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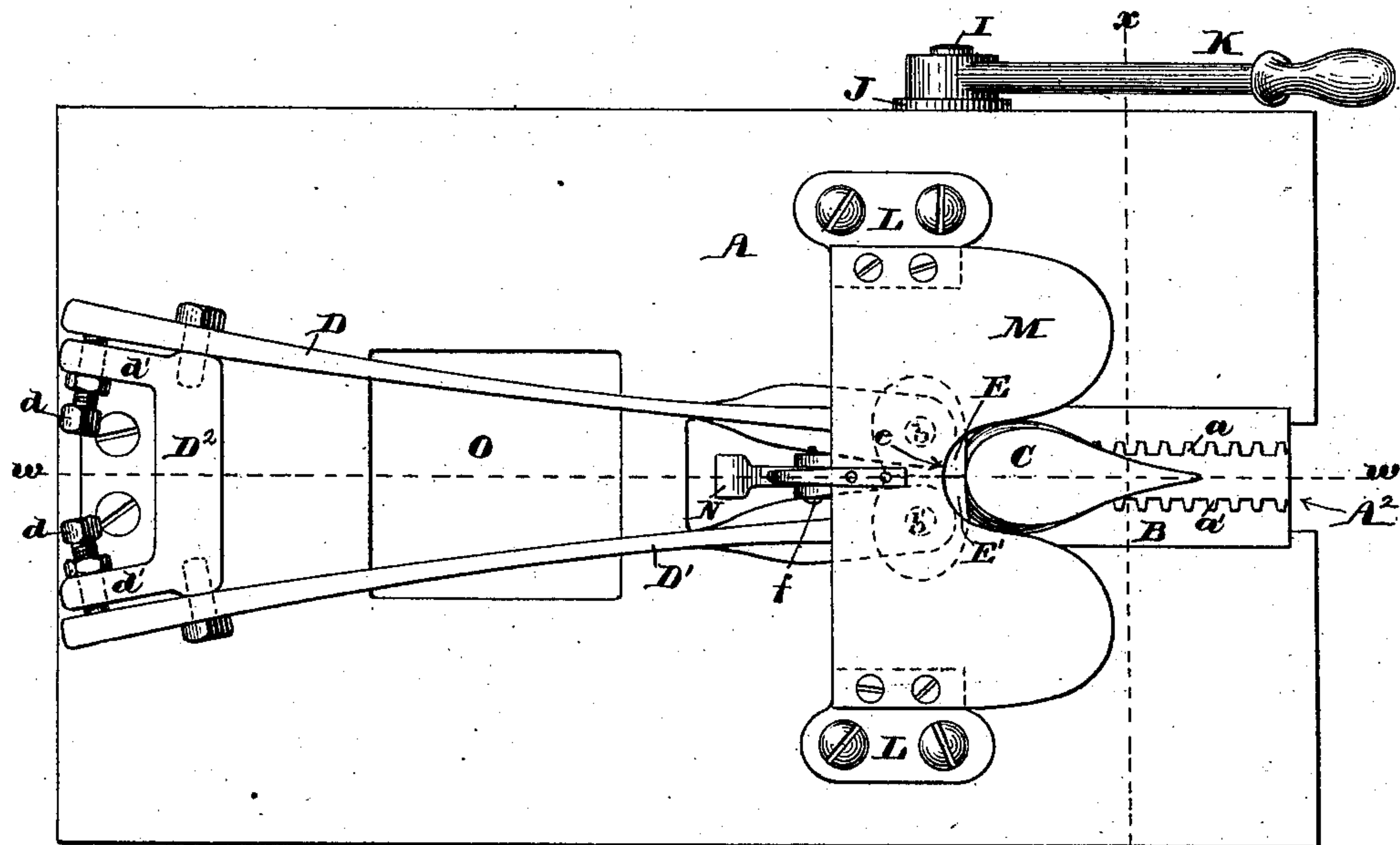
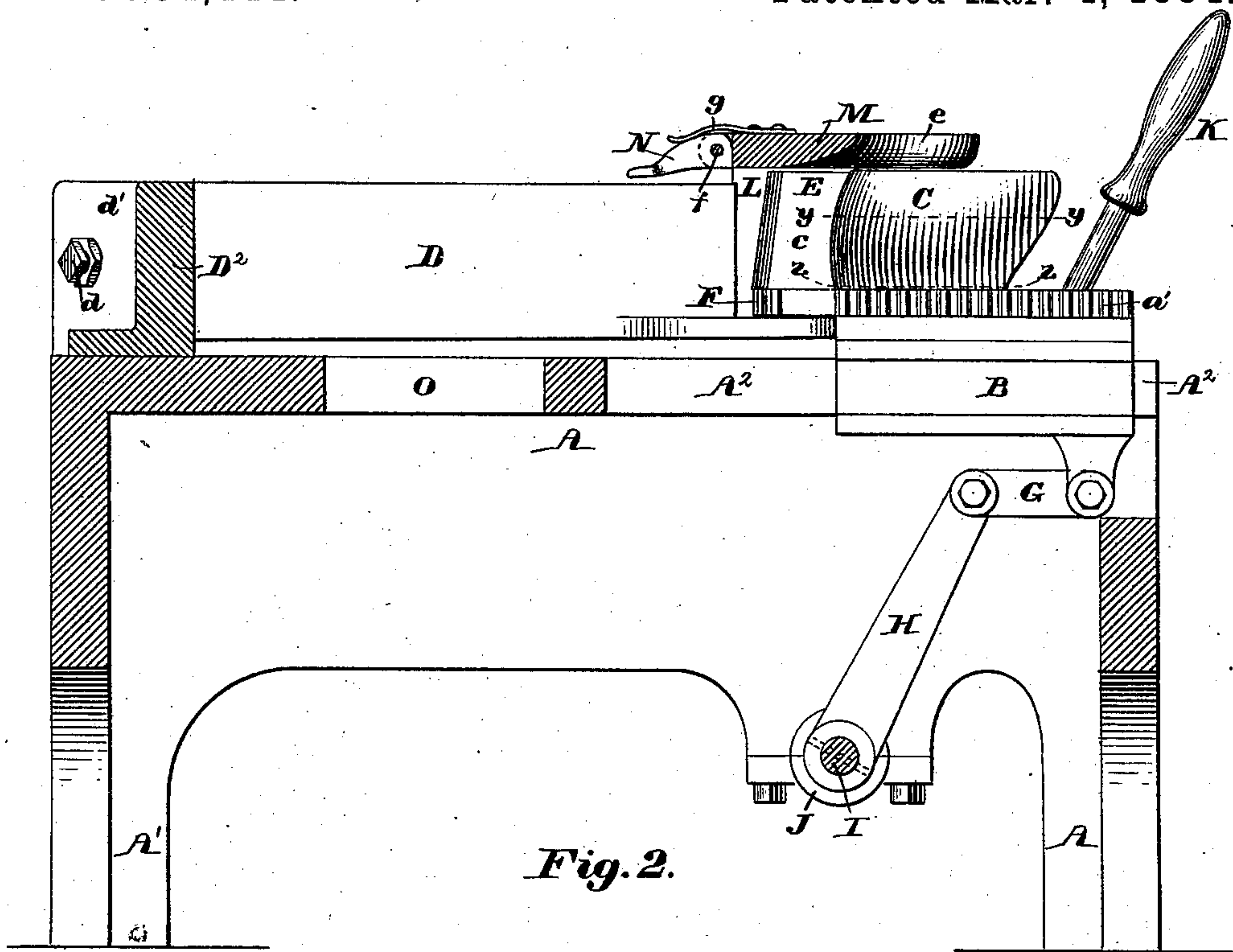
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L. COTÉ.

