

J. E. JACKSON.  
MACHINE FOR LASTING BOOTS AND SHOES.  
APPLICATION FILED JULY 2, 1897.

1,011,062.

Patented Dec. 5, 1911.

2 SHEETS—SHEET 1.

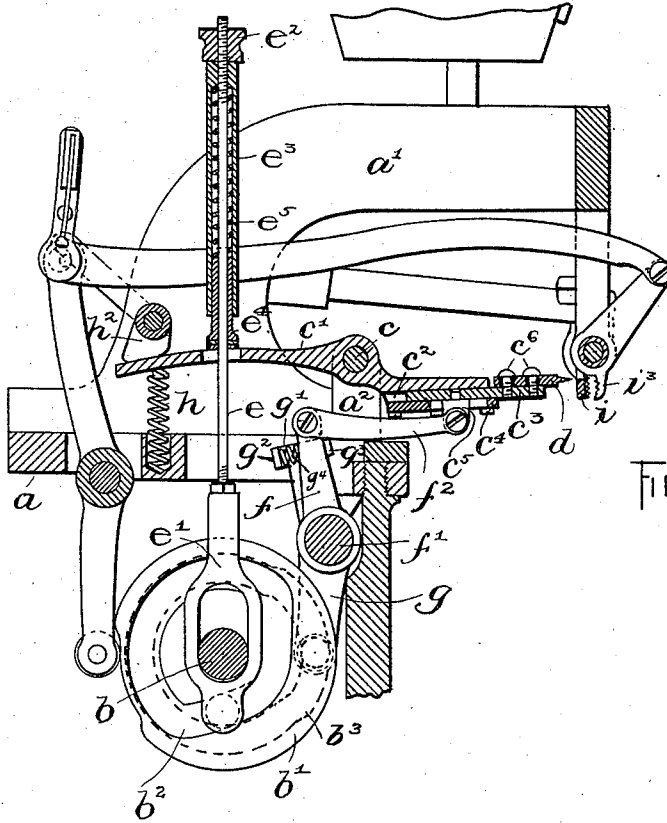


FIG. 1.

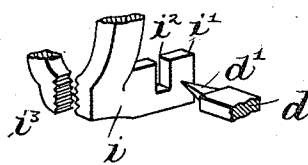


FIG. 2.

FIG. 3.

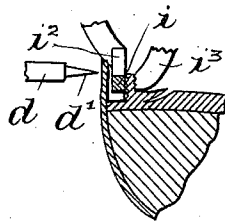
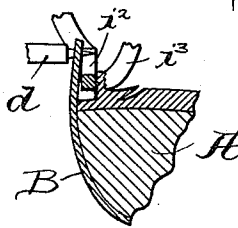


FIG. 4.



WITNESSES:

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INVENTOR:

