

L. F. WEBER & P. BEIER.
CRIMPING MACHINE.
APPLICATION FILED AUG. 18, 1911.

1,048,612.

Patented Dec. 31, 1912.
2 SHEETS—SHEET 1.

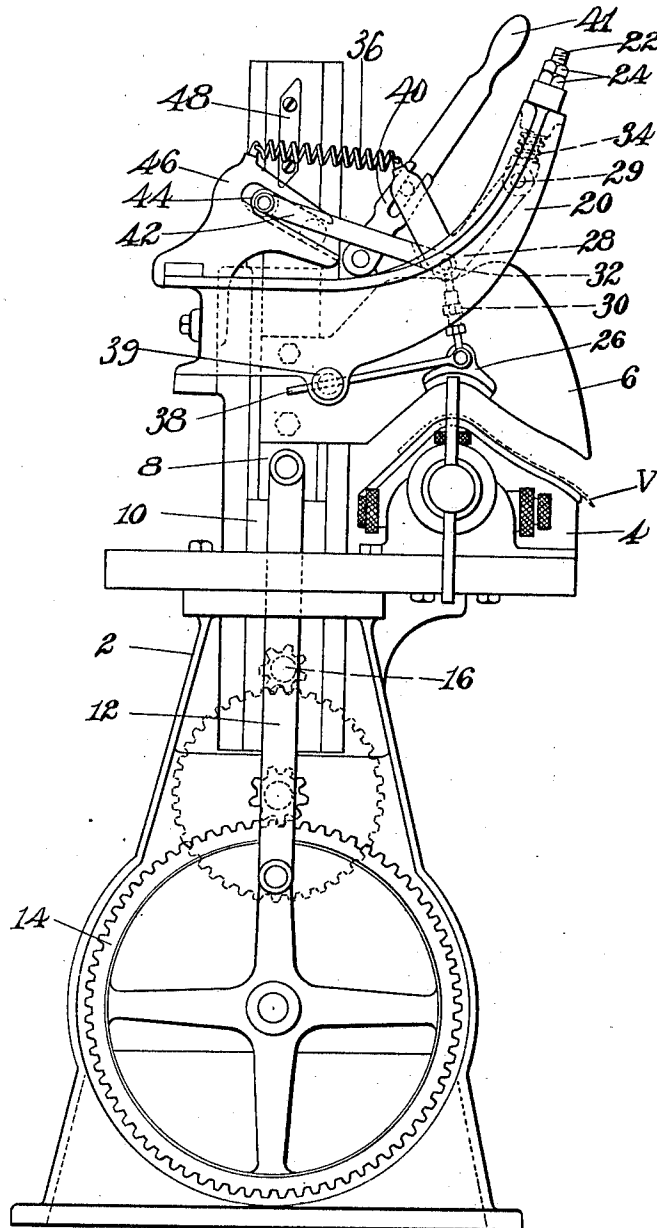


Fig. 1.