## HEEL STIFFENER SHAPING MACHINE.

No. 294,444.

Patented Mar. 4, 1884.



**Witnesses:**  
Halter & Lombard  
E. A. Hemmenway

***Fig. 1.***

*J. x Inventor:*  
*Louis Côté,*  
*by N. B. Lombard*  
*Attorney.*

(No Model.

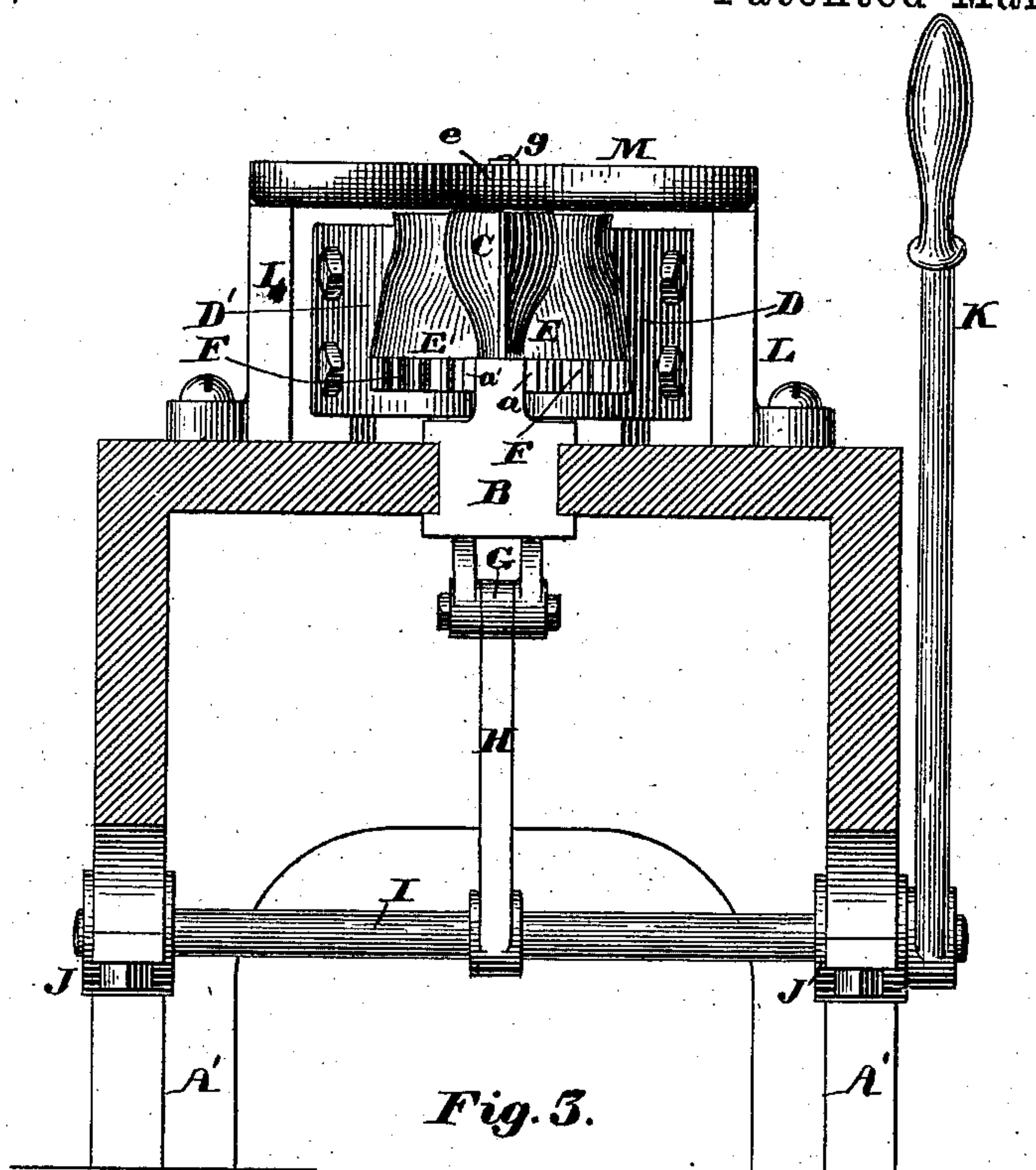
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L. COTÉ.

