

(No Model.)

2 Sheets—Sheet 1.

W. E. FROST.

CRIMPING MACHINE FOR BOOTS OR SHOES.

No. 463,970.

Patented Nov. 24, 1891.

Fig. 2.

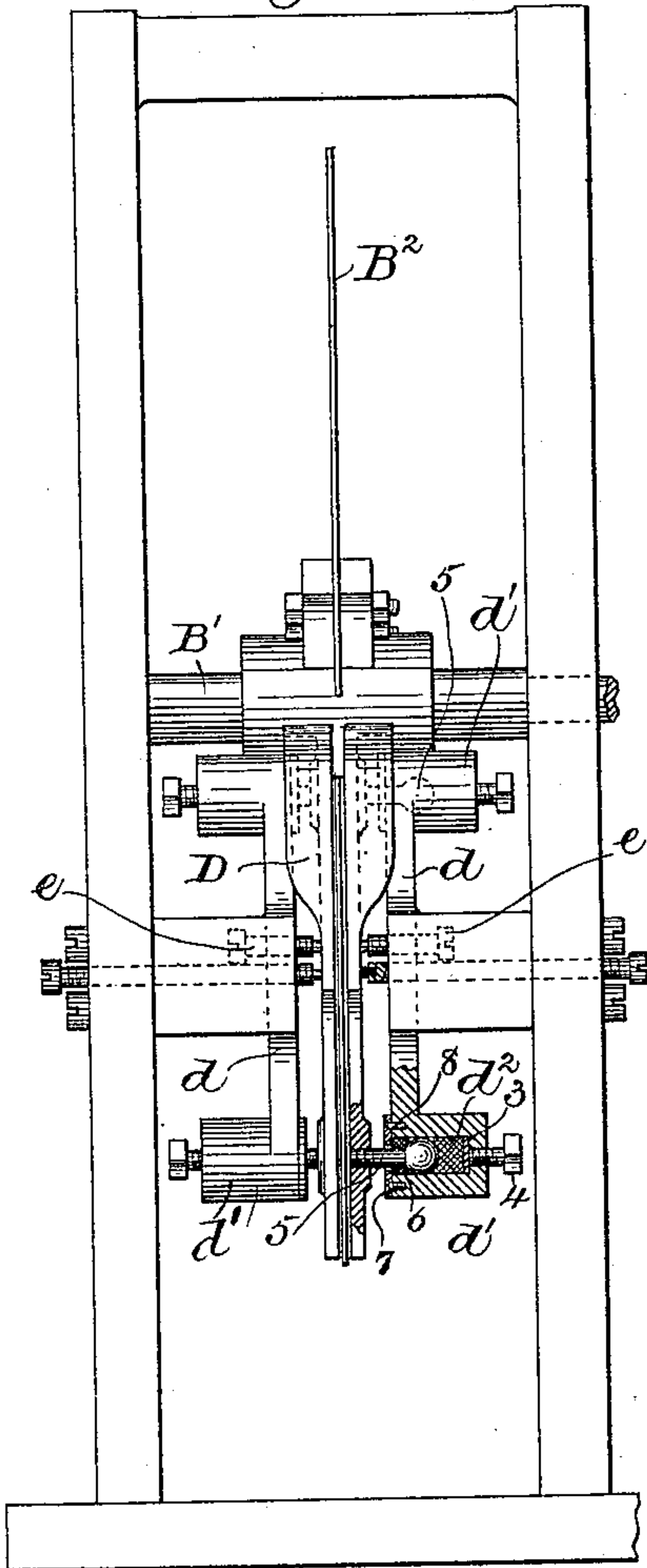


Fig. 1.

