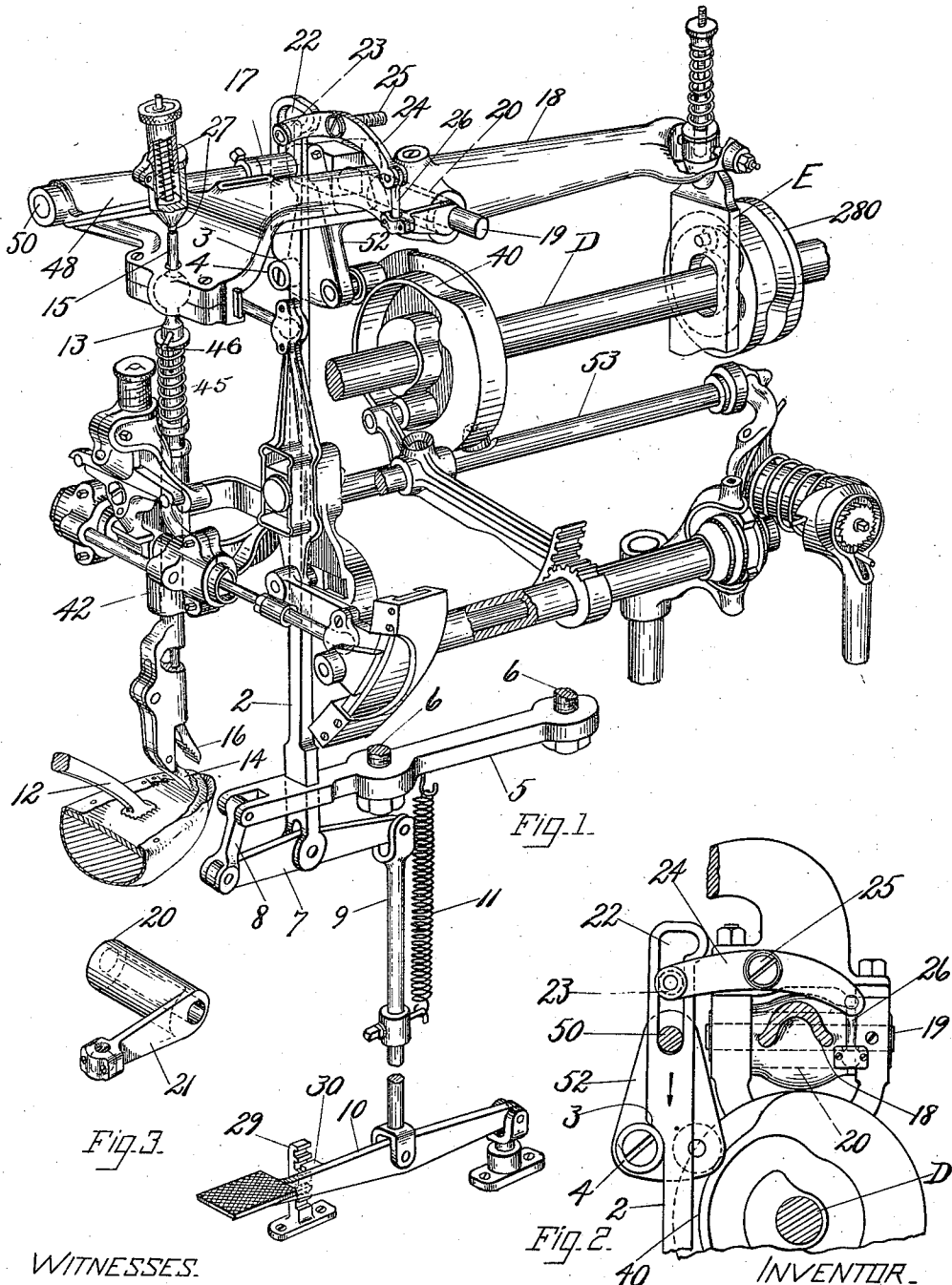


A. BATES.
LASTING MACHINE.
APPLICATION FILED APR. 26, 1905.

1,014,632.

Patented Jan. 16, 1912.