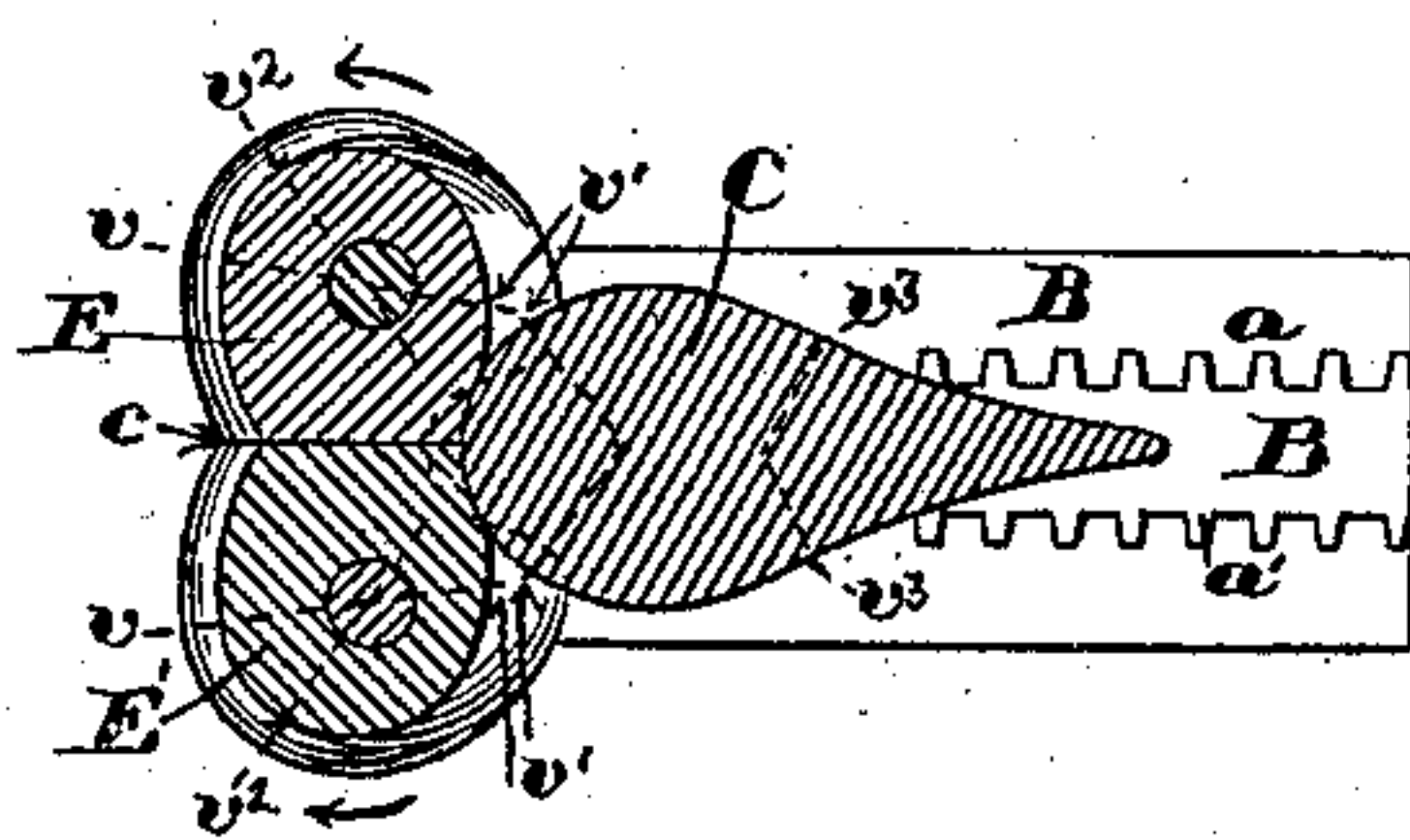
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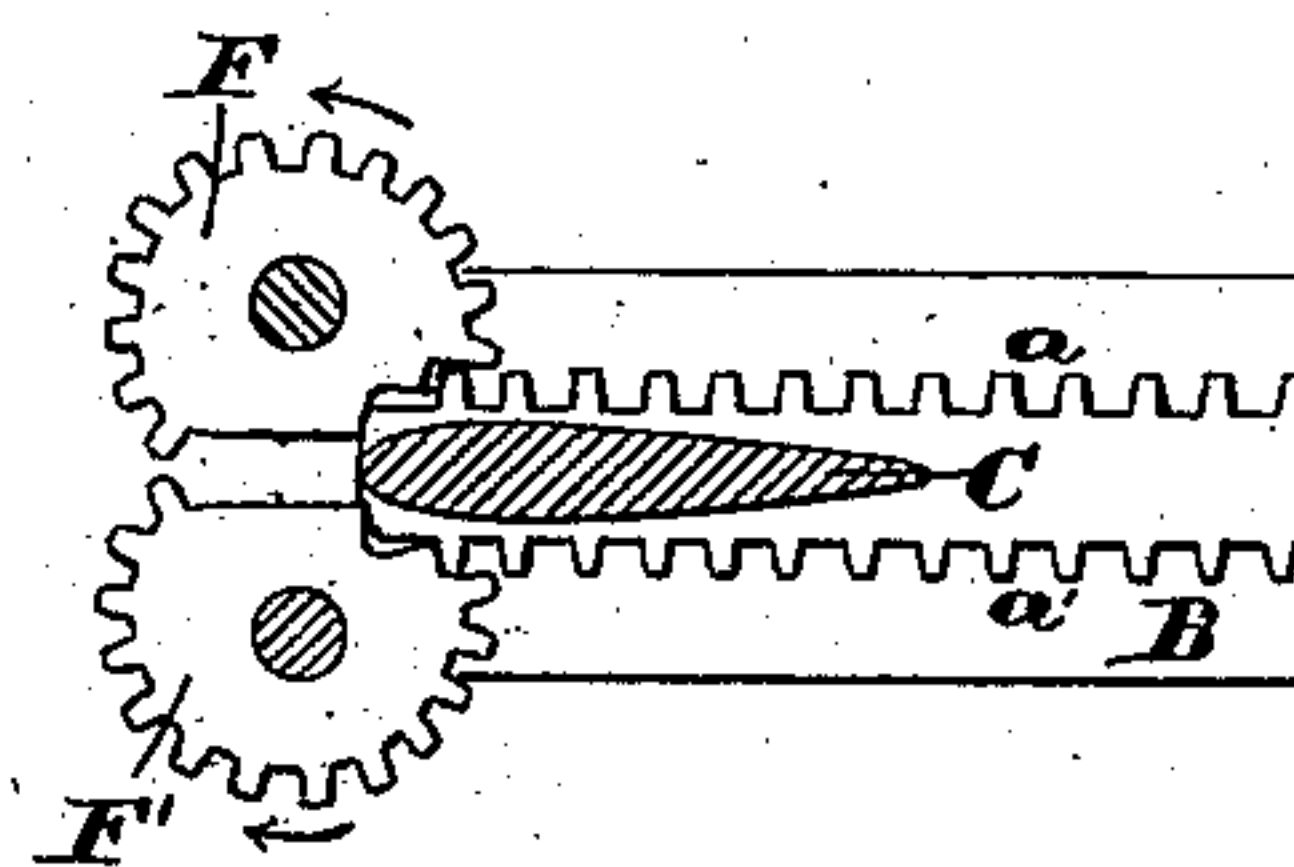