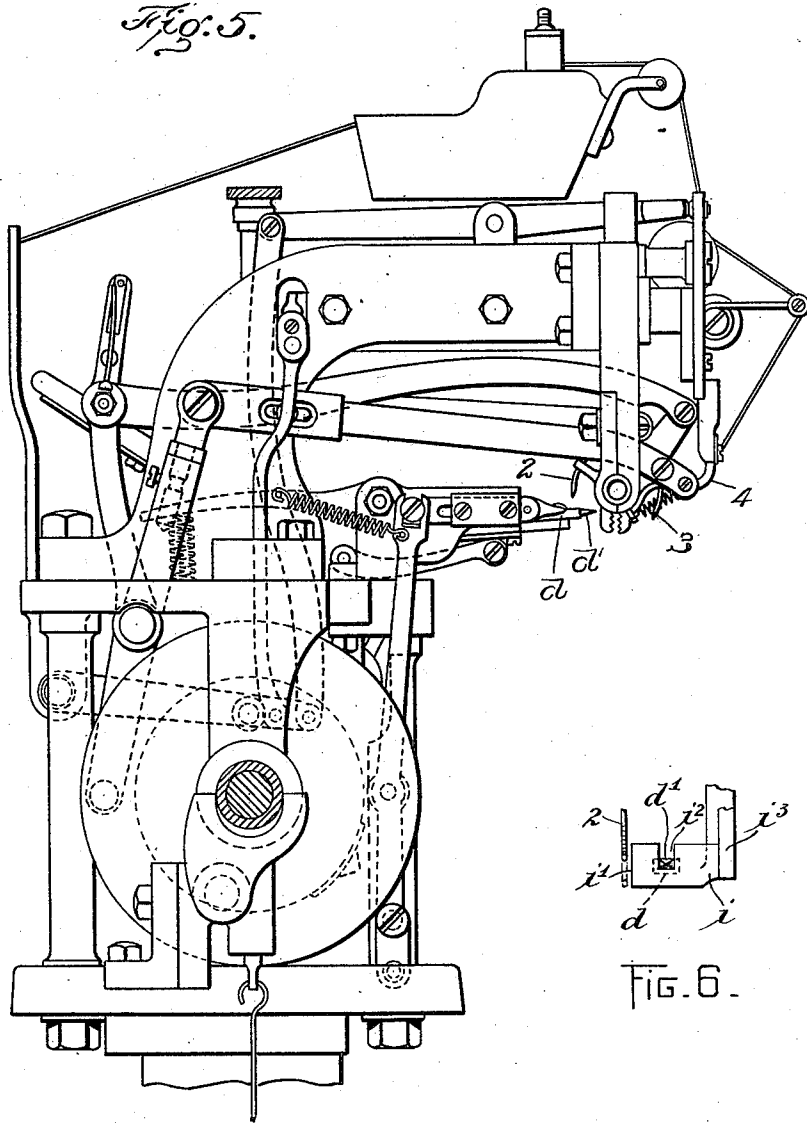
James E. Jackson  
By Wright, Brown & Quincy  
Attys.

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2 SHEETS—SHEET 2.



Witnesses:  
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O. H. R. R.

Inventor;  
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# UNITED STATES PATENT OFFICE.

JAMES E. JACKSON, OF LYNN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO THE UNITED SHOE MACHINERY COMPANY, A CORPORATION OF NEW JERSEY.

MACHINE FOR LASTING BOOTS AND SHOES.

1,011,062.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed July 2, 1897. Serial No. 643,184.

*To all whom it may concern:*

Be it known that I, JAMES E. JACKSON, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Lasting Boots and Shoes, of which the following is a specification.

The present invention relates to machines for lasting boots and shoes, and it is embodied in a machine of that type which include sewing mechanism.

A principal object of this invention is to provide a novel mechanism, which is herein shown as arranged in combination with other usual elements of a machine of this type, for drawing the upper over the last which shall be both simple and effective.

With this and other objects in view, the present invention is shown as embodied in mechanism which comprises a movable member, one end of which is adapted to have a non-slipping engagement with, and preferably to penetrate, the upper of a shoe being lasted, together with mechanism for actuating this movable member in one direction to cause it to engage the upper and then in a different direction to draw the upper over the last. Preferably, an abutment is provided to co-act with said member in such a way as to support the upper against the thrust of the movable member and insure its proper engagement with the upper. In the illustrated use of the invention the abutment also may include means for engaging the shoe bottom to hold the shoe against displacement by the strain exerted on the upper by the upper-pulling member. In the construction shown, the portion which forms an abutment to resist the lateral thrust of the movable member against the upper and the means for resisting upward displacement of the shoe are rigidly connected so that the upper-engaging member moves with relation to the upper-supporting face of the abutment for pulling the upper, but this is obviously not essential to the invention. Preferably also and as herein shown, the upper-supporting face of the abutment is provided with a recess in alinement with the upper-engaging member which permits the tooth or point, with which said member is preferably provided, to project through the upper if desired to enable said member to engage the upper more securely. The provision of the

recess in the upper supporting face of the abutment also has the advantage, when as herein shown the upper-engaging member moves relatively to the abutment to pull the upper, that said face offers less resistance to the movement of the upper or lining there-over.