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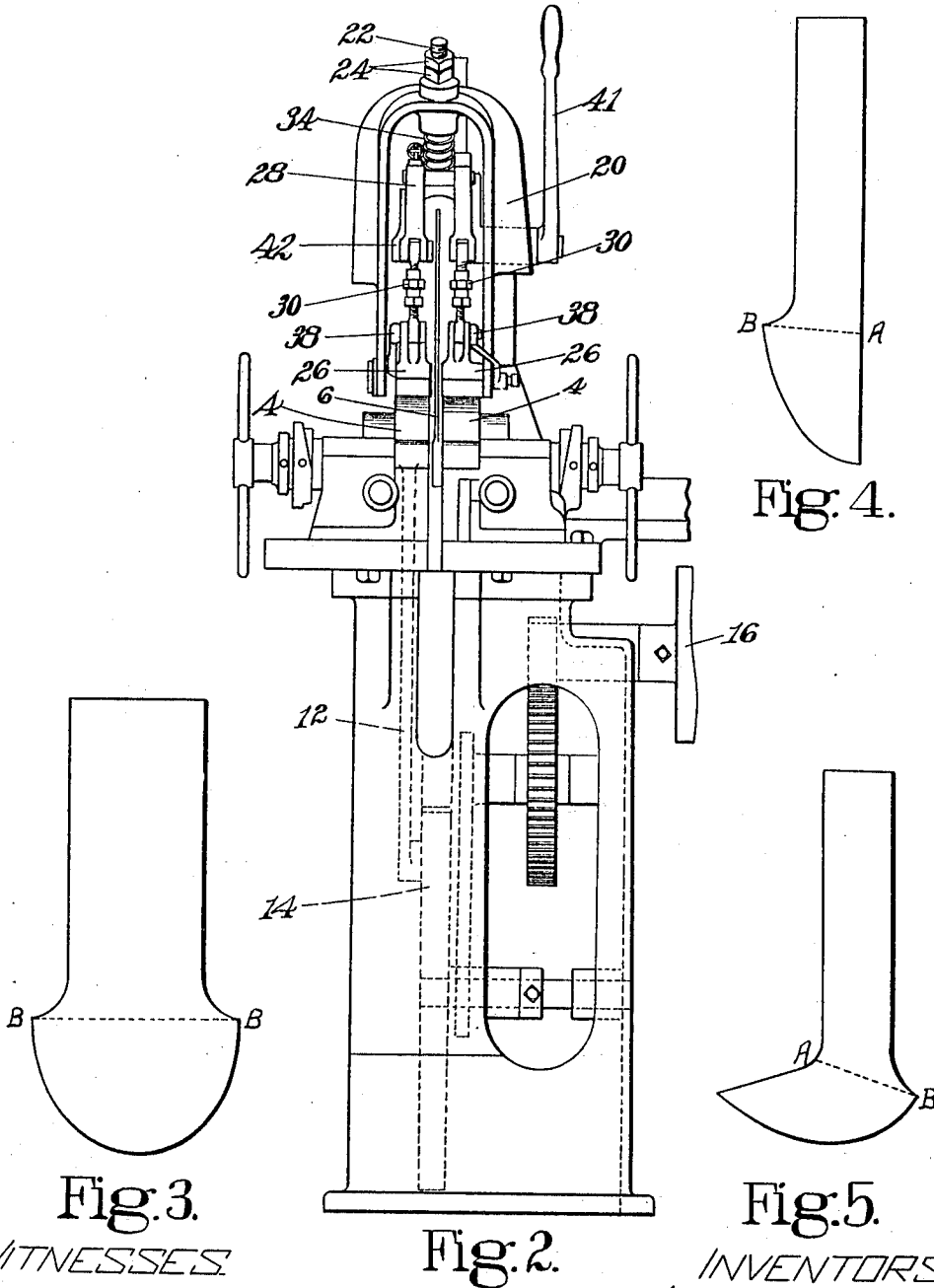
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By Their Attorney,
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UNITED STATES PATENT OFFICE.

LEWIS F. WEBER, OF FRANKFORT-ON-THE-MAIN, AND PAUL BEIER, OF RÖDELHEIM-FRANKFORT, GERMANY, ASSIGNORS TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CRIMPING-MACHINE.

1,048,612.

Specification of Letters Patent.

Patented Dec. 31, 1912.

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To all whom it may concern:

Be it known that we, LEWIS F. WEBER, a citizen of the United States, residing at Frankfort-on-the-Main, Germany, and PAUL BEIER, a subject of the Emperor of Germany, residing at Rödelheim-Frankfort, Germany, have invented certain Improvements in Crimping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines, commonly known as crimping machines, that are used in the manufacture of boots and shoes for the purpose of shaping and stretching vamps before they are sewed to the other parts of the upper.

According to the usual practice, the vamps are first cut out from a pattern, then crimped, and subsequently they are re-cut from another pattern to the proper size and shape for stitching to the other parts of the upper. In using crimping machines as heretofore constructed it has been found very difficult to stretch the vamp through its widest portion to the same extent that it is stretched in other parts. This is particularly true in handling thick vamps for heavy boots and shoes. As a consequence of this effect the crimped vamp does not cover the cutting-over pattern at all points and it either must be subjected to a second operation to complete the stretching of the vamp through its widest portion or else more stock must be allowed through this part of the vamp in cutting it out; that is, the original pattern must be made larger. In either case, the cost of the shoe is increased; and if the latter remedy is employed, some parts of the vamp in the finished shoe will stretch during wear more than other parts, and the shoe will soon lose its correct shape. It has been proposed to avoid these difficulties by providing clamps or brakes to act on the leather during the crimping operation in a manner to increase the stretching action through those portions of the vamp that otherwise would be stretched only to an insufficient degree. The present invention pro-

vides a very simple and efficient mechanism for effecting this result.

