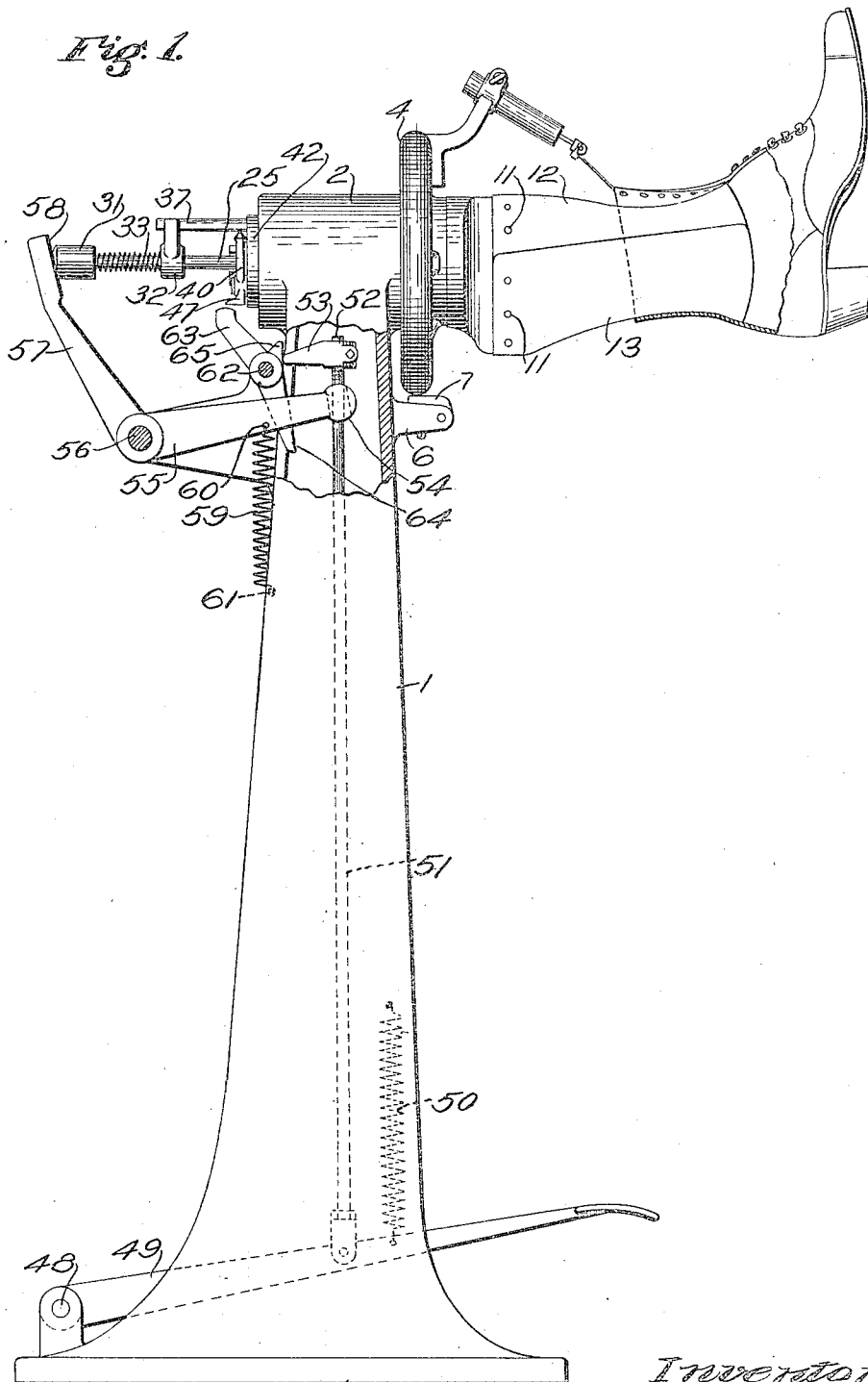


*Fig. 1.*



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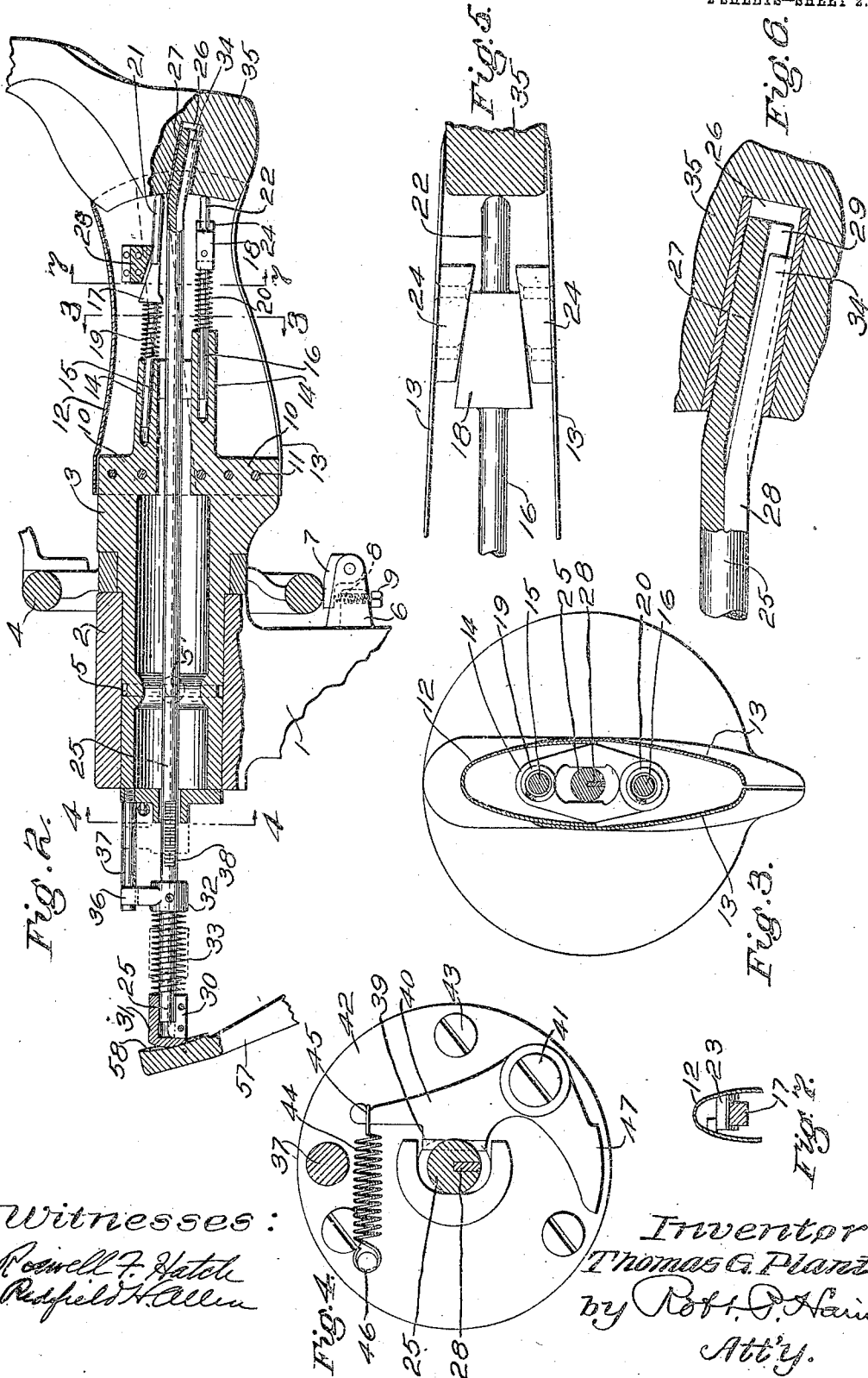
IRONING AND DRESSING MACHINE.

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958,304.

Patented May 17, 1910.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## IRONING AND DRESSING MACHINE.

958,304.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed June 3, 1909, Serial No. 499,890. Renewed February 15, 1910. Serial No. 544,079.

