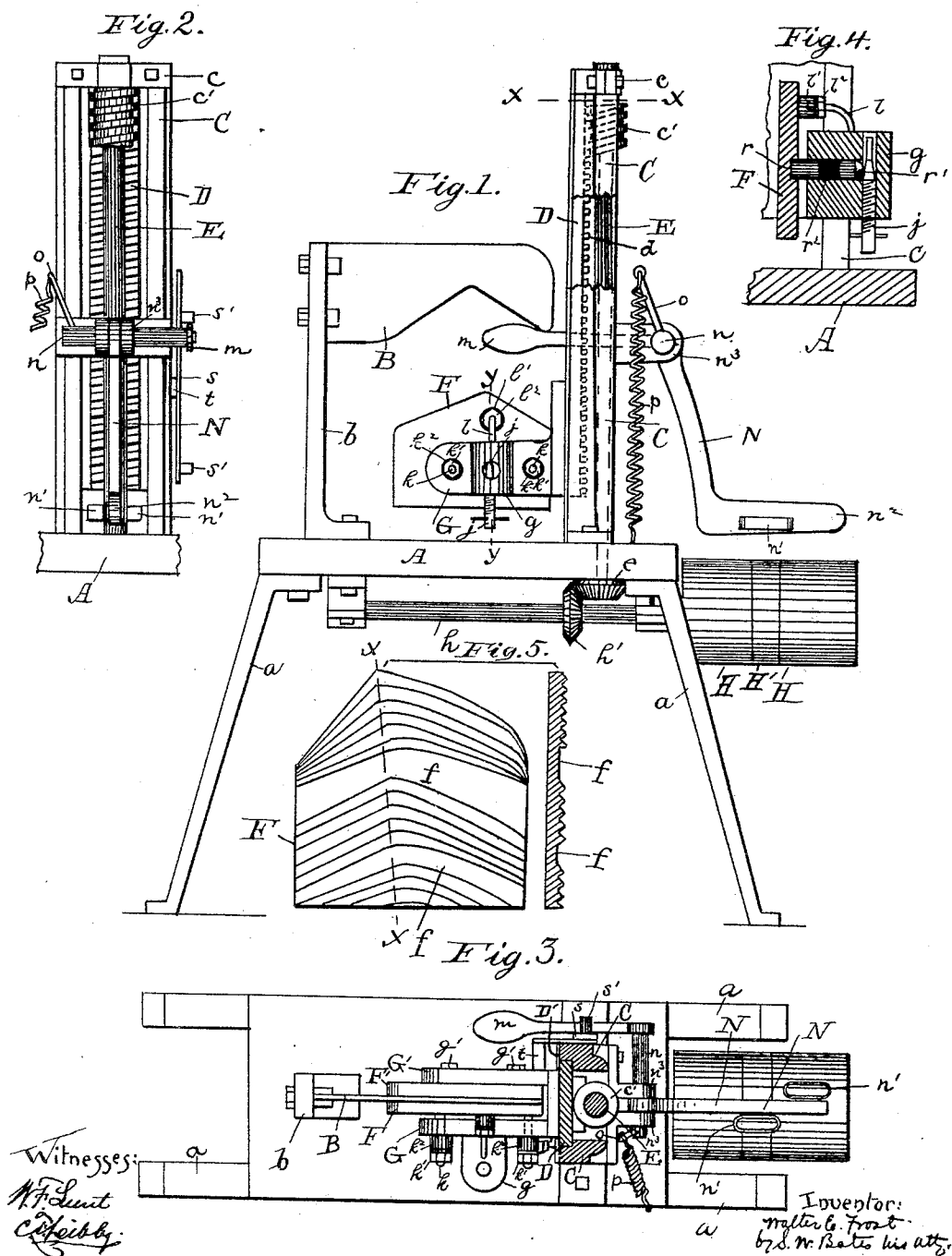


(No Model.)

W. E. FROST.
CRIMPING MACHINE.

No. 458,951.

Patented Sept. 1, 1891.



UNITED STATES PATENT OFFICE.

WALTER E. FROST, OF LEWISTON, MAINE, ASSIGNOR TO WILLIAM W. SANBORN, OF SAME PLACE.

CRIMPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 458,951, dated September 1, 1891.

Application filed March 3, 1890. Serial No. 342,396. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. FROST, a citizen of the United States, residing at Lewiston, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Crimping-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to crimping-machines for crimping the vamps of boots and shoes; and the object of my invention is to construct a machine which shall be more cheap, simple, and effective than those now in use.

My invention consists of combination of elements, as set forth in the accompanying claims.

The machine in which my invention is embodied consists of a base to which is attached a guide or upright having a slide adapted to reciprocate vertically therein, a rack and a worm-gear for raising and lowering said slide, a pair of brackets attached to the lower end thereof, jaws suspended between said brackets, and a standard at the end of the machine opposite to said guide or upright, having a former attached thereto which projects out over the said jaws when the latter are at their lowest position. To the reciprocating slide is attached an outrigger containing stops which operate the shipping-lever to reverse the machine. This machine is illustrated in the accompanying drawings, in which—

Figure 1 is a side view; Fig. 2, a part rear view; Fig. 3, a section on *xx* of Fig. 1; Fig. 4, a section through *yy* of Fig. 1. Fig. 5 is a face view of jaw and vertical section of the same.