The invention is herein disclosed as embodied in an attachment for a crimping machine of a common type. This attachment comprises a pair of brake-shoes arranged to press the vamp against the crimping jaws at opposite sides of the crimping blade and a toggle mechanism arranged to be straightened—preferably against a spring—to apply the required pressure to the brakes during the crimping operation. The effect of these brakes is to resist the pull exerted on the leather by the crimping blade as it wipes the vamp between the crimping jaws and thereby to subject the portions of the vamp acted upon by the brakes to a greater stretching action than otherwise would be obtained.

In the accompanying drawings,—Figure 1 is a view in side elevation of a machine equipped with a mechanism embodying the present invention; Fig. 2 is a view in front elevation of the machine shown in Fig. 1; Fig. 3 is a plan view of a boot vamp before it is crimped; Fig. 4 shows the vamp folded preparatory to crimping; and Fig. 5 shows a vamp after being crimped.

The crimping machine shown in the accompanying drawings is constructed substantially in accordance with the disclosure in the U. S. Patent to Legge, No. 804,482, Nov. 14, 1905. For a detailed description of the construction and operation of the machine reference should be made to this patent. It will be sufficient for the purposes of the present application to state that the machine comprises a frame, indicated at 2, that supports a pair of interchangeable and yielding crimping jaws 4 which are spaced apart to allow the crimping blade 6 to reciprocate between them. The blade is carried by a slide 8 which is reciprocated in a dove-tailed slideway 10, formed in the machine frame, by means of a link 12 that connects the slide 8 with a crank pin on a gear wheel 14. This wheel is revolved by a train of gears through which it is connected with a driving shaft 16 that may be driven from any convenient source of power.

In using the machine, a vamp (see V, Fig. 1) is laid across the jaws 4 and as the blade 6 descends it wipes the vamp between the jaws carrying it downwardly until it is clear of both jaws. This operation stretches the vamp and shapes it to the outline of the lower edge of the blade 6.

The mechanism embodying this invention comprises a bifurcated bracket 20 that is bolted to the machine frame and constitutes the support for the operating parts of the mechanism. This bracket straddles the blade 6 and is drilled to receive a stud or bolt 22. Nuts 24 are threaded onto the bolt 22 above the bracket. Two clamps or brake shoes 26 are supported, one on each side of the blade 6, by means of a toggle mechanism that comprises a bell crank lever 28, having one arm pivoted at 29 to the bolt 22, and two turn buckles 30 pivoted to the bell crank lever at 32, and also pivoted respectively to the brakes 26. It will be noted that the bell crank 28 is bifurcated so that it can straddle the crimping blade even when the blade is in its highest position. A strong spring 34 surrounding the stud 22 is interposed between the lower face of the bracket 20 and the pivot 29 and tends to force the toggle and brakes toward the jaws 4. A spring 36 attached at one end to the free end of the bell crank 28 and at its other end to the stationary part 46 tends to move the toggle into collapsed position. A pair of links 38 mounted on pivots 39 in the bottom of the main bracket 20 have pivotal connection respectively with the brakes 26 and serve to guide the brakes in their movements toward and from the jaws 4, provision being made for adjusting the links 38 in conjunction with the brake shoes 26, to bring the faces of the shoes into contact with the top faces of the jaws 4 at the desired points.

The toggle may be moved toward its straightened position by means of a pin secured in the free end of the bell crank lever 28 and having connection with a slotted member 40 mounted for swinging movement with a hand lever 41. It will be evident from an inspection of Fig. 1 that forward movement of the hand lever will operate on the bell crank lever to swing the pivot 32 toward a line connecting the pivot 29 with the pivot joining the turnbuckle 30 and brake 26. In order to give the toggle a further straightening movement and to maintain it in straightened position, a forked link 42 is connected at its forked end to the pivots 32 of the toggle and at its opposite end it carries a roll 44 that runs in an inclined guideway formed between the forked portions of a bracket 46. This bracket is attached to the back of the bracket 20 or to any other convenient part of the frame. The roll lies close to the face

of the slide 8 to which a cam 48 is rigidly fixed. The cam has beveled ends as indicated in Fig. 1 and crosses the path of the roll as it reciprocates with the slide 8.