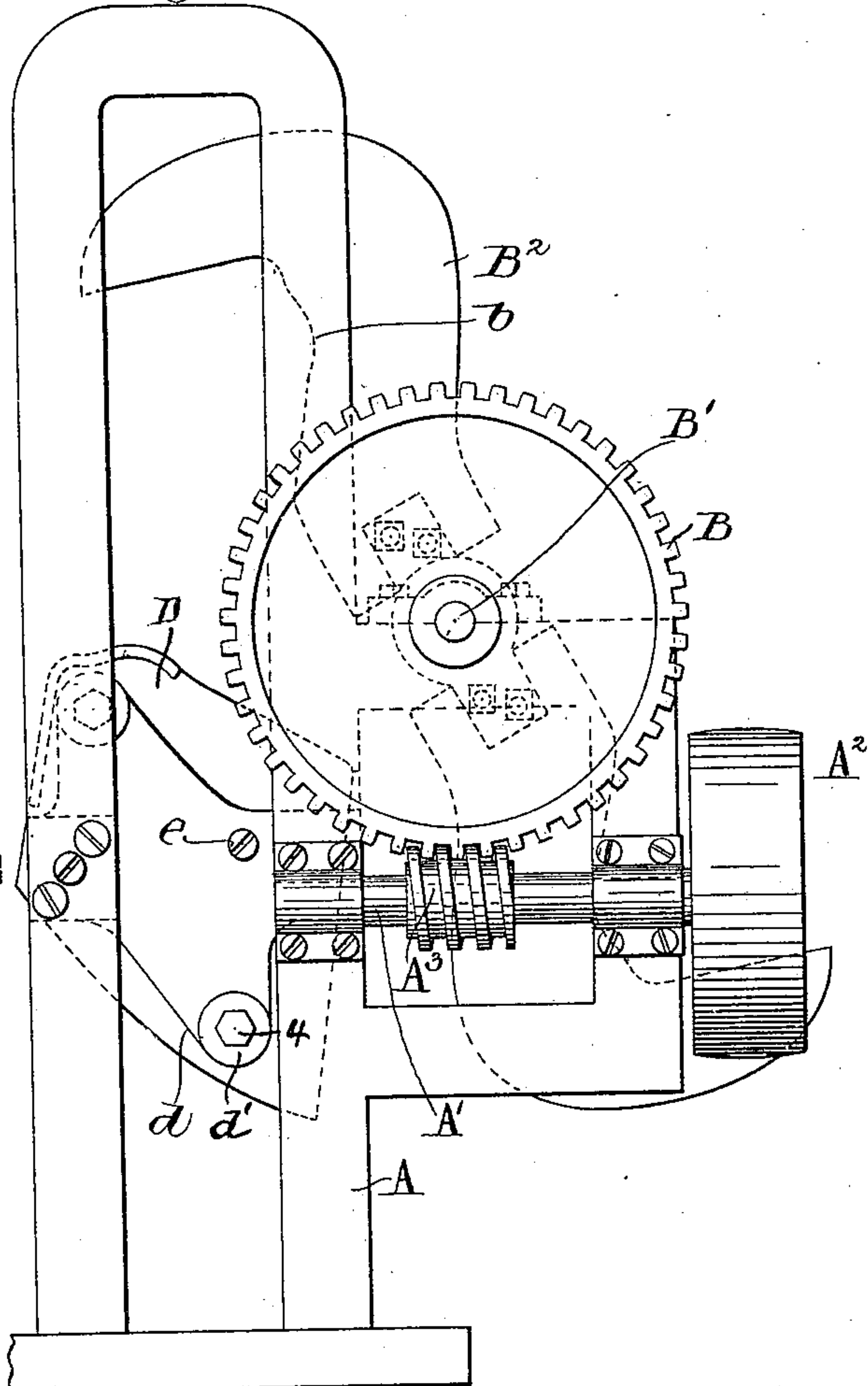