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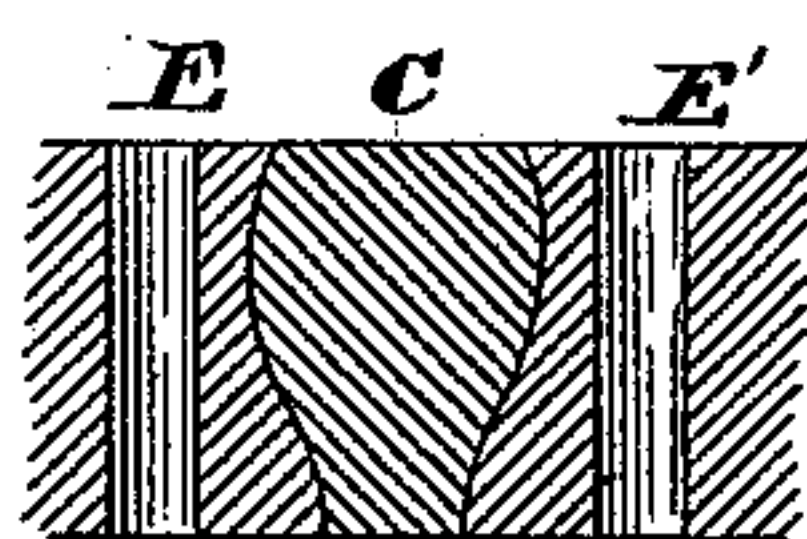
*Fig. 3.*