3 SHEETS—SHEET 1.



WITNESSES:
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Elizabeth C. Coups

INVENTOR.
Arthur Bates
By his Attorney
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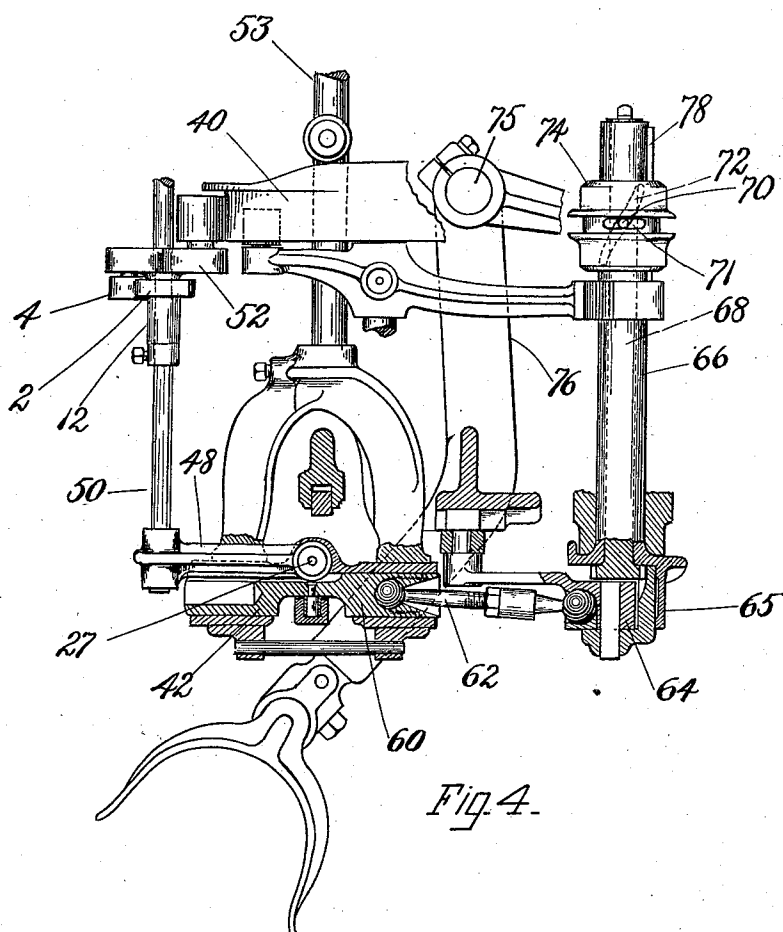


Fig. 4.

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3 SHEETS-SHEET 3.