Another feature of this invention is found in the provision of a mechanism which in addition to engaging or engaging and pulling a portion of upper material as described or otherwise is also adapted to grip and separately hold a second portion of shoe stock. In the example shown, the second portion of shoe stock is an upstanding lip of the shoe innersole and it might on other work be any portion of shoe stock located adjacent and approximately parallel to the upper as, for example, a shoe lining in work in which it was desirable to pull the upper independently of the lining. As herein shown, the engaging and holding devices are adapted not only to hold separated two portions of stock, but to pull one of said portions of the stock relatively to the other portion. To this end the member which has been referred to as an abutment having an upper-supporting portion coöperating with the upper-engaging and penetrating member has also in the illustrated construction a stock engaging surface on its opposite side and a gripper member is arranged to co-operate therewith to seize the innersole lip or other second portion of the shoe stock. This produces a construction having two outer jaws and an intermediate jaw or member having stock engaging surfaces on its opposite sides which may be of appropriate similar or dissimilar formation according to the nature of the work to be done by them. As herein shown, the surfaces of the outer and intermediate jaws that engage the innersole lip are ribbed as distinguished from the described formation of the other two co-operating surfaces which engage the upper. It is to be noted that it is characteristic of the upper-engaging devices that the outer member is provided with a non-slipping surface which may indent or penetrate the engaged surface of the stock while the co-operating surface of the abutment is relatively smoother or of less holding power. An advantage which may be secured from this fact is that, when lasting a lined shoe in which the upper and lining are inserted be-

tween said surfaces, the outer jaw can have a non-slipping engagement with the upper to pull it while the lining can slip with relation to the relatively smoother surface of the abutment whereby a firmer grip is effected on the upper than on the lining. This is in some instances desirable because the inelastic lining needs not to be pulled as far as the more elastic upper leather.

In the illustrated construction the outer jaw receives an upper pulling movement in addition to an engaging movement while the intermediate jaw or abutment is stationary. The length of this stock engaging movement, or the formation of the engaging surface of this outer jaw, may be such as to insure a non-slipping engagement or partial or complete penetration of the upper leather without penetrating or otherwise so seizing the cloth lining that the latter may not drop behind the leather during a part or the whole of the pulling movement. It is believed to be new to actuate one of two opposed gripping members relatively to the other in the direction of and during the pulling strain to effect stretching of one of two portions of the stock, as the shoe upper, relatively to another portion such as the shoe lining, or for any other analogous purpose. It is also new to provide outer jaws coöperating with an intermediate jaw and means for actuating the outer jaws in different directions. In the instance shown, one outer jaw has only a gripping movement while the other jaw has also a pulling movement. It is characteristic of the illustrated construction that the jaws grip one portion of the stock, as the upper in advance of the point lengthwise of the shoe at which the other portion, which is the innersole lip, is gripped. For this purpose the intermediate member has a gripping face on one side which is in advance of the gripping face on its other side. In the machine shown, this has the advantage that the outer, lip engaging jaw is removed far enough from the upper pulling and securing point to give ample space for the manipulation of the needle of the stitching mechanism.

Other features of this invention, including certain combinations of parts and more important details of construction, will be set forth in the following description and included in the accompanying claims.

Reference is to be had to the accompanying drawings and to the letters and figures marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Figure 1 of the drawings is a sectional view through a sewing machine for lasting boots and shoes to which my invention is applied for the purpose of illustration.

Fig. 2 is a perspective view of the stock engaging members or jaws. Figs. 3 and 4 represent sections through a last having a sole and upper thereon illustrating the movement of the upper pulling member. Fig. 5 shows a complete machine in side elevation. Fig. 6 is a detail view illustrating, in front elevation, the relation of the needle and stock engaging members or jaws.

The mechanism which I shall now proceed to describe is more especially adapted for use in the machine illustrated and described in my co-pending application for Letters Patent of the United States, Serial No. 630,153, filed March 31, 1897, to which reference may be had for a complete description of the various parts of the machine and the movements thereof. Inasmuch as this present invention relates primarily to the mechanism for gripping the shoe stock and stretching the upper, I have not illustrated in detail all of the other parts of the machine, such as the stitch forming mechanism, the feeding devices, etc., which are fully shown and explained in said earlier application.