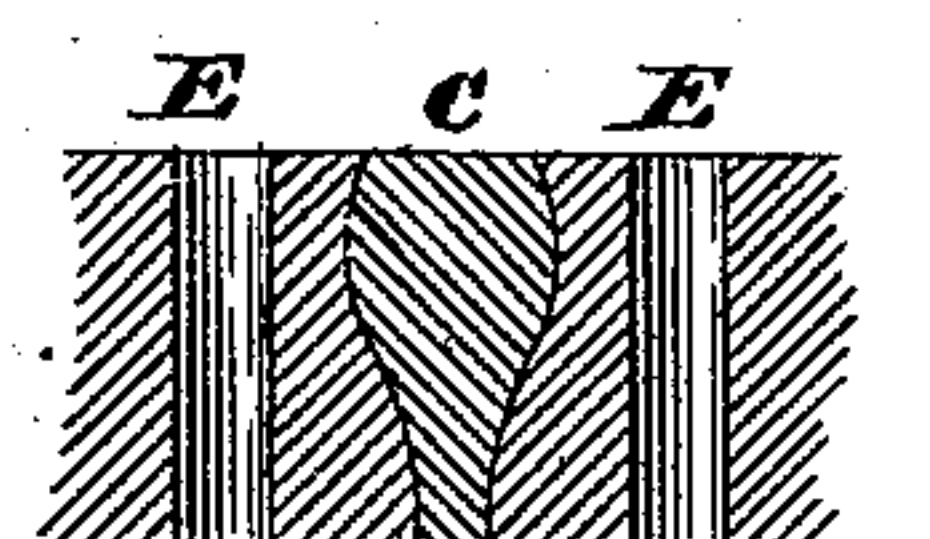
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Fig. 7.*

