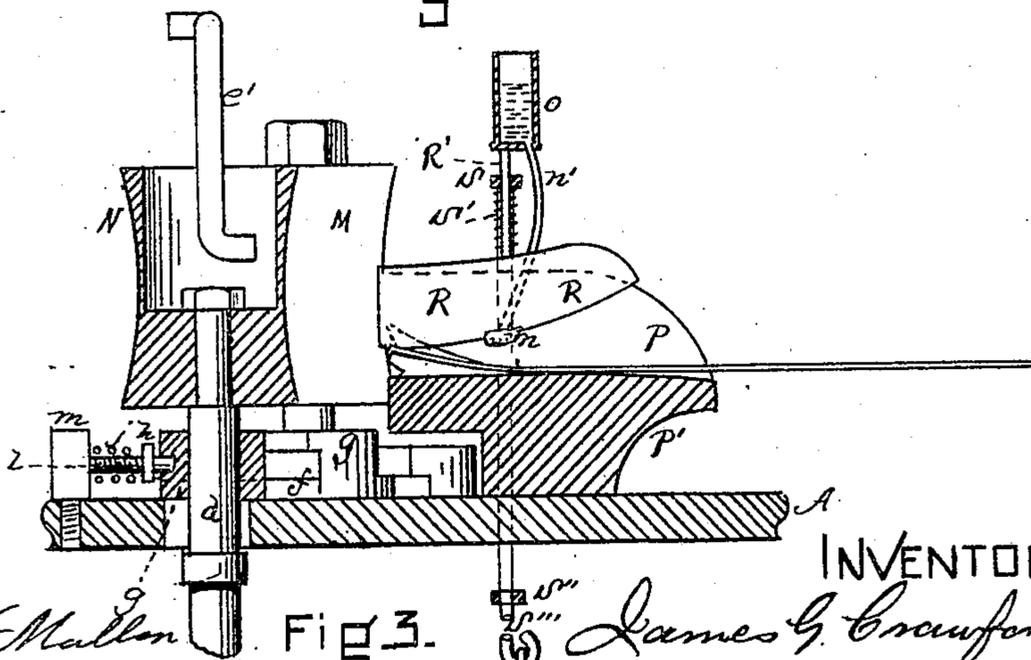


Fig. 3.

WITNESSES

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(No Model.)