Referring to the drawings,—*a* indicates a base plate from which rises the gooseneck *a'* upon which is mounted the mechanism for sewing the upper to the insole which includes a needle 2, an awl 3, a looper 4, and devices for actuating them. This mechanism, as well as the mechanism for feeding the work (not shown), may be of any usual or suitable construction, but preferably are such as are fully described in my prior application.

Mounted in bearings in the frame which supports the base plate *a* is a driven shaft *b* which is provided with a cam *b'* having a cam groove *b<sup>2</sup>* in one face and another cam groove *b<sup>3</sup>* in its opposite face. Mounted in a standard *a<sup>2</sup>* projecting up from the base plate *a* is a stud shaft *c* upon which is fulcrumed a lever or carrier *c'*. This lever is formed in its forwardly projecting end with a groove *c<sup>2</sup>* in which is placed a slide *c<sup>3</sup>* held therein by a slotted plate *c<sup>4</sup>* through which projects a lug *c<sup>5</sup>* secured to the slide *c<sup>3</sup>*. On the end of the slide is placed an upper-engaging device consisting of a small jaw or plate *d* adjustably secured to the slide *c<sup>3</sup>* by screws *c<sup>6</sup>* passing through slots in the plate. As shown, this plate or jaw is formed with a forwardly projecting tooth or point *d'* which is adapted to indent and, it may be, to penetrate completely through the upper so as to obtain a firm grip upon the same.

The lever *c'* is rocked about its fulcrum *c* by means of a connecting rod *e* having a yoke *e'* embracing the shaft *b* and provided with a roller extending into the cam groove *b<sup>2</sup>*. The rod *e* passes through an aperture

in the rear end of the lever  $c'$  and is threaded at its upper end to receive a nut  $e^2$ . A sleeve  $e^3$  is placed loosely upon the rod with one end abutting against the nut  $e^2$ . Telescoped in the other end of the sleeve is another sleeve  $e^4$  having its lower end pressed yieldingly against the lever  $c'$  by a coiled spring  $e^5$  surrounding the rod  $e$  within the sleeve  $e^3$ . The rear end of lever  $c'$  is pressed normally upward against an adjustable stop  $h^2$  by a spring  $h$ .

The member or jaw  $d$  is given a longitudinal movement independently of its supporting lever  $c'$  by means of the following devices: An arm  $f$  is fulcrumed loosely upon a stud  $f'$  and has its upper free end connected with the lug  $c^5$  by a link  $f^2$ . A lever  $g$  is fulcrumed centrally upon the stud  $f'$  and is provided at its lower end with a trundle or roller projecting into the cam groove  $b^3$  shown in dotted lines in the disk  $b'$ . The upper end of the lever  $g$  is laterally extended as at  $g'$  and is provided with forwardly projecting flanges or lugs  $g^2$   $g^3$ , a spring  $g^4$  being interposed between the lug  $g^2$  and the arm  $f$ , which is arranged between said lugs.

With the above-described construction it will be seen that as the cam disk  $b'$  rotates the member or jaw  $d$  will be reciprocated in a plane substantially parallel with the bottom of the last by slide  $c^3$  actuated yieldingly from the cam groove  $b^3$ , and that it will be independently and yieldingly rocked with its carrier  $c'$ , so as to carry it upwardly away from the last. The extent of this upward movement will be varied by adjusting the stop  $h^2$  according to the requirements in lasting different shoes.

The member  $i$ , which forms an abutment for cooperating with the movable stretching member  $d$ , is herein shown as stationary or fixed in position, although that is not essential to the invention. The member  $i$  comprises a supporting device which cooperates with the upper stretching member to hold the upper against the thrust of such stretching member. This device is shown as mounted rigidly upon the member  $i$  and is, therefore, stationary, but this arrangement is not essential. To this end, as herein shown, the member  $i$  has a laterally extending web  $i'$  which forms the upper supporting device. This web is preferably recessed or slotted as at  $i^2$  in Fig. 2, this slot being in alinement with the tooth or point  $d'$  of the movable member  $d$  so that, as this member  $d$  is moved forwardly by its actuating mechanism above described, if the point  $d'$  penetrates through the upper resting against the supporting device  $i'$  it may extend into the slot  $i^2$ , as shown in Fig. 4. If there is a lining of cloth or other material it may be bent into the slot  $i^2$  and thus a non-slipping engagement of the tooth or