*To all whom it may concern:*

Be it known that I, THOMAS G. PLANT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Ironing and Dressing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention to be hereinafter described relates to machines for ironing and dressing shoes, and more especially to machines of this type where the operations of ironing or dressing are performed while the boot or shoe is on the regular or follower last.

The aims and purposes of the invention are to provide a machine of the above general type which will be simple in construction and effective in operation, all of which and other objects will best be made clear from the following description and drawings of one form of means for putting the invention into practical effect.

In the drawings: Figure 1 is a side elevation of a machine embodying the present invention, parts being broken away to show the structure beyond; Fig. 2 is a central longitudinal section showing the upper portion of the machine with a shoe locked in position for ironing or dressing; Fig. 3 is a section on line 3—3, Fig. 2; Fig. 4 is a section on line 4—4, Fig. 2; Fig. 5 is a sectional detail showing the leg plates and their expanding means; Fig. 6 is a sectional detail of the expansible end portion of the last supporting spindle; and Fig. 7 is a sectional detail on line 7—7, Fig. 2.

The machine supporting standard 1, Figs. 1 and 2, may be of any usual or desired character and is herein represented as a column rising from a suitable base and having a bearing 2 at its upper portion for a barrel 3 which is rotatable in said bearing by means of a hand wheel 4 secured to said barrel and is prevented from longitudinal movement in said bearing by a suitable co-operating groove 5 and pin 5', Fig. 2.

Disposed upon the standard below the hand wheel 4 is a projection 6 to which is

normally held in raised position by means of a spring 8, which is adjustable to vary the frictional contact between the friction piece 7 and the hand wheel 4 by means of an adjusting screw 9, the construction being such that while the barrel 3 may be readily turned in the bearing 2, the friction piece 7 bearing upon the hand wheel 4 will serve to prevent any undue or overriding turning action.

Secured to the barrel is the upper portion of the leg 10, Fig. 2, which has secured thereto by suitable means, as the rivets or bolts 11, the leg plates. These leg plates extend well forward from the top of the leg portion 10 and, when the shoe to be ironed or dressed is in operative position, their outer end portions embrace the cone or crown of the last, as indicated in dotted lines in Fig. 2. In the present form of the invention these leg plates comprise the front or upper leg plate 12 and the two side leg plates 13, 13, as best indicated in Figs. 3 and 5. The front or upper leg plate 12 extends, as indicated in Fig. 3, continuously from side to side of the leg portion forming a continuous surface, and the side leg plates 13 are each formed separately, as indicated in Fig. 3, so that they may be separated somewhat, as will hereinafter more fully appear, the front or upper leg plate 12 being likewise mounted upon the upper leg portion 10 so as to be capable of upward separation from the side leg plates. These plates may be formed of spring material, preferably metal, if desired, and their connection to the top leg portion 10 may be such as to permit them to have sufficient movement at their ends, which are to overlie the cone or crown of the last, that said cone or crown may be readily placed between such ends, as will hereinafter appear.

Extending from the top leg portion 10 in the illustrated form of the invention are the socketed bearings 14, 14, Fig. 2, for the actuating pins 15, 16, carrying the wedges 17, 18, and normally held pressed to the right, Fig. 2, by means of suitable springs 19 and 20, one end of such springs bearing against the bearing 14 and the other against the face of its respective wedge 17 or 18. The ends 21, 22 of the actuating pins are thus

held in their projected position, to the right, Fig. 2, so that as a last and shoe is pushed to the left into ironing or dressing position, the said actuating pins 15 will be likewise  
 5 moved to the left by contact with the cone or crown of the last, thus freeing the wedges 17 and 18 from their cooperating wedges 23 and 24 carried by the front or upper leg plate and the side leg plates respectively,  
 10 thereby permitting the said plates to contract upon the last. Since there are two side leg plates, the wedge 18, see Fig. 5, is preferably formed in duplicate, so that its wedge faces coact with the corresponding  
 15 wedge faces of the wedges 24 on each of the side leg plates 13, as will be readily understood.

