

E. O. P. ANDREWS.
MACHINERY FOR CRIMPING THE UPPERS OF BOOTS AND SHOES.
 No. 173,153. Patented Feb. 8, 1876.

Fig. 1.

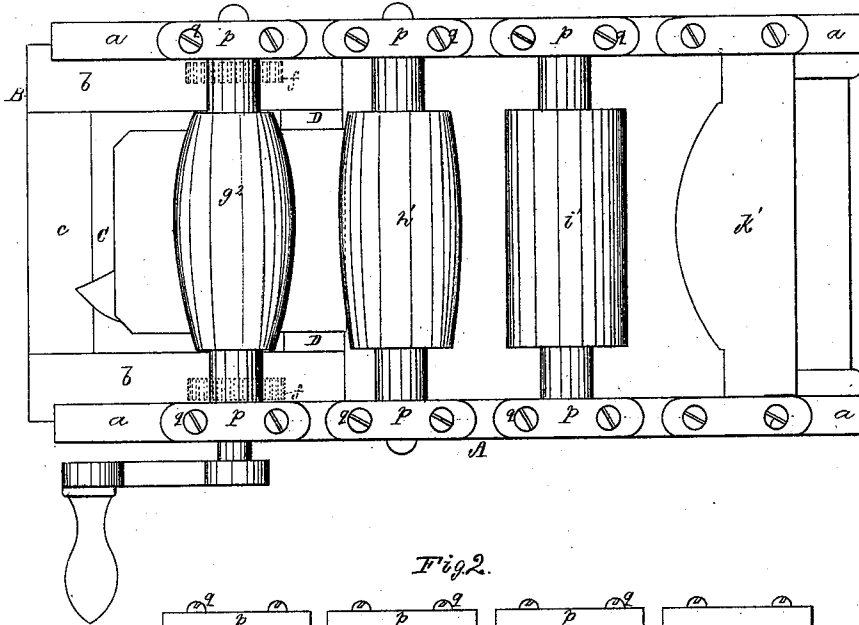


Fig. 2.

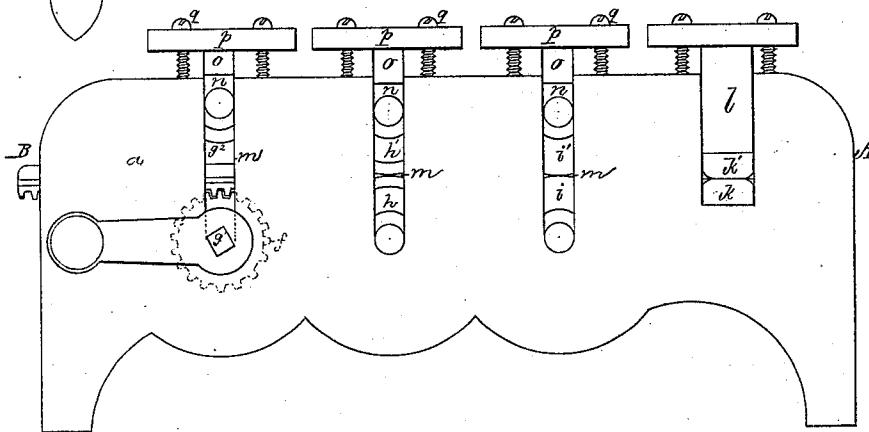
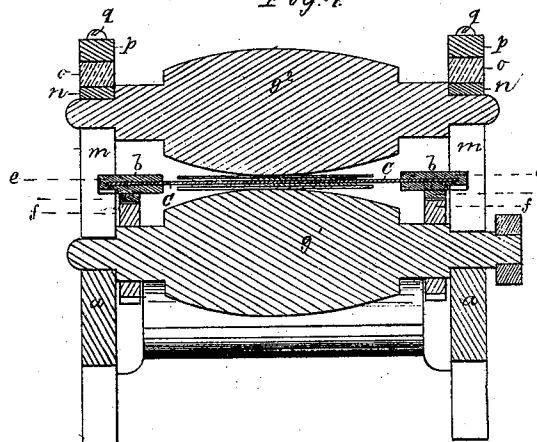


Fig. 4.