**Witnesses:**

Walter E Lombard  
E. N. Hemmenway

*Inventor:*

*Louis Côté,*  
by *N. C. Lombard*  
*Attorney.*



# UNITED STATES PATENT OFFICE.

LOUIS COTÉ, OF ST. HYACINTHE, QUEBEC, CANADA.

## HEEL-STIFFENER-SHAPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 294,444, dated March 4, 1884.

Application filed December 28, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS COTÉ, of St. Hyacinthe, in the Province of Quebec and Dominion of Canada, have invented certain  
5 new and useful Improvements in Heel-Stiffener-Shaping Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for shaping heel-stiffeners for boots and shoes, and especially to that class of such machines in which the upright portions of the stiffeners are made to assume the desired shape by applying pressure successively to all parts thereof  
15 by means of rolling contact-surfaces; and it consists in certain novel constructions, arrangements, and combinations of parts, which will be best understood by reference to the description of the drawings, and to the claims  
20 to be hereinafter given.

Figure 1 of the drawings is a plan of my improved machine for shaping heel-stiffeners. Fig. 2 is a vertical longitudinal sectional elevation of the same, the cutting plane being on  
25 line *ww* on Fig. 1. Fig. 3 is a transverse sectional elevation, the cutting plane being on line *xx* on Fig. 1. Fig. 4 is a horizontal section through the former and pressure-rolls on line *yy* on Fig. 2. Fig. 5 is a horizontal section through the former and pressure-rolls on  
30 line *zz* on Fig. 2. Fig. 6 represents a partial vertical section of the former and the pressure-rolls on lines *v v'*, the pressure-rolls having been revolved by the inward movement of the  
35 former till the points *v'* on the rolls and former coincide; and Fig. 7 is a similar section in the planes *v<sup>2</sup> v<sup>3</sup> v<sup>2</sup>*, Fig. 4, when the pressure-rolls have been revolved by the inward or  
40 rearward movement of the former to such an extent that the points *v<sup>2</sup>* on the peripheries of the rolls and the points *v<sup>3</sup>* on the sides of the former coincide with each other.