From the construction thus far described it will be obvious that under normal conditions the actuating pins 15 and 16 will be held forced to the right, Fig. 2, and that the front or upper leg plate and the side leg plates will be moved respectively upward and sidewise, such action being permitted by their strong character or otherwise, so that when a lasted shoe is brought into cooperating relation with said plates, the end portions of said plates will be sufficiently separated to allow the cone or crown  
 30 of the last to come between them, and thereafter the cone or crown of the last will contact with the under portions 21, 22 of the actuating pins and force them inward, or to the left, Fig. 2, thereby permitting the  
 35 front or upper and side leg plates to close upon the last.

It will be noted that the edges of the side leg plates overlap the edges of the top leg plate at each side so as to form a complete  
 40 rounded leg portion at their overlapping parts.

Since an ordinary last usually enlarges from the cone or crown thereof toward the sole portion, it may be desirable in some aspects of the invention to make the leg plates extend well to the front and to have the space defined by their free end portions sufficiently large for the entrance of the cone or crown of the last without expanding movement thereof, but in any case the outer edge portions of the plates bear firmly upon the last, as indicated in Fig. 2, when the last is in ironing or dressing position.

Extending longitudinally through the leg portion and barrel 3 is the last supporting spindle 25, Figs. 1 and 2, having an expansible end portion for engaging with the usual last pin socket 26, as indicated in Figs. 2 and 6, whereby when the last pin socket 26  
 60 is thus engaged by the expansible end of the last supporting spindle, the last may be firmly held in position, as will presently appear. As one form or embodiment of this feature of the present invention, the end 27

of the last supporting spindle is preferably bent or turned somewhat, as indicated in Figs. 2 and 6, said last supporting spindle being provided with a longitudinal recess 29 in which slides the end expander 28. The end expander 28 at its outer end, the left in Fig. 2, carries a lug 30 and a cap piece 31 provided with a socket in which the end of the last supporting spindle 25 is movable. Disposed between the cap piece 31 and a collar 32 secured to the last supporting spindle 25 is a spring 33, the normal tendency of which is to force the cap piece, and consequently the end expander 28, to the left, Fig. 2, the construction being such that when the end expander 28 is free to move with reference to the last supporting spindle 25, the spring 33 will move it longitudinally of the last supporting spindle and cause its bent end 34, Fig. 6, to move outward from the slot 29 in the bent end 27 of the spindle and consequently bind in the pin socket 26 of the last 35; but, upon pressure being applied to the cap piece 31, the end expander 28 will be moved in the reverse direction until the end of the cap piece 31 meets the end of the last supporting spindle 25, thus contracting the expansible end portion of the spindle.

The collar 32 fast upon the spindle 25 is provided with an upwardly extending lug portion 36 which engages a pin 37 projecting from the barrel and acting as a guide, so that rotative movement of the last supporting spindle is prevented.

The last supporting spindle 25 is provided with a series of teeth 38, Fig. 2, which are adapted to engage the locking edge 39 of a lock 40, Fig. 4, pivoted at 41 on the cap 42 secured by screws 43 to the end of the barrel 3. A spring 44, Fig. 4, having one end attached at 45 to one arm of the lock 40 and its other end secured to a pin 46 of the cap 42 serves to force the lock normally into locking engagement with the teeth 38 on the last supporting spindle. The lock 40 has a toe portion 47 by which the lock may be tripped in a manner as will be presently made clear.

Pivotaly mounted at 48 near the base of the machine column is the treadle 49 normally held in raised position by a spring 50 and having rising from said treadle a rod 51, the upper end of which is provided with screw threads 52 by which a trip 53 is adjustably secured to the upper end of said rod. Below the trip 53 the rod 51 passes loosely through an aperture 54 in the arm 55 of a bell crank pivoted at 56, the other arm 57 of said bell crank being extended upward and provided with a face 58 adapted to bear upon the end of the cap piece 31. A spring 59 having one end secured at 60 to the arm 55 of the bell crank and its other

end secured at 61 to the machine column normally acts upon the bell crank with less energy than the spring 33 to force the end expander 28 and the last supporting spindle 5 to the right, or in projected position.