In using the machine equipped with this mechanism, the operator places the vamp across the jaws 4 in the usual manner. He then grasps the hand lever 41 and moves it forward, straightening the toggle against the tension of the spring 36 and moving the brake shoes 26 into contact with the leather at the cone of the jaws 4. It will be noted that the brake shoes are shaped to conform to the surfaces of the parts of the jaws with which they cooperate. The operator then starts the machine into operation causing the crimping blade 6 to descend. Before this blade engages the leather the cam 48 moves behind the roll 44 and forces it forward thus acting through the link 42 to give the toggle its final straightening movement. The cam then holds the roll in this position thus sustaining the toggle against collapse until the crimping blade has completed its operative stroke. The adjustment of the turn buckles 30 and the nuts 24 should be such that when the toggle is straightened considerable pressure will be exerted by the spring 34 through the toggle and brake shoes onto the vamp being crimped. As the blade wipes the vamp between the jaws, the brakes will resist the pull exerted on the leather by the blade and therefore will subject the parts of the stock against which they bear to a greater stretching action than otherwise would be obtained. The brakes are made of such length that they will operate on that portion of the vamp that is not stretched sufficiently in the usual crimping operation. The part with which especial difficulty has been experienced heretofore is that indicated by the dotted lines in Figs. 3, 4 and 5 and the arrangement shown is designed particularly to stretch the vamp through this portion.

Since the pull on the leather, as it slides under the brake-shoes, tends to draw them against the crimping blade and therefore to retard its descent, each brake is provided on its face adjacent to the blade with an anti-friction roll (not shown in the drawings) that effectually prevents such retarding action. As soon as the cam 48 passes out of contact with the roll 44 on its downward stroke the spring 36 acts to break the toggle and move the roll backward in its guideway. When the slide 8 commences to rise the upper beveled end of the cam 48 will strike the roll 44 and move the roll to its extreme backward position in the guideway. This operation raises the brake shoes 26 to their inoperative position where they will not interfere with the proper placing of the work on the crimping jaws. The spring 36 should be so adjusted that it will retain the toggle

in this position. The pressure applied to the vamp during the crimping operation may be varied either by adjusting the turn buckles 30 or by varying the adjustment of the bolt 22.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:—

1. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of means for operating on the leather to resist the pull exerted thereon by the crimping plate in wiping the leather between the jaws, and mechanism including a toggle arranged to be straightened to operate said means to apply pressure to the leather.

2. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of means to engage the leather during the crimping operation, a spring, and power operated mechanism including a toggle for applying the pressure of said spring to said means to cause said means to resist the pull exerted on the leather as it is wiped between the crimping jaws.

3. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, manually controlled means for moving said devices toward the jaws, and automatic means acting thereafter to press said devices against the leather while it is being wiped between the jaws.

4. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, manually operated means for moving said devices toward the jaws, and power operated means acting to press said devices yieldingly against the leather while it is being wiped between the jaws.

5. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, power operated means acting to press said devices yieldingly against the leather while it is being wiped between the jaws, and auto-

matic means for moving said devices away from said jaws.

6. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, power operated means including a toggle mechanism for applying pressure to said devices during the crimping operation, and means for operating the toggle upon the completion of the crimping operation to move said devices away from the crimping jaws.

7. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, power operated means including a toggle mechanism for moving said devices relative to said jaws, and means for guiding said devices in their movements.

8. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against said jaws at opposite sides of the plate, a toggle mechanism supporting said devices, a cam for straightening said toggle to press said devices against said jaws, and a spring tending to collapse said toggle.

9. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against the jaws, and means including a toggle mechanism for applying pressure to said devices, said toggle having provision for adjustment to vary the pressure.

10. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against the jaws at opposite sides of the plate, and means including power operated mechanism for moving said devices both toward and from said jaws.

11. In a machine of the class described, the combination with a pair of crimping jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of devices for pressing the leather against the jaws at opposite sides of the plate, a toggle mechanism movable into straight-

ened or collapsed condition to move said devices toward or from said jaws, a spring tending to collapse the toggle, and power operated means acting at one period to
5 straighten the toggle against the action of said spring and at another period to assist the spring in collapsing the toggle.

12. In a machine of the class described, the combination with a pair of crimping
10 jaws, a crimping plate, and mechanism for relatively moving said parts to cause the plate to wipe the leather between the jaws, of a pair of brakes to press the leather against the jaws at opposite sides of the plate, a
15 pressure spring, a toggle mechanism connecting said brakes with said spring, means whereby the tension of said spring may be varied, a second spring connected to said toggle and

tending to collapse it, manually operated means for moving said toggle against the
20 tension of said second spring, a link connected to said toggle, a roll carried by the link and mounted for movement in a guideway, a power driven cam constructed to
25 engage said roll to move said link both to straighten and to collapse the toggle, and means for guiding said brake shoes in their movements.

In testimony whereof we have signed our names to this specification in the presence of
30 two subscribing witnesses.

LEWIS F. WEBER.
PAUL BEIER.

Witnesses:

OTTO SCHRÖDER,
DOROTHEA COVER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."