Witnesses

S. W. P. per
L. A. H. per

Ezekiel O. P. Andrews

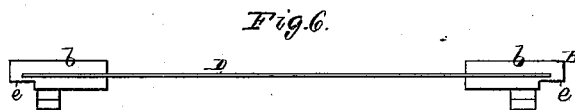
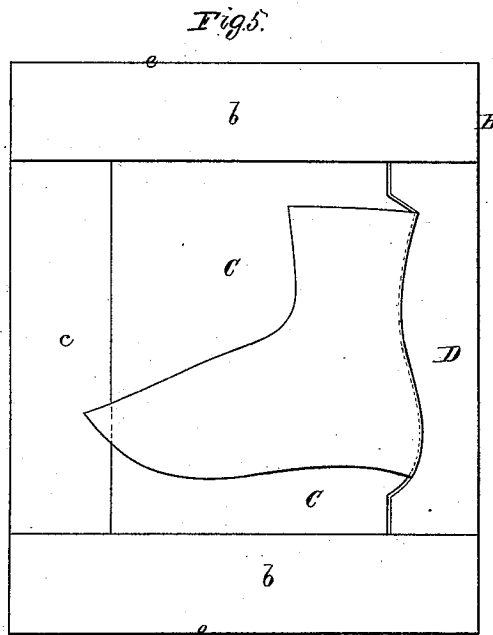
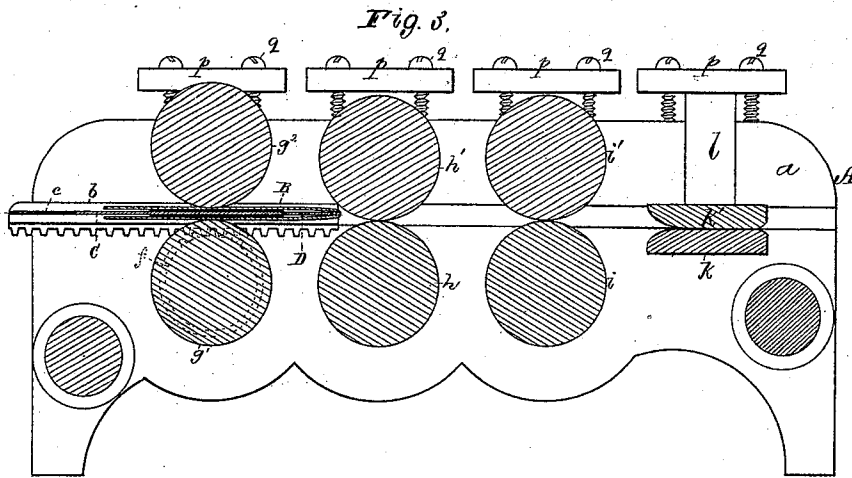
by his attorney

R. H. Eddy

E. O. P. ANDREWS.

MACHINERY FOR CRIMPING THE UPPERS OF BOOTS AND SHOES.
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Witnesses.

S. W. Piper

L. A. Höller.

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UNITED STATES PATENT OFFICE.

EZEKIEL O. P. ANDREWS, OF EVERETT, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR CRIMPING THE UPPERS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **173,153**, dated February 8, 1876; application filed October 29, 1873.

To all whom it may concern:

Be it known that I, EZEKIEL O. P. ANDREWS, of Everett, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machinery for Crimping Boot-Uppers; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of a machine embodying my invention. Fig. 5 is a top view of the shaper and guide and their carrying-frame. Fig. 6 is a front end view of the said frame and guide.