point therewith provided while yet seizing the lining with enough force to cause it to be pulled sufficiently to straighten any wrinkles therefrom when the upper is stretched. The stationary member  $i$  also, in combination with a movable jaw  $i^3$ , constitutes a pair of grippers for clamping the channel lip or tape forming a part of or secured to the sole of a shoe and holding said lip or tape in position to be engaged by the stitching mechanism. The movable jaw  $i^3$  is formed on a lever which is operated through suitable connections, fully shown in the drawings, by the cam surface formed on the edge of the cam disk  $b'$ .

The stock engaging devices of this present invention are an improvement upon the earlier construction in that, among other things, only three members are required instead of four as heretofore for seizing separately the parallel adjacent upper and innersole lip and pulling one of said adjacent portions of the stock with relation to the other. The use as described of one intermediate jaw with two cooperating outer jaws simplifies the construction; and the single pulling jaw cooperating with the fixed intermediate jaw produces good results and has, in the illustrated and other uses, many advantages some of which have been pointed out in the earlier portion of this description.

In the operation of the mechanism above described as equipped with this invention, the gripper jaw  $i^3$  is actuated to grip between it and the stationary member  $i$  the lip projecting from the sole, so that the work is held firmly. The movable member or jaw  $d$  is projected forwardly to cause its tooth or point  $d'$  to engage, and preferably to penetrate and it may be to project through the upper  $B$  near its edge and thus, it may be, stretch the upper over the last to some extent, after which the point  $d'$  is raised to effect or to complete the stretching of the upper, the stationary member  $i$  serving to maintain the upper securely engaged upon the tooth of jaw  $d$  and to prevent the rising of the last. The axis of motion of the jaw  $d$ , found in the shaft  $c$ , is above the jaw so that as the jaw is raised (Fig. 4) the hold upon the leather is tightened. The timing of the cams is of course arranged to cause the jaw  $d$  to seize the upper before it rises to stretch the upper and to release the upper before it descends. The jaw  $i^3$  is actuated to grip the innersole lip and thereby position the shoe before the jaw  $d$  seizes the upper, see Fig. 3, and the formation of the edge cam  $b'$  causes the jaw  $i^3$  to hold the shoe during the major portion of the cycle and until after the jaw  $d$  has been retracted whereupon it releases the lip to permit the relative change of position between the shoe and stock engaging devices

which is required for feeding the shoe. The needle 2 of the stitch-forming mechanism passes through the stretched upper and the lip adjacent to the jaws *d*, *d'* before the jaw *d* is drawn rearwardly to disengage the upper and then is carried downwardly. The gripper *i*<sup>3</sup> having next been retracted from the work, a cycle of operations of the parts to which this invention relates is completed.

10 Having thus explained the nature of the invention and having fully described one mechanical embodiment of the same and its mode of operation, though without attempting to set forth all of the forms in which it may be embodied, or all of the modes of its use, I declare that what I claim is:—

1. In a machine for lasting boots and shoes, means for drawing the upper over the last comprising a member having a penetrating point, and mechanism for actuating said member first in one direction to cause said point to penetrate the upper so as to hold it firmly and then in a direction substantially perpendicular to the plane of the sole to draw the upper over the last.

2. In a machine for lasting boots and shoes, means for drawing the upper over the last comprising a pivoted carrier, a member slidable in said carrier and having a penetrating point, mechanism for moving said member in its carrier to cause its point firmly to engage the upper, and mechanism for actuating said carrier to draw the upper over the last.

3. In a machine for lasting boots and shoes, a fixed abutment to support the upper, a movable member co-acting with said abutment, and mechanism for actuating the movable member first to cause its end to engage the upper and then to draw the upper over the last.

4. In a machine for lasting boots and shoes, a movable member having an end adapted to engage the upper, a fixed abutment co-acting with the movable member to support the upper on both sides of said end, and mechanism for carrying the movable member first toward the face of the abutment to cause it to engage the upper and then substantially parallel to said face to draw the upper over the last.