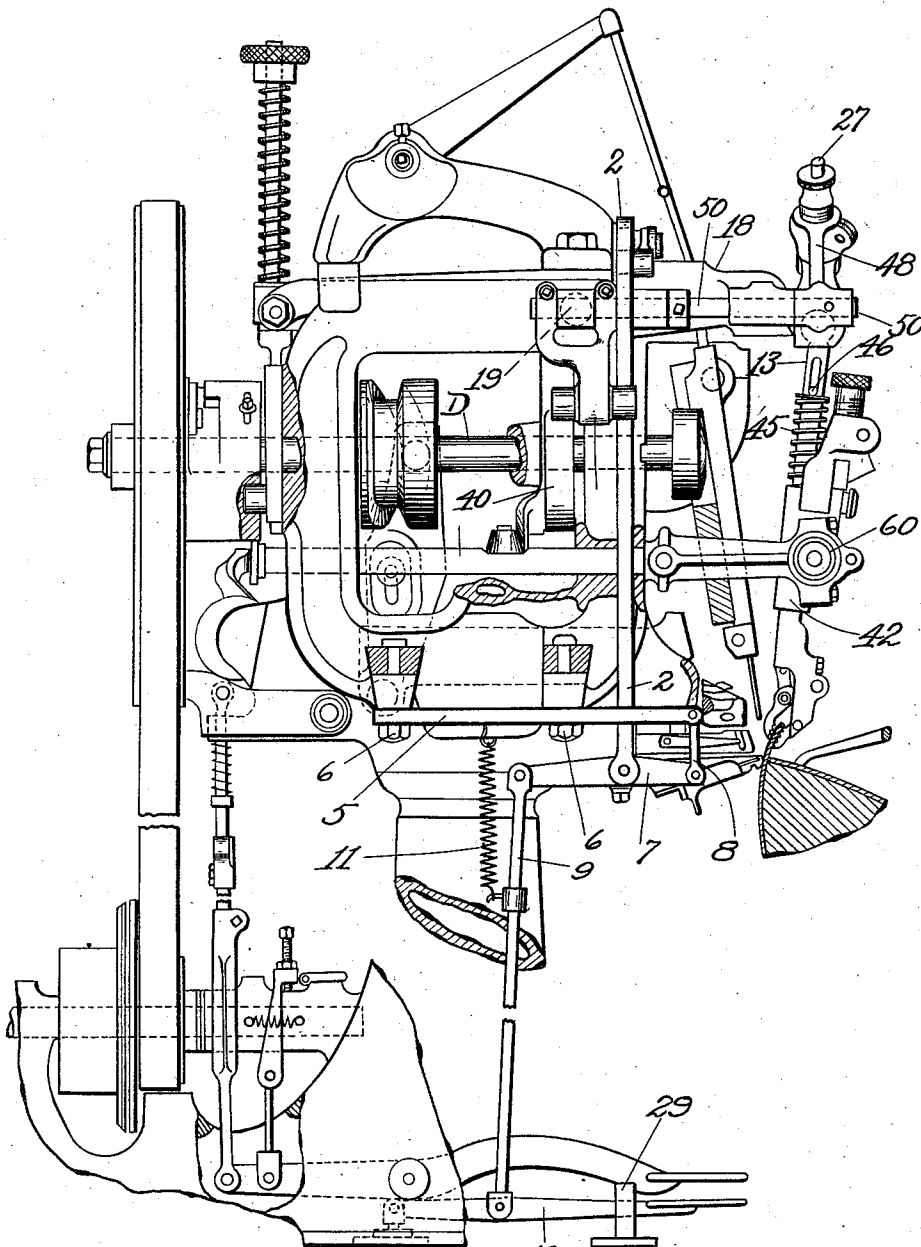


Fig. 5.

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INVENTOR:

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UNITED STATES PATENT OFFICE.

ARTHUR BATES, OF LEICESTER, ENGLAND, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

LASTING-MACHINE.

1,014,632.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed April 26, 1905. Serial No. 257,509.

To all whom it may concern:

Be it known that I, ARTHUR BATES, a subject of the King of England, residing at Leicester, in the county of Leicester, England, have invented certain Improvements in Lasting-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 for working uppers over lasts and more particularly to machines for this purpose in which grippers are employed for gripping and pulling the upper.

The invention is herein shown as embodied in a lasting machine of the type known as the "hand method" lasting machine, an example of which is illustrated in United States Letters Patent No. 584,744, of June 15, 1897.

The invention has for its object to provide means whereby grippers may be manually actuated at the will of the operator and independently of the regular operation of the machine.

An important feature of the invention consists in the combination with grippers and means under control of the operator for causing the grippers to grip the upper of a shoe on a last, of an abutment for the last about which the last may be rocked to pull the upper between the grippers and the last. Preferably means is also provided by which the grippers and the abutment may be moved relatively for further pulling the upper.

A further feature of the invention consists in providing means under the control of the operator for causing the grippers to be closed upon the stock and then for causing the grippers to be lifted at will for pulling the stock. As shown automatic means is also combined for causing the grippers to be further actuated for additionally pulling the stock. In the illustrated embodiment of this feature of the invention the grippers are positively uplifted by the manually controlled means and are yieldingly raised by the automatic means.

Still a further feature of the invention consists in the combination with grippers and mechanism by which the grippers may be operated, of automatic means for actuating the grippers operating mechanism and manually controlled means for actuating said grippers operating mechanism. As herein shown, the manually controlled means may be actuated at the will of the operator either to cause the operating mechanism to close the grippers preliminarily to the automatic actuation of said mechanism for moving the grippers to pull the stock, or to cause said operating mechanism to effect both the closing of the grippers and an initial movement of the grippers to pull the stock prior to the automatic actuation of said operating mechanism for further pulling the stock.

Preferably the machine embodying the present invention is so arranged and constructed, as herein shown for example, that the manually controlled means for moving the grippers operating mechanism may be used without disturbing the normal connection between said mechanism and the automatic means for actuating it. This is very desirable because it enables either or both actuating means to be used at the will of the operator. The invention is here shown as applied to a machine of the type referred to in which the grippers are operated by mechanism including a lever, which will be referred to as the "closing lever," arranged to be rocked by a surface cam and to transmit motion through a yielding medium for closing the grippers, and another lever, which is herein called the "updraw lever," yieldingly actuated from a cam for uplifting the grippers. The manually controlled means comprises a cam bar arranged to engage an arm of the closing lever for rocking said lever in the direction for closing the grippers. The extent of the movement imparted to the closing lever may be controlled by moving the bar more or less and may also be varied by the shape of the cam face on the bar. The manually controlled means also comprises a member which may be either a portion of the cam bar or a part controlled

by said bar, and which has connection with the updraw lever whereby it may be operated for uplifting the grippers. The member by which the updraw lever is manually actuated is preferably so positioned on the cam bar or otherwise related to the grippers closing cam on said bar that a single movement of the bar will first effect the closing of the grippers upon the stock and then the uplifting of them to pull the gripped stock.