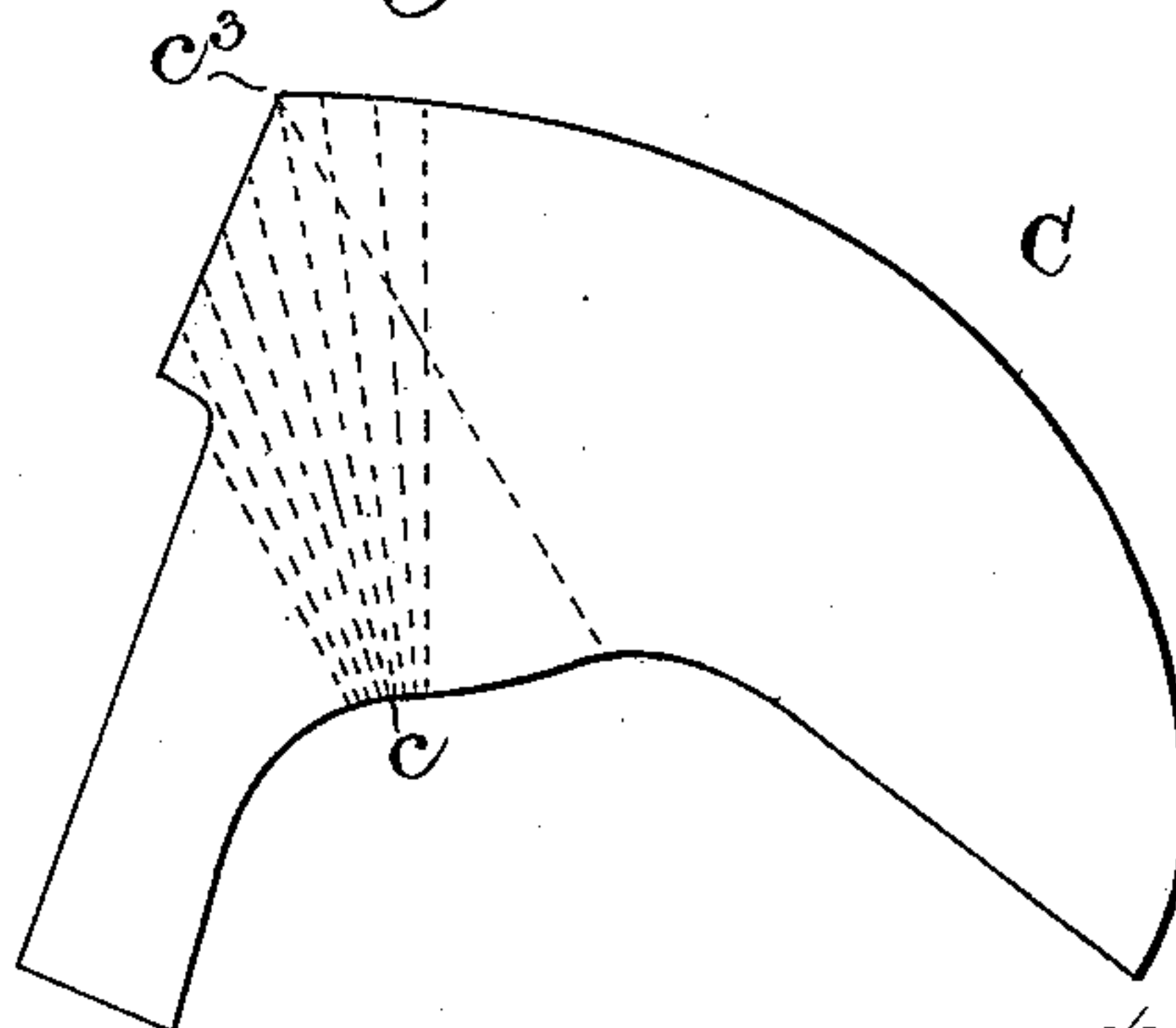