2 Sheets—Sheet 2.

J. G. CRAWFORD.

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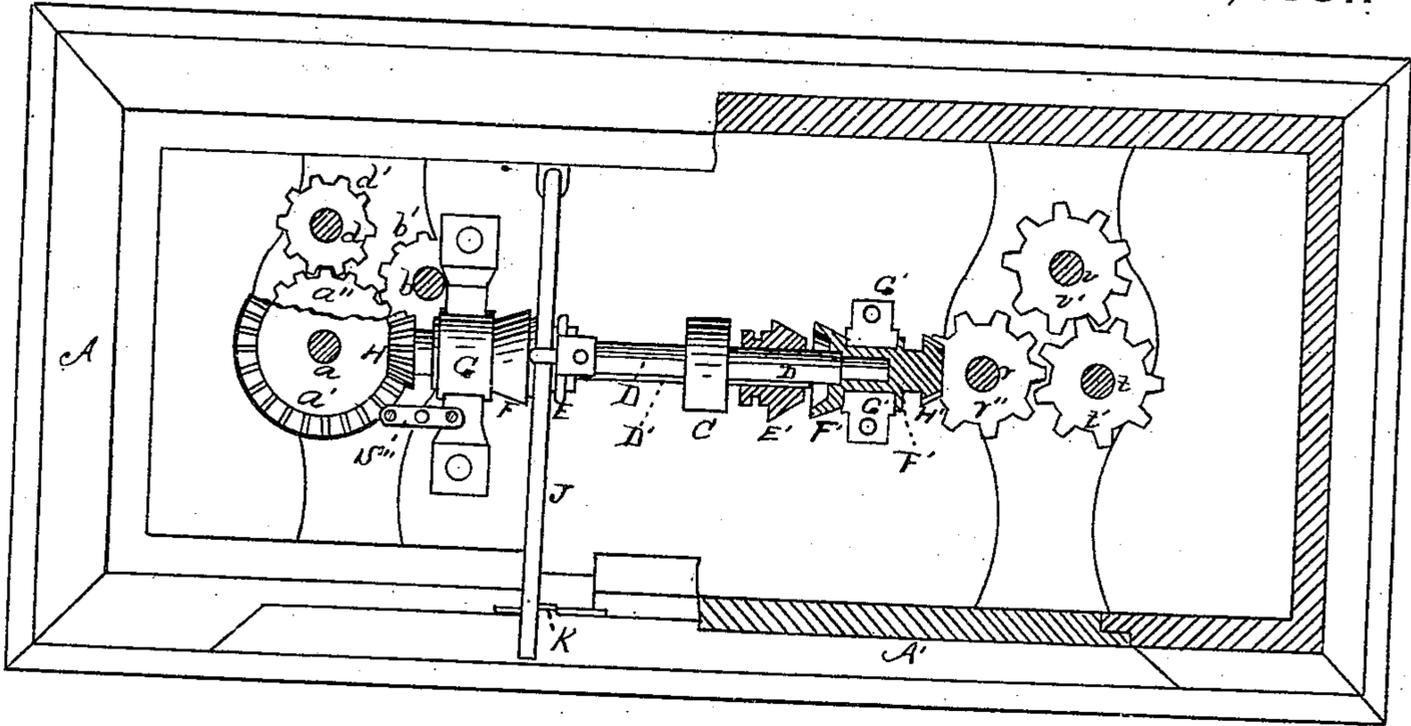


Fig. 4.

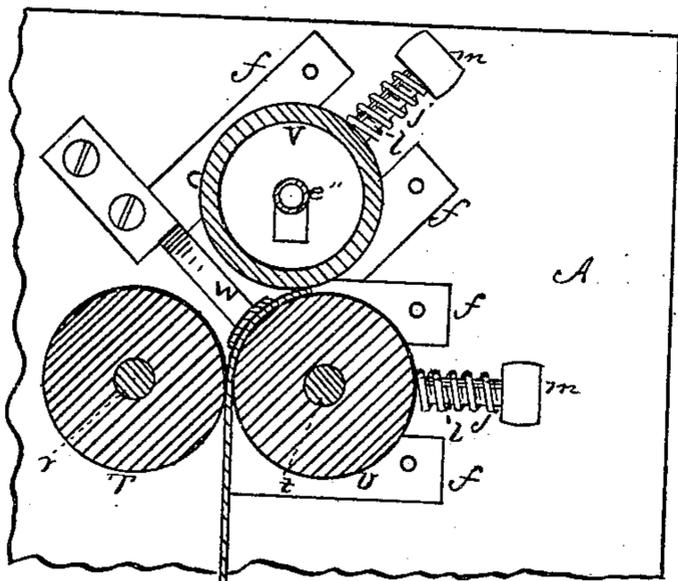


Fig. 5.

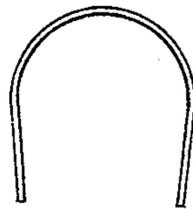


Fig. 6.

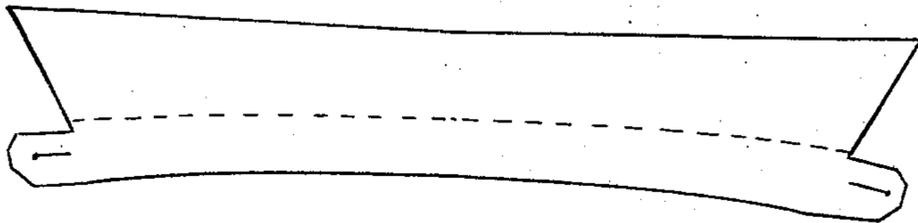


Fig. 7.