As shown, the updraw lever is mounted on a movable fulcrum which is connected with the cam bar to be shifted for raising the lever during a portion of the movement of the manually controlled cam bar. This construction provides means by which the grippers operating mechanism may be actuated manually to uplift the grippers and pull the gripped stock either before the automatic means for actuating said mechanism is put into operation or during the movement of said automatic means. This enables the operator to control completely and vary at will the extent to which the grippers are uplifted for pulling the stock. The grippers may also be manually closed and, if desired, may be uplifted above their normal gripping position so that they are prevented from seizing the upper during repeated operations of the machine. This is advantageous while the heel of the shoe is being lasted. The upper at this portion of the shoe does not require to be pulled and it has been customary for the operator to depress the shoe for dodging the grippers at the moment that they are closing and then to restore the shoe into position to have the upper wiped over and tacked. This feature of the present invention renders this dodging of the grippers unnecessary and enables better work to be done because the shoe may remain continuously in position to be operated upon and also because the operator can give his undivided attention to securing a proper lasting without having to shift the shoe to avoid its being gripped and improperly pulled.

The machine in which this invention is shown as employed is also provided with mechanism for moving the grippers laterally, as is fully explained in the patent to which reference has been made. This mechanism includes a connection between the grippers and a block movably mounted in a holder and joined by intermediate connections with a rockshaft to which a knee lever is secured in convenient position to be actuated by an operator standing in working relation to the machine. By this construction the operator may turn the knee lever and move the grippers laterally either before or after closing or after both closing and uplifting the grippers. The parts preferably are arranged to permit movement of the knee lever and the grippers laterally in either direction. By moving the grippers

laterally before they are closed they may be positioned in desired lateral relation to the shoe supported with its bottom against the abutment. By moving the grippers laterally by means of the knee lever after they have been closed upon the upper they may be employed for adjusting or pulling the upper laterally with relation to the last. This combination of mechanism may be employed for positioning a shoe upper laterally upon a last before the upper is put under tension, or for straining the upper laterally or obliquely during or after the movement of the grippers for stretching the upper.

Other features of the invention, including details of construction and combinations of parts, will be hereinafter described and pointed out in the claims.

Figure 1 is a perspective view of the grippers and the operating mechanism therefor, shown in said prior patent, said view illustrating my improvements applied to the machine. The frame of the machine is omitted in this view for the purpose of showing the grippers operating mechanism with greater clearness. Fig. 2 is a front elevation of parts shown in Fig. 1. Fig. 3 is a detail view showing the eccentric fulcrum sleeve hereinafter described. Fig. 4 is a plan view, partly in section, of the mechanism shown in Fig. 1. Fig. 5 is a left hand side elevation of the machine, certain parts being broken away to illustrate mechanism otherwise hidden.

In the construction herein shown as embodying the invention the gripper members 14 and 16, carried by bars 13 and 15, are constructed to be closed and operated by relative movements of said bars. The bar 13 is tubular to receive and guide the bar 15, which extends above the head of the bar 13, as shown in Fig. 1. The grippers operating mechanism comprises among its parts an updraw lever 18, from which the grippers are suspended, a closing lever, shown as a rockshaft 50 having arms 48 and 52, a cross head 42, through which the gripper bars are guided and which is carried by a rod 53, and other parts not necessary here to describe, for closing the grippers and imparting to them the desired movements for working the upper of a shoe over a last. The particular construction of the grippers and of the operating mechanism is fully described in said prior Letters Patent, to which reference may be had, and only those portions of the operating mechanism will be herein described which are required for an understanding of the present invention.

The shaft 50 of the grippers closing lever is mounted in bearings in the side of the updraw lever 18, see Fig. 1, the arm 48 being provided with a spring-pressed plunger 27 through which the lever acts yield-

ingly upon the bar 15 to depress the bar for effecting the closing of the grippers. The arm 52 of the closing lever engages by a roll the surface of the grippers closing cam 40 on the driving shaft D, which is connected by a suitable starting and stopping mechanism not shown, with any source of power, the high part of the cam rocking the lever to depress the arm 48 and the gripper bar 15 for automatically closing the grippers by yieldingly applied force. Reverse movement of the bar 15 and the closing lever is effected by a spring 45 acting against a pin 46 extending from the bar 15 through a slot in the bar 13.

I have provided means shown as a sliding cam bar 2 having a cam surface 3 located to engage a roll 4 on the lever arm 52 for manually actuating the closing lever in the direction to close the grippers at times chosen by the operator. The cam bar is guided in a bracket 5, which in practice is secured to the machine frame, not shown in Fig. 1, by bolts 6. The cam bar is herein illustrated as arranged to be moved by a foot treadle, and to this end the cam bar is attached to a lever 7 connected by a link 8 to the bracket 5 and by a rod 9 to the foot treadle 10. A spring 11 returns the parts to normal positions when the treadle has been depressed and then released. A collar 17 may be provided on the rockshaft 50 to assist in guiding the upper portion of the cam bar. Any other suitable construction of means under control of the operator may be employed for manually actuating the grippers closing lever to close the grippers.