Mounted on the column 1 at 62 is a trip finger 63, the end of which is adapted to engage with the toe 47 of the lock 40 to throw the lock out of operative relation with the teeth 38 on the last supporting spindle. To cause this tripping action of the trip finger, said finger is provided with a tail piece 64 extending downward therefrom and a toe 65, somewhat at an angle to the tail piece 64, extending upward therefrom, the construction being such that, upon downward movement of the trip 53 under actuation of the treadle 49, the trip finger 63 will be thrown into engagement with the toe 47 of the lock 40 and, by its cam shaped upper surface, the trip finger 63 will trip the lock. On reverse movement of the trip 53 the trip finger 63 will be moved in an opposite direction by the trip 53 engaging the toe 65.

Various modifications may be made in the form and general character of the parts without departing from the spirit of the invention.

Assume the parts to be in normal position ready to receive a lasted shoe, that is, the last supporting spindle 25 projecting to the right under the tension of spring 59 and the end 27 of said spindle being in expanded condition under the tension of the spring 33. The operator places his foot upon the treadle 49, thereby contracting the expansible end 27 of the last supporting spindle by compressing the spring 33, and then engages the last pin socket 26 with the contracted end of the last supporting spindle. The last and its shoe are now locked or held to the last supporting spindle but in position projecting to the right of the end portions of the leg plates. The operator now takes his foot from the treadle and has both hands free to manipulate the upper portion of the shoe and hold it straight without wrinkles and then, by pushing upon said upper, forces the last supporting spindle 25 to the left against the tension of the spring 59, thereby preventing the lining or other parts of the shoe getting under the edges of the leg plates and smoothly arranging the upper and lining about said plates. As the lasted shoe is thus forced to the left or into operative position, the cone or crown of the last engages the pins 21, 22 and allows the front and side leg portions to move inward into close contact with the sides of the last, as hereinbefore described, and the lock 40 at the proper time engages with the teeth 38 on the last supporting spindle to hold the parts in position in the ironing or dressing operation. In ironing or dressing the shoe, the hand wheel 4

may be turned to bring the proper parts of the shoe into convenient position.

To release the shoe from its position for finishing, as above described, the operator places his foot upon the treadle 49 which causes the trip 53 to actuate the trip finger 63 and disengage the lock 40 from the teeth of the last supporting spindle 25, whereupon the spring 59, acting upon the arm 55 of the bell crank will tend to move the last supporting spindle to its outward or projecting position, and continued pressure on the treadle will force the end expander 28 longitudinally of the last supporting spindle and unlock or contract its expansible end.

As will be evident, it is not necessary in all cases to employ means for expanding the front end opening of the leg plates to receive the top or crown of the last, since the leg plates, regardless of their specific character, are or may be formed with capacity to spring apart at their ends as the last is moved into position and to snugly embrace the last, and when no expanding means is employed the operative simply forces the last and shoe backward until the last is in position between the ends of the leg plates. In such cases, also, the spindle is pushed longitudinally with the last in the pin socket of which it is secured, and is finally locked in its rear position holding the last for the finishing operation.

What is claimed is:

1. An ironing and dressing jack having a leg portion, a last supporting spindle provided with an expansible end portion to engage the last pin socket of a last, means acting normally to hold the said spindle with its expansible end in projected or last receiving position and to permit said spindle to be moved longitudinally of the leg into retracted position, and means to automatically expand the end of the last supporting spindle.

2. An ironing and dressing jack having a leg portion, a longitudinally movable last supporting spindle provided with an expansible end portion to engage the pin socket of a last, means acting normally to project the expansible end portion of the spindle for engaging with the pin socket of a last, and means for contracting and expanding the end portion of the spindle while in projected position.

3. An ironing and dressing jack having a leg portion, a last supporting spindle having an expansible end portion to engage the pin socket of a last, means for expanding and contracting the expansible end portion, and means for permitting movement of the spindle and its expansible end longitudinally of the leg portion by pressure upon the lasted shoe.

4. An ironing and dressing jack having a

last supporting spindle, an end expander movable with said spindle to expand the end portion of said spindle, and means permitting movement of the spindle and end expander longitudinally with relation to each other to expand the end portion of the spindle and longitudinally together to move the spindle and expander into position for the ironing operation.