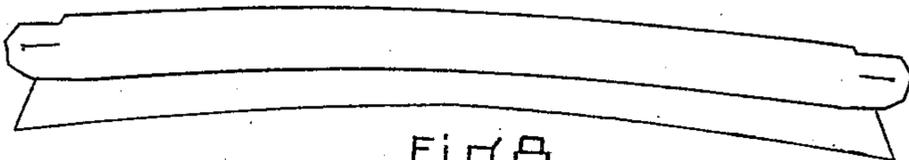


Fig. 8.

WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES G. CRAWFORD, OF BOSTON, MASSACHUSETTS.

## MACHINE FOR FOLDING AND SHAPING COLLARS AND CUFFS.

SPECIFICATION forming part of Letters Patent No. 238,656, dated March 8, 1881.

Application filed December 27, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. CRAWFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Machine for Turning and Shaping Linen Collars and Shaping Linen Cuffs, of which the following is a specification.

This machine is for turning folding (or turn-over) collars and shaping them—*i. e.*, rolling them into a curved shape for the use of the trade—and for shaping stand-up collars and cuffs. All the collars and cuffs which are passed through the machine are of linen, or partly of linen, and have been laundered. A peculiarity of the machine is, that collars are folded so that the crease or fold is on a curve or bias, thus fitting them to the neck.

In the accompanying drawings, in which similar letters indicate like parts, Figure 1 is an elevation of the machine with the door in front removed. Fig. 2 is a plan of the same with the door in position. Fig. 3 is a vertical section, enlarged, on the line *yy*, Fig. 2. Fig. 4 is a horizontal section on line *xx*, Fig. 1. Fig. 5 is a horizontal section on line *zz*, Fig. 1. Fig. 6 is a plan of a cuff after having been shaped. Fig. 7 shows a collar with a broken line, showing the curved creasing-place. Fig. 8 shows the collar turned over on a curve.

A is the frame for the machine, usually provided with a door, A', said frame being adapted to be supported upon a table, and completely inclosing the motive portion of the machine, so as to protect the clothing of the operators.

C is the driving-pulley, through which motion is communicated to the shaft D, to which it is fixed.

Sliding on the shaft D, which is provided with the spline D', is the clutch E, adapted to engage the cylinder F, rotating in the bearing G, and provided with the bevel-gear H. The clutch is moved by the swinging lever I, swung from the top of the frame A, and operated by the horizontal lever J, pivoted to the back of the frame, and extending forward through it and dropped on either side of the tooth K, as the clutch is to be engaged in the cylinder or not. The clutch E', cylinder F', bearing G', bevel-gear H', levers I' and J', and tooth K' are exact duplicates of those above described, and are placed the other side of the pulley C

on the shaft D. In Fig. 1 both the clutches E and E' are engaging their cylinders. In Fig. 4 the clutch E is engaging and the clutch E' not.

The bevel-gear H engages the bevel-gear *a'* on the vertical shaft *a*, which, passing up through the frame, rotates the solid convex roll L. The gear-wheel *a''*, fixed to the shaft *a*, engages the two gear-wheels *b'* and *d'*. (See broken-out portion in Fig. 4.) The wheel *b'* is fixed to the shaft *b*, which carries the solid concave roll M, and the wheel *d'* is fixed to the shaft *d*, which carries the hollow concave roll N, heated by means of gas-pipes *e e'*. The gear-wheels *b' d'* are smaller than the wheel *a''*; hence the rolls M N rotate faster than the roll L. These rolls are for shaping turned-over collars, and the rolls L M, which are the feed-rolls, are usually covered with felt, while the hollow roll N is bare and polished. The bearing of each of the rolls M N is rendered adjustable by passing through a block, *g*, which is pressed and the pressure adjusted by means of the spring *j*, nut *h*, and screw *l*, extending from the block *m*, (see Fig. 3,) secured to the frame. These render the rolls adjustable for thick and thin collars. The blocks *g* slide between cleats *ff*, forming tracks. The openings in the frame A for the passage of the shafts *b* and *d* are made large enough to allow them to be adjusted as above described.