In the embodiment of the invention herein shown provision is made for manually actuating the updraw lever, which as before described is a part of the mechanism for operating the grippers to manipulate the upper over the last. The lever has bearing on a pin 19, which is supported in the machine frame, as shown in Fig. 2, and the rear end of the lever is connected yieldingly through a slide block and spring with the stem of a plate E, which carries a cam roll standing in a groove in the cam 280 on the driving shaft D before described. The cam 280 automatically actuates the lever 18 in the regular operation of the machine for yieldingly uplifting the grippers to pull the gripped upper between the last and the grippers. To enable the lever 18 to be manually actuated I have herein shown said lever as mounted on a movable fulcrum which is illustrated as an eccentric sleeve 20 surrounding the pin 19 and provided with an arm 21 by which it may be turned to raise and lower the lever and thereby raise and lower the grippers, it being understood that the rear end of the lever is held from rising by its connection with the cam 280. Conveniently the fulcrum sleeve will be

shifted for manually actuating the operating lever 18 by means of a connection with the same manually controlled means by which the closing of the grippers is effected. To this end the cam bar is preferably extended above the cam face 3 and provided with an angular slot 22, which receives a stud 23 on a lever 24 fulcrumed on a bolt 25 attached to the frame, as shown in Fig. 2. The lever 24 is connected by a link 26 to the free end of the arm 21. Sufficient lost motion is provided by the slot 22 to permit the grippers to be closed by the cam face 3 on the cam bar and held without liability of actuating the lever 24 in case it is not desired to pull the gripped upper manually. A further depression of the cam bar after the grippers have been closed brings the upper wall of the slot into engagement with lever 24, and thereby turns the fulcrum sleeve in the direction for raising the fulcrum whereby the updraw lever is manually actuated for pulling the gripped upper independently of the regular operation of the machine. It is to be observed that the connection between the foot treadle and the fulcrum sleeve is unyielding so that the updraw lever may be positively actuated manually to pull the upper, whereas the automatic actuation of said lever by the cam 280 is yieldingly effected.

The cross head 42 carried by the rod 53 and through which the grippers are guided in their vertical movements is itself movable laterally for imparting lateral movements to the grippers with relation to the bottom rest 12 and the shoe supported against said rest in position to be operated upon. The cross head receives a plunger 60, shown as connected yieldingly therewith through intermediate devices fully explained in said Letters Patent and not necessary here to describe. The plunger is joined by a rod 62 to a block 64, movably mounted in a holder 65 formed on the sleeve 66. The holder has toothed engagement with a shaft 68, which has near its rear end a stud 70 extending outwardly through a transverse slot 71 in the bearing sleeve 66 and into a spiral slot 72 in a collar 74, which is movable endwise by a rockshaft 75 provided with suitable means to permit its manual operation—as, for example, with a knee lever 76. In the endwise movement of the collar, which is restrained from rotation by a spline 78 in the sleeve bearing, the engagement of the walls of this spiral slot with the stud 70 effect a turning of the shaft 68 and an actuation of the block 64 for laterally moving the cross head 42 and the grippers toward the right or the left, according to the direction in which the knee lever is turned. The several grippers actuating means are arranged relatively to permit the movement of the grippers later-

ally at any desired time with relation to the closing and uplifting movements of the grippers effected through the foot treadle 10.

It will now be understood that I have
 5 provided in a machine having grippers and automatic means for closing the grippers upon the stock, or for both closing the grippers and moving them to exert a pull upon
 10 the stock, non-automatic means or means under control of the operator by which the grippers may be closed upon any portion of the stock, such as a portion of the upper or of the lining, or of both the upper and lining of a shoe to enable such portion of the
 15 stock to be pulled or stretched independently of the regular operation of the machine. This manually effected pull may be preparatory to the regular operation of the machine—as, for example, for the purpose
 20 of positioning or fitting the upper materials properly upon the last in readiness for the lasting operation. The preparatory pull on the upper or lining, which may vary in extent according to the will of the operator,
 25 may be effected by movement of the shoe in any desired direction away from the grippers,—as, for example, by resting the bottom of the shoe against the usual last rest with which machines of this type are provided
 30 and rocking or tilting the last about the rest as a fulcrum or pivot to pull, stretch, or draw the stock with relation to the last. Instead of rocking the last about the last rest to pull the stock, or in addition
 35 to the pull thus effected, the grippers may be uplifted relatively to the last and rest by manually actuating the grippers operating lever 18. By thus raising the grippers the stock is pulled upwardly in a direction substantially perpendicular to the last bottom.
 40 If it is desired to pull the upper laterally the knee lever is operated to give a lateral movement to the grippers toward the right or the left, as may be required for giving the
 45 desired straining or positioning movement to the upper either before or during or after the upward pull is effected. The grippers may also be positioned laterally before they close upon the upper and then be moved in
 50 the same or in the opposite direction after having gripped the stock. It will be understood that the extent and the relative timing of each of these movements or manipulations of the grippers may be varied entirely
 55 within the discretion of the operator in accordance with the conditions encountered at different times. When the stock has been thus pulled to fit or position it upon the last, or for any other purpose, prior to the
 60 automatic actuation of the grippers operating mechanism the stock may be released by releasing the foot treadle and then submitted to the regular operation of the machine, or, if desired, the automatic actuation
 65 of the grippers operating mechanism may