5. In a machine for lasting boots and shoes, a single movable member with one end adapted to engage the upper, mechanism for actuating said member in one direction to cause it to engage the upper and in another direction to draw the upper over the last, and an abutment bearing against both the sole and the upper to support them against the thrust exerted in both directions by the movable member.

6. A machine for sewing together the upper and the sole of a boot or shoe comprising, in addition to the stitching mechanism, a stationary member having a slot, and an

upper stretching member movable toward and from said stationary member and having a point arranged to enter and move longitudinally of said slot.

7. A machine for sewing together the upper and the sole of a boot or shoe, comprising, in addition to the stitching mechanism, a stationary member, a movable jaw co-acting with said member to grip the sole, a movable member also co-acting with said stationary member to engage the upper, and mechanism for actuating said movable member to cause it to draw the upper over the last.

8. A machine for sewing together the upper and the sole of a boot or shoe comprising, in addition to the stitching mechanism and the sole-gripping mechanism, means for drawing the upper over the last including a movable member to engage and penetrate the upper and mechanism operatively connected to the main shaft for actuating said movable member in one direction to penetrate the upper and in a different direction to pull the upper substantially perpendicular to the sole.

9. In a machine for lasting boots and shoes, means for drawing the upper over the last comprising a member having a penetrating point, mechanism for actuating said member first to cause said point to penetrate the upper so as to hold it firmly and then to draw the upper over the last, and means constructed and arranged to support the upper against the thrust of the penetrating point and to hold the last against the pull of the upper.

10. In a machine for lasting boots and shoes, means for working an upper over a last comprising a pivoted carrier, a member slidable in said carrier and having a penetrating point, mechanism for moving said member in its carrier to cause its point to engage the upper, and mechanism for actuating said carrier to pull the upper, said machine having provision for changing the path of movement of the sliding member to engage the upper higher or lower.

11. In a machine for lasting boots and shoes, an abutment to support the upper, a co-acting movable member, and mechanism for actuating the movable member first in one direction to cause its end to engage the upper and then in a different direction relatively to the abutment to draw the upper over the last.

12. In a machine for lasting boots and shoes, an abutment to support the upper, a co-acting movable member having an end adapted to engage the upper, and mechanism for carrying the movable member first toward the face of the abutment to cause it to engage the upper and then relatively to the abutment in a plane substantially parallel to said face to draw the upper over the last.

13. In a machine for lasting boots and shoes, means for drawing the upper over the last comprising a member having a penetrating point, a relatively stationary abutment, and mechanism for first actuating said member yieldingly in a direction to cause said point to penetrate the upper so as to hold it firmly and then to actuate said member in a direction at an angle to the direction of its first movement to draw the upper over the last.

14. In a machine for lasting boots and shoes, means for drawing the upper over the last comprising a member having a penetrating point, a relatively stationary abutment and mechanism for yieldingly actuating said member in two directions, first to cause it to penetrate the upper and then to draw the upper over the last.

15. In a machine for lasting boots and shoes, means for working an upper over a last comprising a movable carrier, a member slidable in said carrier and having a penetrating point, mechanism for moving said member in its carrier to cause its point to engage the upper, mechanism for actuating said carrier to pull the upper, and means to vary the extent of the pulling movement of said carrier.

16. In a machine for lasting boots and shoes, means for working an upper over a last comprising a member having a penetrating point, a relatively stationary abutment, and mechanism for actuating said member first in one direction to cause said point to penetrate the upper so as to hold it firmly and then in a direction at an angle to the direction of its first movement to draw the upper over the last, said machine having provision for varying the extent of the last-named movement of said member.

17. In a machine for lasting boots and shoes, the combination with suitable operating means, of devices for holding a plurality of parallel adjacent portions of shoe stock, including a jaw arranged to be interposed between and to engage said parallel adjacent portions of the stock, said devices being constructed and arranged to cause the stock on one side of said interposed jaw to be pulled with relation to the stock on the other side of said jaw.

18. In a machine for lasting boots and shoes, mechanism for engaging and pulling an upper and for gripping another parallel and adjacent portion of shoe stock, said mechanism comprising outer jaws in combination with an intermediate jaw having stock engaging surfaces of different formation on its opposite sides.