5. An ironing and dressing jack having a last supporting spindle provided with a deflected or bent and expansible end portion, an end expander movable with said spindle to expand the end portion of said spindle, and means permitting movement of the spindle and end expander longitudinally with relation to each other to expand the end portion of the spindle and longitudinally together to move the spindle and expander into position for the ironing operation.

6. An ironing and dressing jack, having front and side leg plates adapted to embrace the cone or crown of a last, a last supporting spindle having an expansible end portion to engage the pin socket of a last, and means acting normally to maintain the last supporting spindle in projecting or last receiving position and permitting the said spindle and expansible end portion to be moved longitudinally to carry the cone or crown of the last between the ends of the said leg plates.

7. An ironing and dressing jack, having front and side leg plates adapted to embrace the cone or crown of a last, a last supporting spindle having an expansible end portion to engage the pin socket of a last, and means acting normally to maintain the last supporting spindle in projecting or last receiving position with its expansible end portion expanded and permitting the said spindle and expansible end portion to be moved longitudinally to carry the cone or crown of the last between the ends of the said leg plates.

8. An ironing and dressing jack, having front and side leg plates adapted to embrace the cone or crown of a last, a last supporting spindle having an expansible end portion to engage the pin socket of a last, means acting normally to maintain the last supporting spindle in projecting or last receiving position with its expansible end portion expanded and permitting the said spindle and expansible end portion to be moved longitudinally to carry the cone or crown of the last between the ends of the said leg plates, and means to contract the expansible end portion while so projected to engage the pin socket of a last.

9. An ironing and dressing jack having a last supporting spindle movable longitudinally and provided with an expansible end to engage the pin socket of a last, an end ex-

pander, a spring acting normally to expand the end of the spindle, and yielding means for holding the spindle and its expansible end in projected or receiving position.

10. An ironing and dressing jack having a longitudinally movable last supporting spindle provided with an expansible end to engage the pin socket of a last, an end expander, a spring acting normally to expand the end of the spindle, yielding means for holding the spindle and its expansible end in projected or receiving position, and means for contracting the expansible end of the spindle in opposition to said spring.

11. An ironing and dressing jack having a leg portion, a last supporting spindle provided with an expansible end portion for engaging the pin socket of a last, means acting normally to expand said end portion, yielding means acting normally to maintain the expansible end of the last supporting spindle projected or in last receiving position and permitting the spindle to be moved to position the last with respect to the leg portion, and a lock to hold the parts in said position.

12. An ironing and dressing jack having a leg portion, a last supporting spindle provided with an expansible end portion for engaging the pin socket of a last, means acting normally to expand said end portion, a treadle for contracting said end portion, and yielding means acting normally to maintain the expansible end of the spindle in last receiving position.

13. An ironing and dressing jack having a last supporting spindle provided with an expansible and deflected end portion to engage the pin socket of a last, an end expander movable longitudinally of the supporting spindle and having a deflected end portion, and means for moving the end expander to expand and contract the end portion of the spindle.

14. An ironing and dressing jack having leg plates adapted to embrace the cone or crown of a last, a last supporting spindle having an expansible end, means to expand the end of the last supporting spindle in the pin socket of a last, and means permitting movement of the last supporting spindle and engaged last between the end portions of the leg plates.

15. An ironing and dressing jack having leg plates adapted to embrace the cone or crown of a last, means for separating said plates to permit the cone or crown of the last to go between them, a last supporting spindle having an expansible end, means to expand the end of the last supporting spindle in the pin socket of a last, and means permitting movement of the last supporting spindle and engaged last between the end portions of the leg plates.

16. An ironing or dressing jack, compris-

ing leg plates, means acting normally to separate the ends of said plates to permit the cone or crown of a last to go between them, and a last supporting spindle to support a last, said means being operative by the last as it is moved toward the leg plates to permit said plates to close upon the last.

17. An ironing and dressing jack, comprising leg plates, means acting normally to separate the ends of said plates to permit the cone or crown of a last to go between them, and a last supporting spindle to support a last and having an expansible end, said means being operative by the last as it moves toward the leg plates to permit said plates to close upon the last.