be made to take place while the grippers still hold the stock. The yielding connection between the cam 280 and the updraw lever and between the closing lever and the grippers permits such further actuation of
 70 said mechanism without any liability of injuring the stock. In the automatic actuation of the grippers operating mechanism the grippers are uplifted by the updraw lever and are moved forwardly over the shoe
 75 by the cross head 42 and the rod 53 and, it may be, given other movements for further working the upper over the last by other parts of the grippers operating mechanism which are described in detail in said prior
 80 Letters Patent. By depressing the foot treadle during the automatic operation of the machine or by holding the cam bar in such position as to control the position of the eccentric sleeve 20 the extent of the up-
 85 lifting movement imparted to the grippers for pulling the stock may be manually controlled and varied according to the requirements of the work.

It is obvious that the invention is not limited in its application to any particular type
 90 of machine and also it will be understood that it is not essential that the means which is employed for manually effecting the closing of the grippers and the means for up-
 95 lifting the grippers be interdependent.

If desired, locking means may be used for holding the cam bar in a depressed position, and as herein shown a ratchet faced
 100 post 29 is arranged adjacent to the treadle in position to be engaged for this purpose by a tooth 30 on the treadle when the treadle is moved laterally.

Having indicated the nature of my invention and fully described a construction embodying the same, I claim as new and desire
 105 to secure by Letters Patent of the United States:—

1. In a machine for working an upper over a last, the combination with grippers,
 110 of means under control of the operator for closing the grippers upon the upper, an abutment or rest about which the last may be rocked for pulling the upper between the grippers and the last and manually controlled means for moving the grippers laterally while the upper is held under tension.

2. In a machine for working an upper over a last, the combination with grippers constructed and arranged for manual operation for engaging and releasing the stock at the will of the operator, of an abutment arranged to be engaged by the last and about which the last may be rocked for pulling the stock with relation to the last, and means
 120 for moving the grippers with relation to the abutment to lay the upper over the last bottom.

3. In a machine for working an upper over a last, the combination with grippers,
 130

of means under control of the operator for closing the grippers upon the upper, an abutment or rest about which the last may be rocked for pulling the upper between the grippers and the last, and other means for relatively moving the grippers and the abutment for further manipulating the upper.

4. In a machine for working an upper over a last, the combination with grippers, of means under control of the operator for closing the grippers, an abutment or rest about which the last may be rocked for pulling the upper between the grippers and the last, and means for automatically actuating the grippers for working the upper over the last.

5. In a machine for working an upper over a last, the combination with grippers, grippers closing mechanism and grippers moving mechanism, of manually controlled means for actuating said mechanisms first to close the grippers upon the upper and then to move the grippers for pulling the upper.

6. In a machine of the class described, the combination with grippers and operating mechanism therefor, of means under control of the operator for actuating said mechanism to close the grippers, and automatic means for thereafter actuating said mechanism to uplift the grippers.

7. In a machine of the class described, the combination with grippers and operating mechanism therefor, of manual means for actuating said mechanism to move the grippers for pulling the stock and automatic means for actuating said mechanism to move the grippers for further pulling the stock substantially perpendicular to the last bottom.

8. In a machine of the class described, the combination with grippers and operating mechanism therefor, of unyielding means for actuating said mechanism for uplifting the grippers, and means for actuating said mechanism yieldingly for further uplifting the grippers.

9. In a machine for working an upper over a last, the combination with grippers and operating mechanism therefor, of manually actuated means for moving said mechanism to uplift the grippers for pulling the upper, and means for automatically actuating said mechanism to move the grippers for working the upper over the last.

10. In a machine of the class described, the combination with grippers and operating mechanism therefor, of automatic actuating means connected to said operating mechanism, and manually controlled means for actuating said operating mechanism without disturbing the connection between said mechanism and the automatic actuating means, said machine having provision for returning the grippers automatically to normal starting position.