19. In a machine for lasting boots and shoes, mechanism for engaging and pulling an upper and for gripping another parallel and adjacent portion of the shoe stock, said mechanism comprising three coöperating

jaws constructed and arranged to hold the two portions of stock out of contact, and actuating mechanism for causing the upper to be engaged and pulled.

20. In a machine for lasting boots and shoes, upper pulling means comprising opposed upper embracing members, and means for actuating one of said members relatively to the other in the direction of the pulling strain to effect stretching of the upper.

21. In a machine for lasting boots and shoes, upper pulling means comprising opposed stock embracing members, and actuating means therefor having provision for a pulling movement of the member located at one side of the stock relatively to the member located at the other side of the stock.

22. In a machine for lasting boots and shoes, stock pulling means comprising opposed stock embracing members one of which has a surface formed to prevent the stock from slipping relatively thereto and the other member having a comparatively smoother stock engaging surface, and actuating mechanism for causing movement of one member relatively to the other to engage the stock and for thereafter causing movement of said member in a different direction to pull the stock.

23. In a machine for lasting boots and shoes, stock embracing means comprising an intermediate jaw having one roughened gripping surface and an opposed smooth surface, and outer jaws coöperating, respectively, with said surfaces to seize separate portions of the stock, and actuating means for the two outer jaws having provision for imparting to those jaws movements having different characteristics.

24. In a machine for lasting boots and shoes, stock embracing means comprising an intermediate jaw, and outer jaws each co-operating with said intermediate jaw to seize separate portions of the stock, and actuating mechanism having provision for relative movement of the outer jaws in the pulling direction.

25. In a machine for lasting boots and shoes, gripping means comprising an intermediate jaw, an opposed jaw coöperating with one end portion of the intermediate jaw at one side thereof, to grip one portion of the stock, and a second opposed member co-operating with the opposite end portion of the intermediate jaw at the other side thereof to grip another portion of the stock.

26. In a machine for lasting boots and shoes, gripping means comprising relatively movable members constructed and arranged to engage different parallel portions of up-standing stock at points one of which is in advance of the other, and mechanism for relatively actuating said members.

27. In a machine for lasting boots and shoes, gripping means comprising an inter-

mediate member and outer members cooperating therewith to hold separated upstanding portions of stock and arranged to grip one of said portions of stock in advance of the point at which the other portion is seized.

28. In a machine for lasting boots and shoes, gripping means comprising an intermediate member and outer members cooperating therewith to hold separated upstanding portions of stock, and actuating mechanism for said outer members arranged to cause one portion of stock to be gripped before the other portion of stock is seized.

29. In a machine for lasting boots and shoes, gripping means comprising the outer member  $i^3$ , the intermediate member  $i$  cooperating therewith and having the lateral extension  $i'$ , the member cooperating with said extension, and mechanism for relatively actuating said members to seize and release the stock.

30. In a machine for lasting boots and shoes, gripping means comprising the outer jaw  $i^3$ , the intermediate member  $i$  cooperating therewith and having the lateral extension  $i'$ , the outer jaw  $d$  cooperating with said extension, and separate actuating means for the two outer jaws having provision for imparting relative movement to said jaws in the stock pulling direction.

31. In a machine for lasting boots and shoes, gripping means for separately seizing two adjacent portions of shoe stock, comprising a member engaging one portion of the stock which is movable in the direction of the pulling strain relatively to the members for engaging the other portion of the stock.

32. In a machine for lasting boots and shoes, gripping means comprising an abutment member, a second member pivoted at one side of the first member and movable about said pivot to effect pulling of the upper, by moving it along the face of the relatively stationary abutment member, said parts being constructed and arranged to cause the pivoted member to approach the abutment member for tightening the hold upon the stock during the pulling movement about said pivot.

33. In a machine for lasting boots and shoes, gripping means comprising the abutment member  $i'$ , the pivotally supported member  $d$ , and means for actuating the member  $d$  about its pivot to pull the upper by causing it to move along the abutment member, said pivotal point being located at one side of and above the gripping point whereby the member  $d$  has a component of movement toward member  $i'$  to tighten the grip as the upper is pulled.