A is the table or bed of the machine, supported by the legs *A' A'*, and having formed  
45 in its front end the slot *A<sup>2</sup>*, in which is fitted so as to be reciprocated therein the cross-head B, upon the upper side of which are secured or cast the former C and the two series of rack-teeth *a a'*, as shown in Figs. 1, 2, and 5.  
50 D and D' are two heavy steel springs secured to opposite sides of the stand D<sup>2</sup>, cast

upon or secured to the upper side of the table A, as shown in Figs. 1 and 2. These springs D and D' carry at their front ends the vertical journal-pins *b* and *b'*, respectively, upon which  
55 pins are mounted so as to be free to revolve thereon the rolls E and E', as shown in Figs. 1, 3, and 4. The rolls E and E' are not necessarily circular in cross-section, and in fact I prefer to form upon each of them one flat side  
60 *c*, as clearly shown in Fig. 4, by means of which said rolls are maintained in their normal positions shown in said Fig. 4 until they are moved therefrom by the rearward movement of the former C and the rack-teeth *a* and *a'*,  
65 which teeth engage with the spur-gear wheels F and F', secured to or formed upon the lower ends of the rolls E and E', respectively. The gear-wheels F and F' are so formed that when the former C is moved toward the front of the  
70 machine, after having shaped a stiffener, the rolls will be revolved in the directions indicated by the arrows until the flat surfaces *c* thereof are contiguous to each other, when the rack-teeth *a* and *a'* will be disengaged from  
75 the teeth of the wheels F and F', and the cross-head B, carrying with it the former C, may be moved still farther toward the front end of the machine without affecting the positions of the  
80 rolls, they remaining in the positions shown in Fig. 4 until, in the rearward movement of the cross-head and former, the rack-teeth engage again with the teeth of the gear-wheels, as shown in Fig. 5.

In order to produce a properly-shaped heel-  
85 stiffener, it is necessary that the former should have its sides curved both longitudinally and vertically, and that the vertical curve of its sides should vary at different points in its length, and that any rolling-surface working  
90 in conjunction therewith shall be so shaped as to conform to and be parallel with the varying curved surface of the former, as is shown in Figs. 2, 6, and 7. The cross-head B has pivoted to its under side one end of the link G, the op-  
95 posite end of which is in turn pivoted to the movable end of the lever H, mounted upon and firmly secured to the rocker-shaft I, which has its bearing in boxes J J, cast upon or secured to the table A, and has secured to one  
100 end thereof the hand-lever K, by which a reciprocating motion may be imparted to the



cross-head B and former C. This arrangement of levers, &c., may be used when the machine is to be operated by hand; but to make a power-machine a crank-shaft and pulley may be substituted for the levers H and K and the shaft I. The tension of the springs D and D' may be adjusted and regulated by the set-screws *d d'*, which work in threaded holes in the ears *d' d'* on the stand D<sup>2</sup>, as shown in Fig. 1.

From the upper side of the table A rise the two uprights, L L, one upon each side of the rolls E and E', which have secured to their upper ends or formed therewith the flange-turning plate M, the front edge of which has formed therein the U-shaped notch *e*, the lower corner of which is cut away to a rounded bevel, as shown in Fig. 2.

N is a pawl, pivoted at *f* to ears projecting from the rear edge of the plate M in such a manner that it may be raised upward, but cannot fall below its normal position, in which position it is maintained by the combined action of the spring *g*, tending to force it downward, and a flat surface at its pivotal end, which engages with the edge of the plate M, and serves to limit said downward movement, all as shown in Fig. 2.