18. An ironing and dressing jack having leg plates adapted to embrace the top or crown of a last, and a spindle having an end portion to engage the pin socket of a last to connect the last and spindle, said last and spindle being movable together in a direction longitudinally of the spindle to carry and position the top or crown of the last between the end portions of the leg plates.

19. An ironing and dressing jack having yielding leg plates adapted to embrace the top or crown of a last, and a spindle having an end portion to engage the pin socket of a last to connect the last and spindle, said last and spindle being movable together in a direction longitudinally of the spindle to carry and position the top or crown of the last between the end portions of the leg plates.

20. An ironing and dressing jack having front and side leg plates adapted to embrace the top or crown of a last, and a spindle having an end portion to engage the pin socket of a last to connect the last and spindle, said last and spindle being movable together in a direction longitudinally of the spindle to carry and position the top or crown of the last between the end portions of the leg plates.

21. An ironing and dressing jack comprising a last supporting spindle having an expansible end portion to engage and interlock with the pin socket of a last, leg plates having end portions to embrace the top or crown of the last, and means permitting movement of the spindle and its expansible end portion in a direction longitudinally of the spindle by pressure upon the shoe to carry the top or crown of the last between the ends of the leg plates.

22. An ironing and dressing jack having leg plates adapted to embrace the top or crown of the last, a last supporting spindle having an expansible end portion to engage the pin socket of a last, and means acting normally to maintain the last supporting spindle in projected or last receiving position and permitting the said spindle and

expansible end portion to be moved longitudinally to carry the top or crown of the last between the ends of the leg plates.

23. An ironing and dressing jack comprising a barrel portion, leg plates connected thereto and adapted to receive between their ends the top or crown of a last, a last supporting spindle having an expansible end portion to engage the pin socket of a last and extending longitudinally in the space embraced by the leg plates, and means permitting the spindle to be moved longitudinally to carry the top or crown of the last between the ends of the leg plates.

24. An ironing and dressing jack comprising a barrel portion, a front leg plate and side leg plates projecting from the barrel and adapted to receive the top or crown of the last between their end portions, a last supporting spindle having an end portion extending beyond the ends of the leg plates and adapted to engage the pin socket of the last, and means permitting the last supporting spindle to be moved longitudinally to carry the top or crown of the last between the end portions of the leg plates.

25. An ironing and dressing jack comprising a barrel portion, a front leg plate and side leg plates projecting from the barrel and adapted to receive the top or crown of the last between their end portions, a last supporting spindle having an end portion extending beyond the ends of the leg plates and adapted to engage the pin socket of the last, means permitting the last supporting spindle to be moved longitudinally to carry the top or crown of the last between the end portions of the leg plates, and means to expand the outer portions of the leg plates to receive the last.

26. An ironing and dressing jack comprising a barrel portion, front and side leg plates projecting from said barrel portion, the front leg plate extending continuously from the sides of the leg over the front thereof, and the side leg plates having overlapping relation with the side portions of the front leg plate, and a last supporting spindle having an end portion to engage the pin socket of a last, and means permitting relative longitudinal movement of the leg plates and spindle to carry the top or crown of the last between the end portions of the leg plates.

27. In an ironing and dressing jack, the combination of leg plates adapted to receive the top or crown of a last between their outer end portions, a last supporting spindle having an expansible end for engagement with the pin socket of a last, and means permitting relative longitudinal movement of the leg plates and spindle to carry the top or crown of a last between the ends of the leg plates.

28. In an ironing and dressing jack, the combination of leg plates adapted to receive the top or crown of a last between their outer end portions, a last supporting spindle having an expansible end for engagement with the pin socket of a last, means for expanding the end portion of the spindle, and means permitting relative longitudinal movement of the leg plates and spindle to carry the top or crown of a last between the ends of the leg plates.

29. In an ironing and dressing jack, the combination of leg plates adapted to receive the top or crown of a last between their outer end portions, a last supporting spindle having an expansible end portion to engage the pin socket of a last, a spring acting normally to project the expansible end portion of the spindle, means acting normally to maintain the end portion of the spindle in expanded condition, and operative controlled means to contract the expansible end portion of the spindle while in projected position to permit the engagement of the last pin socket therewith.