Fig. 3.



Witnesses.

Edward F. Allen.  
Fred S. Greenleaf.

Inventor.

Walter E. Frost.  
by Crosby & Gregory  
Attys.

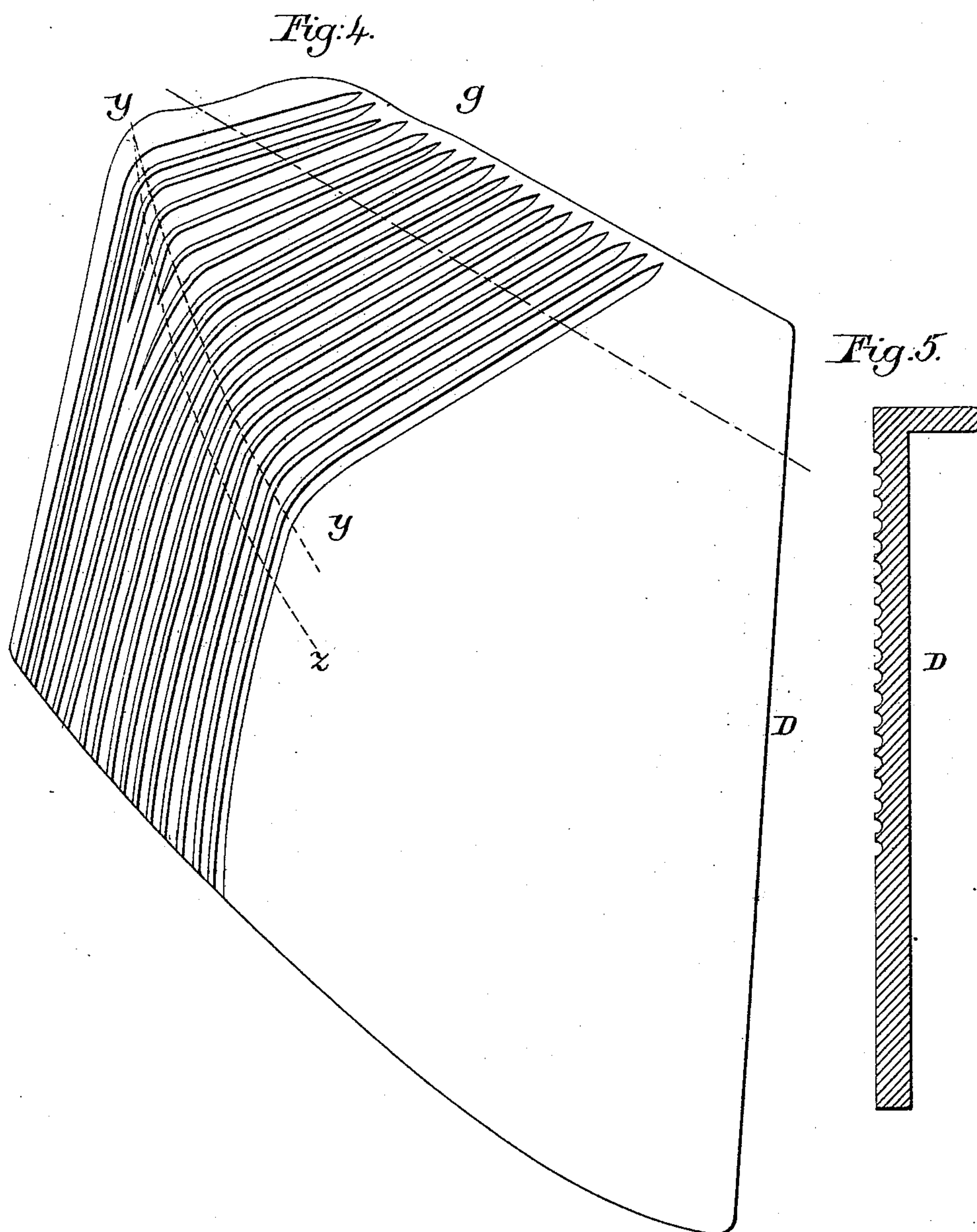
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# UNITED STATES PATENT OFFICE.

WALTER E. FROST, OF LEWISTON, MAINE, ASSIGNOR TO THE S. W. JAMISON  
BOOT AND SHOE CRIMPING MACHINE COMPANY, OF NEW YORK, N. Y.

## CRIMPING-MACHINE FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 463,970, dated November 24, 1891.

Application filed May 18, 1891. Serial No. 393,139. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER E. FROST, of Lewiston, county of Androscoggin, State of Maine, have invented an Improvement in Crimping-Machines for Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve and simplify the construction of that class of crimping-machines wherein the form has a rotary motion or is made as a radially-projecting arm attached to a rotating shaft or carrier, the form passing the blank between yielding jaws. In this class of machines, as heretofore made, much trouble has been experienced in drawing the quarter-corners of the blank or vamp out fully, and in fitting the blank to the irregular edge and throat of the form to avoid wrinkles at that point. I have discovered that by providing the jaws with grooves of peculiar formation—that is, grooves having their corners or apices placed in a line between the center of motion of the form shaft or carrier and the path in which the throat of the form travels, that the strain or pull on the blank will be in the direction to not only preclude the possibility of wrinkles in the blank where it bears on the throat of the form, but also to stretch the quarter-corners out into full shape.