A represents the bed of the machine, and *a a* the legs thereto. Bolted to one end of the bed is a guide or upright C. This guide or upright consists of two standards, the front edges of which are rabbeted to receive a slide D, which reciprocates vertically in the guide. The plates D' secure the slide in place. On the rear side of the slide D is formed a rack *d*. Engaging this rack is a worm-gear *e'*, fixed on the upper end of a vertical shaft E. The upper end of this shaft E turns in a box *e*, and

to the lower end is affixed a miter-gear *e*. Engaging with the miter-gear *e* is a miter-gear *h'*, secured to the driving-shaft *h*. On the end of the driving-shaft *h* are the loose pulleys II and the tight pulley II'. It will thus be seen that the rotation of the driving-shaft raises or lowers the slide D, according as it turns one way or the other. To the lower end of the slide D are affixed two brackets G and G'. The bracket G has a projection or offset *g* extending laterally from its outside face.

The jaw F is connected with the bracket G as follows: Two bolts *k* are fixed in the jaw and extend entirely through the bracket. On the end of each bolt is a nut *k'*, which confines a rubber spring or buffer *k²* between it and the bracket. The tendency of this rubber spring is to pull the jaw outward toward the bracket. The jaw is pressed or forced in the opposite direction by means of a rod in two sections *r r'*, fitting an opening which extends part way through the offset or projection *g*. The inner end of the section *r* presses against the upper surface of the jaw. Between the two sections *r r'* of the rod is a rubber buffer *r²*. The tendency of this rubber spring is to force the jaw inward. The tension of the jaw F is regulated by means of a screw *j*, which extends vertically through an opening which passes by the outer end of the rod *r'*. This screw *j* has a conical surface near its end, against which surface the outer end of the rod impinges. When the screw is moved up or down, the rod *r*, and consequently the jaw F, is moved in or out, as the case may be. The upper portion of the jaw is supported by means of a bent rod *l*, one end of which is fixed in the bracket, while the other end supports a rubber buffer *l'*, retained in place by a nut *l²*. The former-plate B is affixed to an upright *b* at the end of the machine opposite to the guide or upright C, and the former-plate is in such a position that when the jaws move upward the plate will pass between them.

Attached to the bracket G' is an outrigger *t*, to which is secured a vertical bar S, having at suitable points above and below stops *s'*. These stops are so placed that when the jaws are at their lowest position the upper stop

will depress the shipping-handle *m*, and when they are at their upper position the lower stop will raise said handle, thereby reversing the shipping mechanism.

5 The shipping mechanism consists of a shipping-lever *N*, having a horizontal foot or lower portion *n*², to which are secured stirrups *n*¹. The lever *N* is secured to a shaft *n*, journaled in brackets *n*³. The handle *m*, before described, is connected with one end of the shaft *n*, and projecting from the other end of said shaft is a pin or arm, the end of which is connected by a spring *p* with the bed of the machine. The arm is extended in a nearly
10 upright or vertical position from the shaft *n* in such a manner that the point of attachment of the spring is thrown alternately from one side of the shaft to the other, whereby the shipping-lever is held in position until
15 reversed.

In Fig. 1 the jaws are represented as being at their lowest position. The handle *m* is depressed, throwing the foot of the shipping-lever outward, bringing the inner belt, which
25 produced the outward motion, over the tight pulley *H*¹. The vamp to be crimped is placed on the upper edge of the said jaws, and the jaws move upward, the form passing between them and crimping the vamp. When the
30 lower stop *s*¹ reaches the handle *m*, it is raised and the shipping-lever thrown over, reversing the motion of the machine and causing the jaws to descend to their lowest position.

It will be seen that as my machine is constructed and arranged the operator stands in
35 a position next to the standard *b*, and hence is in a position to readily put on and take off the vamps as they are crimped. The ease with which the vamps can be manipulated renders it possible to speed the machine to a
40 high degree and renders it a very rapid working machine. The parts are all easily removed for purpose of adjustment and the entire machine well fitted for a variety of work and
45 is extremely simple.

In Fig. 5 I represent a face view and section of one of the jaws which I use in my machine. The peculiarity of the jaw is in the fact that there are several independent sets
50 of grooves and ribs, one above the other, separated by a hollow space or recess *f*. As a result of this construction the vamp as it

passes through from the top downward strikes in succession these sets of grooves and ribs and produces the effect of passing
55 the vamp through the jaws of an ordinary machine more than once, as has frequently had to be done to set the vamp in position. The space *f* between the sets of grooves and ribs gives the vamp an opportunity to ex-
60 pand and become again contracted, and so increases the effect, as pointed out. The space *f* to be effective must be of considerable width or compared with the width of the grooves and ribs, and must be at least as wide as two
65 ribs.

I claim—

1. In a crimping-machine, the combination of a bed-piece, an upright at one end thereof, a slide reciprocating vertically in said up-
70 right, said slide having a rack on its rear face, a vertical shaft in rear of said upright, a worm-gear thereon adapted to engage said rack, brackets on the lower end of said slide, jaws hung between said brackets, a stand-
75 ard on said bed at the opposite end from said upright, and a forming-plate projecting outward from the top of said standard above said jaws when the latter are at their lowest position, substantially as described. 80

2. In a crimping-machine, the combination of the jaws and the supporting-brackets, bolts secured to one of said jaws and extending
80 through one of said brackets, springs on the outer ends of said bolts to force the jaw toward the bracket, an aperture in said bracket, a rod fitting therein and impinging against the back of the jaw, a spring or buffer for
85 forcing said rod toward said jaw, and an adjusting-screw having a conical surface fitting an aperture in said bracket at right angles to said rod and adapted to force said spring and said rod inward, substantially as shown.

3. A jaw for crimping-machines, having two or more sets of angular or chevron shaped
95 ribs, one above the other and separated by a groove or depression the width of two or more ribs.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER E. FROST.

Witnesses:

W. W. SANBORN,
S. W. BATES.