P is a trough or chute, curved in the shape shown, and supported by the block P'. In this trough lies a curved creaser or knife, R. This is supported by a rod, R', extending from a cross-bar, S, which is held up by the rods S', extending down through the frame (see broken lines, Fig. 1) to a cross-bar, S'', beneath which it connects by means of a rod, S''', with a treadle of any kind located beneath the table upon which the machine sets. Springs upon the rods S' hold the creaser up from the trough. *o* is a tank containing glycerine and water, which is conducted through pipe *n'* to a bunch of wicking, *n*, on the under side of the knife or creaser. This absorbs the compound and moistens the crease of the collar as it is fed in. The collar shown in Fig. 7 is fed in under the creaser R, having been first pinched a little to start the fold, its inside next the convex roll L. By drawing down the rods S' by means

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of a treadle, the creaser presses the collar at the point to be bent, and, the clutch E engaging, the collar is fed between the convex roll L and the concave roll M, and thence between  
 5 the convex roll L and the concave hollow heated roll N, whence it comes out folded on a curve, as shown in Fig. 8, and rolled into shape for the neck. The more rapid rotation and the concave shape of the rolls M N take up the  
 10 "slack" in the collar, so that there is no wrinkling or doubling; but the collar, although formed on a curve, comes out perfectly smooth.

The bevel-gear H', on the other side of the machine, engages the bevel-gear r' on the  
 15 vertical shaft r, which, passing up through the frame, rotates the solid roll T. The gear-wheel r'' engages the gear-wheel t' on shaft t, which rotates the solid roll U, and the gear-wheel t' engages the gear-wheel v' on shaft v,  
 20 which rotates the hollow roll V, heated by means of the gas-pipes e e'. The gear-wheels r'', t', and v' are of the same size, and the three rolls rotate with the same velocity.

W is a guide consisting of a curved plate  
 25 set near the roll U (see Figs. 2 and 5) and supported by the frame A.

The clutch E' being properly set, a cuff or stand-up collar is fed between the solid rolls T U, (usually covered with felt,) and is then  
 30 guided, by the curved guide W, between the solid roll U and the polished heated roll V. When they come out they are curved into the proper shape to be boxed and supplied to the trade. A cuff thus curved is shown in Fig. 6.  
 35 These rolls U V are adjustable in tracks f f, and, by means of springs j, screws l, and blocks m and g, and nut h, exactly as are the rolls N and M above described.

It will be understood that all the rolls T U  
 40 V are of even thickness, neither concave nor convex, and hence adapted only for flat collars and cuffs.

In Figs. 3 and 5 a collar and cuff are represented entering the machine.

Having thus fully described my invention, 45 what I claim, and desire to secure by Letters Patent, is—

1. In a machine for shaping collars, the combination of the convex roll L and the concave rolls M and N, said rolls M and N being  
 50 adapted to be rotated at a higher rate of speed than the roll L, with the chute P, or equivalent feeding device, substantially as described, and for the purpose set forth.

2. In combination with the rolls L M N, the  
 55 curved chute P and creaser R, constructed and arranged to operate substantially as and for the purpose described.

3. In combination with the chute P and creaser R, the rods S', provided with springs,  
 60 as shown, cross-bars S S'', and rod R', whereby the creaser is held up from the chute and adapted to be drawn down by treadle-power, for the purpose specified.

4. In combination with the chute P and  
 65 creaser R, the tank o, pipe n', and bunch of wicking or other absorbent, n, applied to the lower edge of the creaser, substantially as and for the purpose set forth.

5. The combination of the shaft D, clutch  
 70 E, cylinder F, gear H a' a'' b' d', and shafts a b d with the adjustable rolls M N in the tracks f f, and rendered adjustable by the blocks g m, nuts h, screws l, and springs j, and the roll L, all constructed and arranged sub-  
 75 stantially as and for the purpose described.

6. The combination of the feed-rolls T U, the curved guide W, and the heated roll V, all constructed as described, and actuated by  
 80 the shafts r t v and connecting gearing, substantially as and for the purpose specified.

JAMES G. CRAWFORD.

Witnesses:

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 GEORGE V. MALLON.