11. A machine of the class described, comprising grippers, operating mechanism therefor and automatic means for actuating said mechanism to cause the grippers to grip and pull the stock, combined with additional means under control of the operator for actuating said grippers operating mechanism prior to the beginning of its cycle to effect gripping and initial pulling of the upper independently of the regular operation of the machine.

12. A machine for working an upper over a last, comprising grippers, operating mechanism therefor, and means for actuating said mechanism to cause the grippers to grip the upper and work it over the last, combined with additional means for actuating said mechanism to cause the grippers to pull the upper independently of the regular operation of the machine.

13. In a machine for working an upper over a last, the combination with gripping means, a closing lever therefor, and a cam for actuating said lever, of manually controlled means for actuating said lever independently of said cam to close the gripping means at the will of the operator.

14. In a machine for working an upper over a last, the combination with grippers, a lever and a cam for actuating said lever to move the grippers for pulling the upper, of manually controlled means for actuating said lever independently of said cam.

15. In a machine for working an upper over a last, the combination with grippers, a lever for moving the grippers to pull the upper, and a cam for actuating said lever, of a movable fulcrum for said lever, and manually controlled means for shifting said fulcrum to actuate the lever for pulling the stock, substantially as described.

16. In a machine for working an upper over a last, the combination with means for resting the last, of grippers for engaging the upper at the toe of the last, and manually controlled devices for moving the grippers with relation to the last for pulling the upper lengthwise of the last, said machine being also constructed and arranged to permit movement of the grippers laterally to pull the upper transversely of the last.

17. In a machine for working an upper over a last, the combination with means for resting the last, of grippers for engaging the upper at the toe of the last, and means for manually actuating the grippers and last relatively to pull the upper lengthwise of the last, and means for actuating the grippers laterally to pull the upper transversely of the last.

18. In a machine for working an upper over a last, the combination with means for resting the last, of a gripper for engaging the upper and operating mechanism there-

for constructed and arranged to effect manual movement of the grippers to pull the toe end of the upper transversely of the last.

19. In a machine for working an upper over a last, the combination with an abutment for the last and grippers constructed and arranged to engage the toe portion of the upper, of manually controlled means for closing the grippers upon the upper, and other means for moving the grippers laterally for positioning the upper on the last.

20. In a machine for working an upper over a last, the combination with an abutment for the last and grippers constructed and arranged for manual operation to engage and pull the upper at the toe of the last, of manually controlled means for actuating the grippers transversely of the last.

21. In a machine of the class described, the combination with grippers and automatically operating mechanism for actuating the grippers to work an upper over a last, of manually operated means for positioning the grippers out of operative relation to the work while said mechanism continues in operation.

22. In a machine of the class described, the combination with grippers and automatically operating mechanism for actuating the grippers to work an upper over a last, of manually controlled means for lifting the grippers into a position above their normal gripping altitude whereby they are prevented from seizing the upper.

23. In a machine of the class described, the combination with grippers and automatically operating mechanism for actuating the grippers to work an upper over a last, of manually controlled means for holding the grippers above the work to prevent them from gripping the upper without interrupting their operative connection with their actuating mechanism.

24. In a machine of the class described, the combination with grippers and automatically operating mechanism for actuating the grippers to work an upper over a last including means for automatically opening and closing the grippers, of manually controlled means for holding the grippers closed so that they cannot seize the work.

25. In a machine of the class described, the combination with grippers and automatically operating mechanism for actuating the grippers to work an upper over a last, of means independent of said automatic mechanism for controlling the closing and opening of the grippers whereby their operation on the work can be stopped while the machine continues to run.

26. In a machine of the class described, the combination with grippers and automatically operating mechanism for actu-

ating the grippers to work an upper over a last, of manually controlled means for holding the grippers closed and uplifted during repeated operations of the machine.

27. In a machine for working an upper over a last, the combination with grippers, a lever for moving the grippers to pull the upper, and a cam for actuating said lever, of manually controlled means for actuating the lever to move the grippers while the relation between the cam and the portion of the lever directly connected therewith remains substantially unchanged.

28. In a machine for working an upper over a last, the combination with grippers, a lever for moving the grippers to pull the upper, and a cam for actuating said lever, of manually controlled means for moving the lever angularly with relation to its operative connection with the cam.

29. A machine for working an upper over a last, having, in combination, grippers, means for actuating the grippers to seize, pull and overlay the upper and then automatically open to receive another portion of upper, and means under control of the operator for closing the grippers upon the upper before the machine is restarted.

30. A machine for working an upper over a last, having, in combination, grippers, means for actuating the grippers to pull and overlay the upper, and means adapted to be manually manipulated, without disturbing said actuating means, for causing the grippers to seize and initially pull the upper.