This machine may be used for shaping heel-stiffeners from flat blanks, but is more especially designed and adapted to reshaping and turning the flange or heel-seat upon partially-shaped stiffeners; and its operation is as follows: The several parts being in the positions shown in the drawings, the operator first moves the upper end of the hand-lever K toward the front end of the machine till the former C is sufficiently removed from the rolls E and E' to permit the placing of a blank or a partially-formed stiffener between the former and said rolls, which blank is then placed in position by the operator, with its straight edge upward and the center of its length coinciding with the center of the rear end of the former, care being taken that the blank or partially-formed stiffener shall project above the upper surface of the former C a distance equal to the desired width of the flange or heel-seat to be formed upon the stiffener. The operator now moves the hand-lever to the rear, thus causing the cross-head B, the former C, and racks *a a'* to be moved to the rear and press the blank or stiffener between said former and the rolls E and E', in the positions shown in Fig. 4, and the racks *a* and *a'* to engage with the gear-wheels F and F', as shown in Fig. 5. A continuation of the rearward movement of the cross-head B, the former C, and the racks *a* and *a'* will cause the rolls E and E' to be revolved about their axes and said axes to separate from each other, so that the former C may pass between said rolls, carrying with it the blank or partially-shaped stiffener, the tension of the springs D and D' causing the rolls E and E' to wrap the blank around the sides of the former C, and, by virtue of the conform-

ing shapes of the surfaces of said rolls, press every part of said blank or partially-formed stiffener that is below the upper surface of the former hard against the sides of said former and compel it to conform thereto. When the blank or partially-formed counter-stiffener is firmly held between the former and the rolls E and E', the continuation of the rearward motion of the former will cause that portion of the blank or partially-formed stiffener which projects above the upper surface of the former to be turned down upon and pressed hard to the upper surface of said former by the action thereon of the U-shaped forward edge of the flange-turning plate M. The rearward movement of the former C is continued until the blank or stiffener has passed from between the rolls E and E' and the center of the flange or heel-seat thereof has passed to the rear of the pawl N, which, after said flange or heel-seat has passed it, drops upon the upper surface of the former, directly in front of said flange or heel-seat, so that when the former is again moved toward the front of the machine the rear or movable end of the pawl N intercepts the forward motion of the stiffener by engaging with its flange or heel-seat, and prevents further forward movement thereof, while the former is withdrawn therefrom into the proper position for the insertion of another blank or partially-formed stiffener, the shaped stiffener, when the former is withdrawn therefrom, dropping through the hole O in the table A into any suitable receptacle provided for the purpose, or upon the floor.

The rolls E and E', instead of being mounted upon the movable ends of the long leaf-springs D and D', as shown in the drawings, may be mounted upon carriages or cross-heads arranged to be moved toward and from each other in slides arranged for the purpose transversely of the table A, said carriages or cross-heads being pressed toward each other by any suitable springs or weights without affecting the principles of my invention.

It is obvious that the mechanism for revolving the rolls E and E' may be so arranged that said rolls shall be revolved at a speed which will cause their exterior surfaces to move slower than the surface of the former, and thus cause a rubbing action upon the stiffener-blank from its center toward its two ends, if desired, or so that the mean circumferences of said rolls shall move in unison with the surface of said former, thus reducing the rubbing action to a minimum and shaping the stiffener almost wholly by rolling pressure, without affecting the principles of my invention.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for shaping heel-stiffeners for boots and shoes, the combination of a heel-shaped former having its sides and rear end molded or shaped to present different contours or outlines when cut transversely at different



points, and a pair of yielding pressure-rolls arranged to revolve about their axes toward each other, and to move in the same direction as said former, and having their exterior surfaces molded or shaped to conform to the varying curvature of the surfaces of said former, substantially as and for the purposes described.

2. The combination of the former C, the rolls E and E', and the springs D and D', all constructed, arranged, and adapted to operate substantially as and for the purposes described.

3. The combination of the former C, the yielding pressure-rolls E and E', the gear-wheels F and F', the racks a and a', and mechanism for imparting to said former and racks a reciprocating motion, substantially as described.

4. The combination of the reciprocating former C, the yielding pressure-rolls E and

E', the gear-wheels F and F', the racks a and a', and the flange-turning plate M, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

5. The combination of the reciprocating former C and racks a and a', the yielding pressure-rolls E and E', the gear-wheels F and F', the flange-turning plate M, and the stiffener-discharging pawl N, all arranged and adapted to operate substantially as and for the purposes described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 20th day of December, A. D. 1883.

LOUIS COTÉ.

Witnesses:

H. LANGELIER,  
A. LACROIX.