In such drawings, A denotes the frame for supporting the operative parts. The side portions *a a* of said frame are grooved lengthwise on their inner surfaces to receive and guide rectilinearly, the carrying-frame B of the shaper C and guide D. The said carrying-frame is composed of two parallel bars, *b b*, and a bar, *c*, extended from one to the other of such bars *b b*, all being arranged as represented. Each of the bars *b* is grooved on and along its inner edge, and furnished with a tongue, *e*, on its outer edge, the tongues *e e* being to run or extend within the grooves of the side bars *a a*. The shaper C and the guide D are thin plates or boards having forms, substantially as shown. They slip into the grooves of the carrying-frame, and are arranged together and with such in manner as represented. The boot leg or upper to be crimped is to be arranged at its middle between the shaper and the guide, so as to lap equally, or about so, upon both sides of the shaper. To the lower side of each of the bars *b b* of the frame B a toothed rack, or the equivalent, is to be applied to engage with and to be moved by one of two pinions, *f f*, fixed upon the shaft of the lower roller *g*¹ of a pair of tapering rollers, *g*¹ *g*², arranged in the main frame and with respect to each other, and formed as represented. Each of such rollers is larger in diameter at its middle than it is at its two ends, the roller being gradually diminished in diameter from the middle to each end of it. In advance of the said rollers is another set or pair, *h h'*, of like kind, but of

less taper, and in advance of them is a pair of cylindrical rollers, *i i'*. In front of these latter is a pair of jaws or jaw-bars, *k k'*, all being arranged within the frame A in manner as represented. The lower of said jaw-bars is stationary, the upper one being movable vertically and provided with india-rubber springs *l*, arranged over it and in the frame A, so as to press the bar downward to its fellow. The journals of the several rollers are arranged in guide grooves or slots *m*, made vertically in the side portions of the frame A, and the bearings *n* of the journals of the upper rollers are furnished with pressure-springs D, disposed as shown. Each of the said springs *o* is placed underneath one of a series of bars, *p*, arranged as shown, and provided with screws *q q*, which go through the bar and screw into the frame A. The upper jaw-bar springs also have to them like bars and screws. By revolving the lower of the first set of tapering rollers the carrying-frame B will be put in movement, and the shaper C and guide D, with the leather upper suitably applied to them as explained, will be forced successively between the several rollers of the three sets and next between the jaws or jaw-bars, whereby the leather will be crimped or stretched, the tapering-rollers operating to spread it in opposite directions laterally from its middle, so as to prevent the formation of wrinkles in it, and the plain or cylindrical rollers and the jaws operating to finish the crimping of it. The guide D not only serves with the shaper to hold and shape the boot-upper, but to introduce it properly between the rollers and jaw-bars.

When the leather is "pebbled" an apron or sheet of india-rubber may be wrapped about the surfaces exposed to the action of the rollers and jaw-bars, such apron serving to prevent the rollers and bars from removing the pebbling or figure of the exposed surfaces.

Motion may also be given to the carrying-frame by means of a shaft placed in front of the rollers without altering the operation of the machine.

What I claim is—

1. The guide D and the shaper C, arranged and combined with the carrying-frame, as set forth.
2. The combination of one or more pairs of

cylindrical rollers, *i i*, the jaw-bars *k k'*, guide D, shaper C, and carrying-frame B, all being arranged in a supporting-frame in manner and provided with operative spring, as specified.

3. A series of pairs of gradually-tapering rollers, *g g' h h'*, and a set of cylindrical rollers, *i i*, arranged and combined with the shaper C, the guide D, and the carrying-frame B, and in a supporting-frame, A, provided with operative springs, as described.

4. A set of jaws or jaw-bars, *k k'*, one or

more pairs of tapering rollers, *g g' h h'*, the longitudinal convexity of which diminishes from the front to the rear of the machine, arranged and combined with a shaper, C, guide D, and their carrying-frame, and in a supporting-frame in manner and provided with operative springs, as specified.

EZEKIEL O. P. ANDREWS.

Witnesses:

R. H. EDDY,

J. R. SNOW.