The particular features in which my invention consists will be hereinafter more fully described, and pointed out in the claim at the end of this specification.

Figure 1 is a right-hand side elevation of a sufficient portion of a crimping-machine embodying my invention to enable the same to be understood. Fig. 2 is a front elevation of the machine shown in Fig. 1, the driving-gearing being however omitted to save space upon the drawings. Fig. 3 represents a crimped blank or vamp, and Figs. 4 and 5 enlarged views of one of the jaws.

The frame-work A is and may be of any usual and suitable shape, it having suitable bearings to receive the power-shaft A', having a belt or other pulley A<sup>2</sup>, to which the power is applied to rotate the shaft. The

shaft A' has a worm A<sup>3</sup>, which engages the teeth of and rotates the worm-gear B fast on the shaft or carrier B', to which is attached in any usual or suitable manner one or more forms B<sup>2</sup>, said forms in practice being made preferably of thin sheet-steel, the acting edge of the form having given to it the shape or configuration, which may be varied as desired, which it is required to give to the crimped part of the blank or vamp C.

Fig. 3 shows a blank or vamp C crimped, c being the throat of the vamp, b (represented in Fig. 1) being the throat of the form.

The jaws D D are alike, so I need specifically describe but one of them.

The frame-work has suitable stands d, provided with sockets d', in which are placed, as represented, yielding blocks or springs d<sup>2</sup>, preferably of rubber backed up by a suitable metal washer 3, acted upon by a screw 4. Each jaw at two points, not in the same vertical line, have screwed into them, as represented, screws 5, one being shown by full and the other by dotted lines at the right in Fig. 2, the said screws having spherical heads and entering the said sockets, suitable yielding washers 6 fitting at their inner sides against the spherical heads, the washers being confined in place by suitable plates or rings 7, through which are extended screws 8. These screws, having round heads and seated as described, form what is designated as "ball-joints," and they by rocking in the sockets and against the springs d<sup>2</sup>, which may be of rubber, permit the jaws to tip somewhat about a vertical line. Each stand has a suitable stop-screw e, which may have a rubber teat at its inner end to contact with the outer face of the jaw, the said teats determining the extent of rocking motion of the jaws permitted by the ball-joint connection referred to.

Instead of supporting the jaws in the particular manner described, so that they may tip somewhat about a vertical line and yield somewhat to the varying thickness of the blank or vamp being passed by the form between the jaws, I may support the said jaws in any other usual or suitable manner.

Referring now to Fig. 4, which shows the inner face of one of the jaws D, it will be



seen that the said jaw has a series of grooves, the nearly straight portions of the grooves adjacent the corners being substantially parallel, the corners or apices of which are located  
5 substantially in the line  $y y$ , whereas the throat  $b$  of the form, as it rotates, travels in the line  $y z$ , and in the direction indicated by the arrow-head at  $z$ . In other words, the distance between the center of rotation of the  
10 shaft or form carrier and the corner or apex of each successive groove decreases, beginning at the groove nearest the initial contacting portion of the jaw with the former. By arranging the corners or apices of the grooves  
15  $g$  at one side of the line  $y z$ , and between that line (the line in which the throat of the form travels) and the center of motion of the form  $B^2$  it is possible to cause the said grooves to strain and pull upon the quarter or vamp in  
20 the direction of the dotted lines placed thereon in Fig. 3, a strong pull in such direction effectually keeping the quarter-corner  $c^3$  of the vamp well out, and such stretching avoids and prevents any wrinkles being left in the  
25 blank or vamp in the throat  $c$  thereof, where

the blank or vamp rests upon the throat  $b$  of the form.

The avoidance of wrinkles, as stated, is a very important feature, and manufacturers in selecting crimping-machines look especially at this point. 30

Having described my invention, I claim—

In a crimping-machine, a rotary shaft or carrier having an attached form, combined with jaws provided with bent grooves, the  
35 nearly straight portions of the grooves adjacent the corners being substantially parallel, the distance between the center of rotation of the shaft or form carrier and the corner or apex of the successive grooves decreasing  
40 from the apex nearest the initial contacting portion of the jaw, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER E. FROST.

Witnesses:

GEO. W. GREGORY,

A. S. WIEGAND.