30. In an ironing and dressing jack, the combination of leg plates adapted to receive the top or crown of a last between their outer end portions, a last supporting spindle having an expansible and deflected end portion to engage the pin socket of a last, a spring acting normally to project the expansible end portion of the spindle, means acting normally to maintain the end portion of the spindle in expanded condition, and operative controlled means to contract the expansible end portion of the spindle while in projected position to permit the engagement of the last pin socket therewith.

31. In an ironing and dressing jack, a leg portion, a last supporting spindle extending longitudinally thereof, an end expander extending longitudinally of the last supporting spindle, means acting between the spindle and expander to normally maintain the end of the spindle in expanded condition, and means permitting the last supporting spindle and expander to be moved longitudinally together to position the last for the ironing or finishing operation.

32. In an ironing and dressing jack, a leg portion, a last supporting spindle extending longitudinally thereof, an end expander extending longitudinally of the last supporting spindle, means acting between the spindle and expander to normally maintain the end of the spindle in expanded condition, means to relatively move the spindle and expander to contract the end of the spindle, and means permitting the last supporting spindle and expander to be moved longitudinally together to position the last for the ironing or finishing operation.

33. An ironing and dressing jack comprising

a last supporting spindle having an expansible end portion to engage and interlock with the pin socket of a last, leg plates having end portions to embrace the top or crown of the last, means permitting movement of the spindle and its expansible end portion in a direction longitudinally of the spindle by pressure upon the shoe to carry the top or crown of the last between the ends of the leg plates, and means acting to lock the spindle when pushed to retracted position.

34. An ironing and dressing jack comprising a last supporting spindle having an expansible end portion to engage and interlock with the pin socket of a last, leg plates having end portions to embrace the top or crown of the last, means permitting movement of the spindle and its expansible end portion in a direction longitudinally of the spindle by pressure upon the shoe to carry the top or crown of the last between the ends of the leg plates, and means to prevent relative rotative movement of the last supporting spindle and leg plates.

35. An ironing and dressing jack comprising a last supporting spindle having an expansible end portion to engage and interlock with the pin socket of a last, leg plates having end portions to embrace the top or crown of the last, means to prevent relative rotative movement of the leg plates and spindle, means to permit combined rotation of the leg plates and spindle, and means permitting movement of the spindle and its expansible end portion in a direction longitudinally of the spindle by pressure upon the shoe to carry the top or crown of the last between the ends of the leg plates.

36. An ironing and dressing jack having leg plates adapted to receive the top or crown of a last between their free ends, a last supporting spindle having an end portion to engage and hold a last, means permitting relative longitudinal movement of the last supporting spindle and leg plates to position a last between the ends of said plates, and means to relatively move the last supporting spindle and leg plates in a direction at an angle to the longitudinal movement.

37. In an ironing and dressing jack, the combination of a leg portion comprising front and rear leg members adapted to receive the top or crown of a last between their free end portions, a last supporting spindle having an end portion to engage and hold a last, means permitting relative longitudinal movement of the last supporting spindle and leg members, and means for relatively moving the last supporting spindle and front leg member in a direction transversely between the front and back of the leg portion.

38. In an ironing and dressing jack, the combination of leg members adapted to receive the top or crown of a last between their



ends, a last supporting spindle having a normally expanded end portion, means to retract the end portion to engage the pin socket of a last, and means permitting relative longitudinal movement of the last supporting spindle and leg members to position a last between the ends of said leg members.

39. In an ironing and dressing jack, the combination of leg members adapted to receive the top or crown of a last between their ends, a last supporting spindle having a normally expanded end portion, means to retract the end portion to engage the pin socket

of a last, means permitting relative longitudinal movement of the last supporting spindle and leg members to position a last between the ends of said leg members, and a lock for holding the parts in related position.

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

THOMAS G. PLANT.

Witnesses:

AMELIA M. ROSS,  
EDWARD H. J. COOK.