34. In a machine for lasting boots and shoes, jaws adapted to hold simultaneously two thicknesses of stock, said jaws having

gripping faces for engaging one of said thicknesses which are of different formation from the gripping faces that engage the other thickness of stock.

35. In a machine for lasting boots and shoes, the combination with outer jaws, of an intermediate jaw having gripping surfaces of different formation on its opposite sides.

36. In a machine for lasting boots and shoes, a rigid jaw, movable jaws upon opposite sides of the rigid jaw, means for yieldingly actuating one movable jaw toward the fixed jaw, and means acting in a relatively unyielding manner to press the other movable jaw against the fixed jaw.

37. In a machine for lasting boots and shoes, a pair of movable jaws having operating arms, an intermediate jaw, an operating device for engaging the arms, and a yielding connection between one of the jaws and its arm.

38. In a machine for lasting boots and shoes, a rigid jaw, movable jaws upon opposite sides of the rigid jaw, and means for actuating the two movable jaws with different forces.

39. In a machine for lasting boots and shoes, a pair of movable jaws having operating arms, a rigid intermediate jaw, an operating device for engaging the arms, and a connection between one of the movable jaws and its arm arranged to permit the force applied in actuating that jaw to be varied relatively to the force applied in actuating the other jaw.

40. In a machine for lasting boots and shoes, a pair of movable jaws, an intermediate fixed jaw, and a single operating device for actuating the two outer jaws toward the fixed jaw to grip two portions of stock separated by the fixed jaw, said mechanism having provision for enabling the jaws to grip firmly portions of stock varying in relative thickness.

41. In a machine for lasting boots and shoes, a pair of outer gripper members, a rigid intermediate gripper member, means for actuating said gripper members to grip different thicknesses of stock against opposite sides of the intermediate member, said means having provision for yieldingly gripping the stock on one side of the intermediate member, and connections between one of the outer members and its actuating means constructed and arranged to permit that member to move relatively to the other outer member in the direction of the pulling strain while the stock is under tension.

42. In a machine of the class described, a gripper mechanism having, in combination, a member adapted to be interposed between the lining and the upper of a shoe, means for gripping the upper against one side of said member, and means for gripping the

lining against the other side of said member, said two means having relative structural variations for maintaining differential tensions upon the lining and upon the upper.

43. In a machine of the class described, a gripper mechanism having, in combination, two outer jaws and an intermediate jaw arranged to hold upon opposite sides of the intermediate jaw a plurality of thicknesses of stock and having gripping surfaces formed to hold one thickness of the stock with greater security than another thickness is held.

44. In a gripper mechanism the combination with suitable operating means, of devices adapted to hold a plurality of thicknesses of stock including a jaw arranged to be interposed between two of the superposed thicknesses of stock, and means shaped for holding the stock on one side of said interposed jaw with a different degree of security from stock on the other side of said jaw.

45. In a gripper mechanism, means adapted for holding a shoe upper, and means adapted for holding a shoe lining, said two means being differently constructed relatively to cause the upper to be held more firmly than the lining.

46. In a grippers mechanism, means for gripping a shoe upper and means for grip-

ping a shoe lining, said mechanism being constructed and arranged to cause the upper to be gripped with a greater force than the lining is gripped.

47. In a grippers mechanism, means for gripping a shoe upper and means for gripping a shoe lining, combined with actuating mechanism constructed and arranged to cause the upper to be gripped harder than the lining is gripped.

48. In a grippers mechanism, means for gripping a shoe upper and means for gripping a shoe lining, combined with actuating mechanism having provision for adjustment to vary the relative forces with which the upper and lining are gripped.

49. In a grippers mechanism, means for gripping an upper, and means for gripping the portion of the lining under the gripped portion of the upper, said two gripping means comprising a rigid jaw, movable jaws upon opposite sides of the rigid jaw, and means for actuating the movable jaws.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses, this 1st day of July, A. D. 1897.

JAMES E. JACKSON.

Witnesses:

A. D. HARRISON,  
P. W. PEZZETTI.