31. A machine for working an upper over a last, having, in combination, a last rest, grippers, manually controlled operating mechanism to close the grippers upon a shoe upper and relatively move the grippers and the last to pull the upper, said machine being constructed and arranged to permit relative adjusting movement of the last and grippers to vary the direction of tension on the pulled upper while it is held by the grippers, and power driven means for fastening the upper.

32. A machine for working an upper over a last, having, in combination, a last rest, grippers, manually controlled operating mechanism to close the grippers upon a shoe upper and relatively move the grippers and the last to pull the upper, said machine being constructed and arranged to permit relative adjusting movement of the last and grippers to vary the direction of tension on the pulled upper while it is held by the grippers, power driven means for actuating the grippers to lay the upper over the last bottom in position to be fastened, and means to insert fastenings to secure the upper.

33. A machine for working an upper over a last, having, in combination, a last rest, grippers, manually controlled operating mechanism to close the grippers upon a shoe

upper and relatively move the grippers and the last to pull the upper, said machine being constructed and arranged to permit relative adjusting movement of the last and

5 grippers to vary the direction of tension on the pulled upper while it is held by the grippers, and power driven means for wiping the upper inwardly over the last bottom and fastening it under tension.

10 34. In a machine for working an upper over a last, the combination with a last bottom rest and grippers, of manually controlled operating mechanism for closing the grippers, for relatively moving the last and

15 the grippers to put the upper under tension, for relatively moving the grippers and the last laterally while the upper is held by the grippers and additional means for relatively moving the grippers and the last.

20 35. In a machine for working an upper over a last, the combination with a last bottom rest and grippers, of manually controlled operating mechanism for closing the grippers, relatively moving the last and the

25 grippers to put the upper under tension and relatively moving the grippers and the last laterally while the upper is held by the grippers, and power driven means adapted to be subsequently started to actuate the grippers

30 to carry the upper inwardly toward and over the edge of the last into position to be fastened.

36. In a machine for working an upper over a last, the combination with a last bottom rest and grippers, of manually controlled operating mechanism for closing the grippers, relatively moving the last and the

40 grippers to put the upper under tension, and relatively moving the grippers and the last laterally while the upper is held by the grippers, power driven means adapted to be subsequently started to actuate the grippers

45 to carry the upper inwardly toward and over the edge of the last into position to be fastened.

37. In a machine for working an upper over a last, the combination with a last bottom rest and grippers, of manually controlled operating mechanism for closing the grippers, relatively moving the last and the

50 grippers to put the upper under tension, and relatively moving the grippers and the last laterally while the upper is held by the grippers, power driven means adapted to be subsequently started to actuate the grippers

55 to carry the upper inwardly toward and over the edge of the last into position to be fastened.

39. In a machine for working an upper over a last, the combination with a last bottom rest and grippers, of means for actuating the grippers to pull and overlay the upper at a predetermined speed for

70 lasting by repeated operations applied to adjacent portions of the shoe successively, and additional actuating means normally at rest and arranged to be used at the will of the workman for operating the grippers

75 to impart a relatively slow pull to the upper suitable for pulling over or drafting the upper to the last.

40. A machine for working an upper over a last, having, in combination, grippers, means for actuating the grippers in

80 predetermined time relation to overwork the upper, auxiliary actuating means normally at rest and by which to move the grippers at the will of the workman for

85 more slowly pulling the upper, and power driven means to fasten the upper pulled with the aid of either of said gripper actuating mechanisms.

41. A machine for working an upper over a last having, in combination, a gripper that is mounted for vertical and lateral

90 movement in the machine, a bottom rest to hold the last against upward displacement by the pull of the gripper, means by which the gripper and the last rest may be relatively actuated manually to pull the upper

95 in a direction substantially perpendicular to the plane of the last bottom and to hold it under tension, and means independent of the pulling means whereby lateral movement of the gripper can be manually effected while the upper is so held.

42. A machine for working an upper over a last having, in combination, a last rest, a gripper that is mounted for movement transversely of the machine, operating mechanism for closing the gripper on a shoe upper and for moving the gripper and

100 the last relatively to pull the upper and a manually controlled means whereby the last and the gripper may be relatively actuated manually to pull the upper in a direction substantially perpendicular to the plane of the last bottom and to hold it under tension, and means independent of the pulling means whereby lateral movement of the gripper can be manually effected while the upper is so held.

for resting a last, manually actuated upper gripping and pulling means including a gripper that is arranged for simultaneous power movement transversely of the machine while holding the upper under tension, and power operated upper tacking means.

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

ARTHUR BATES.

Witnesses:

GRACE HOLMES,

ARTHUR ERNEST JERRAM.

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