

Sept. 7, 1937.

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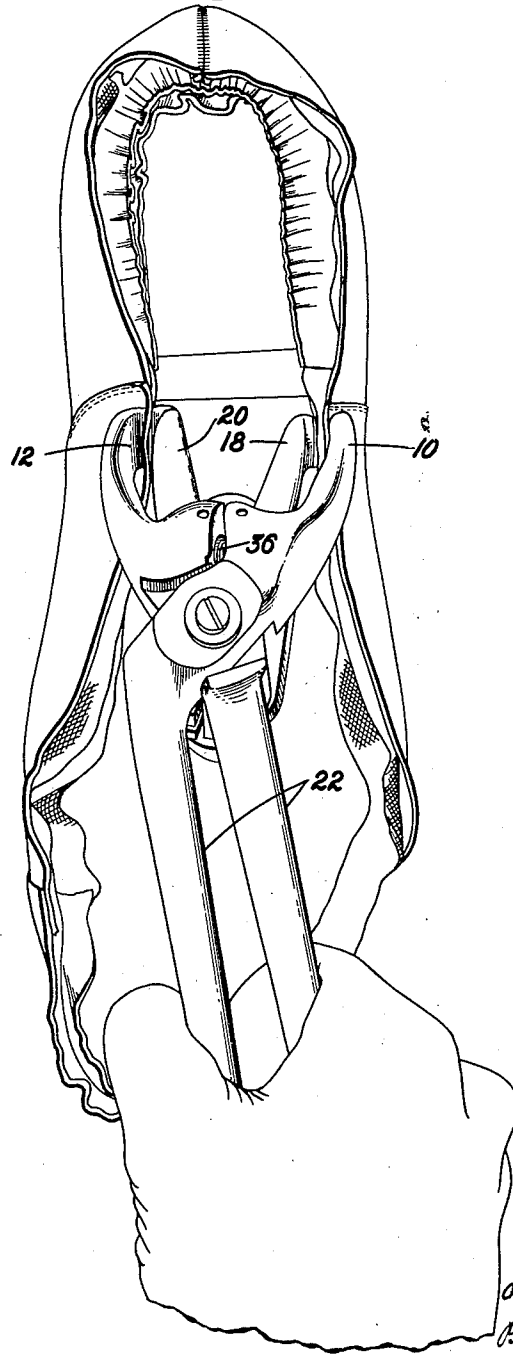
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LASTING TOOL

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2 Sheets-Sheet 1

Fig. 1.



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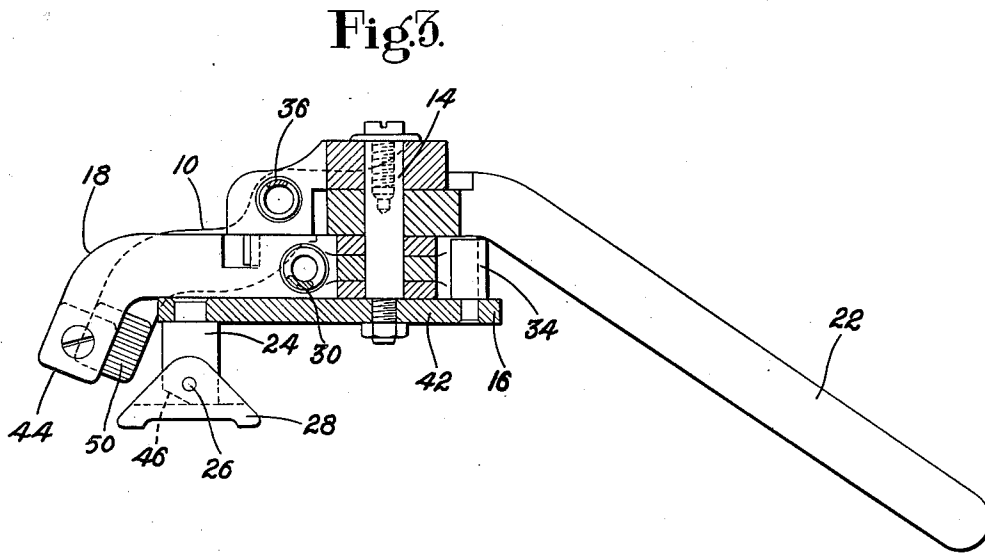
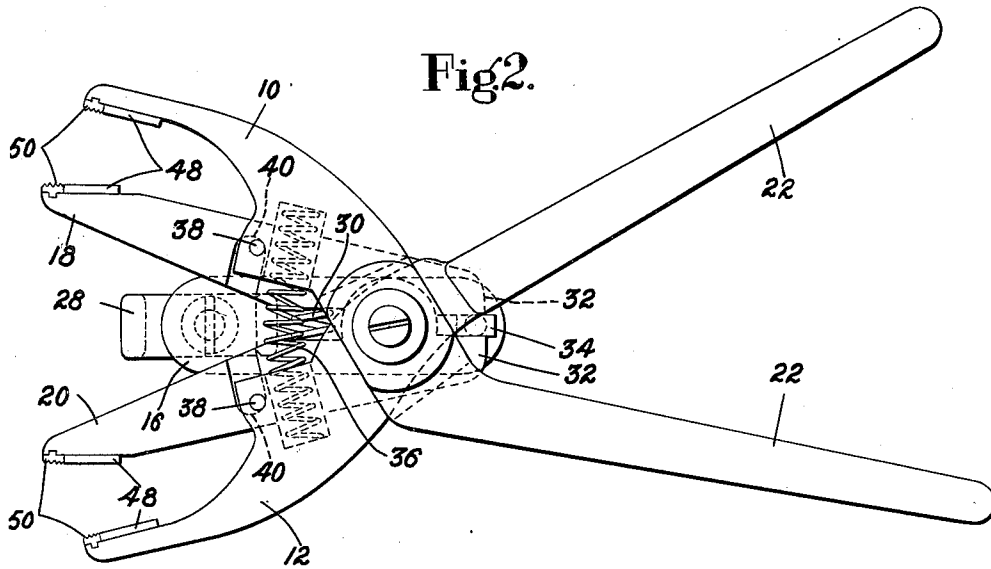
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LASTING TOOL

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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LASTING TOOL

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Application November 11, 1936, Serial No. 110,325
In Great Britain November 22, 1935

7 Claims. (Cl. 12-111)

This invention relates to lasting tools, and more particularly to hand pincers for use in pulling uppers over lasts. An object of the invention is to provide improved pincers for pulling an upper over a last at the opposite sides simultaneously. The invention is herein illustrated with reference to its use in pulling an upper at the opposite sides of a last in locations just forwardly of the heel-end portion of the last, although it will be understood that the invention is not thus limited in use.

In an application for Letters Patent of the United States Serial No. 77,730, filed May 4, 1936, in the names of John W. Pratt and Harold Lane there is disclosed a heel-end lasting machine provided with means for clamping against the last the upper materials of a Veldtschoen shoe which along the sides are loose on the last before the heel-end lasting operation, the clamping means comprising side clamping members which are operated to clamp the upper materials against the last at its opposite sides in locations just forwardly of the heel-end portion of the last to prevent any objectionable forward displacement of the upper materials in the heel-end lasting operation. It is a more particular object of the invention to provide hand pincers adapted for use in pulling the upper materials of a Veldtschoen shoe at the opposite sides of a last simultaneously to position the upper materials correctly on the last for the operation of the above-mentioned clamping members thereon.

For the purposes in view the invention provides novel pincers comprising a pair of grippers for gripping an upper at the opposite sides of a last, and means for operating the grippers simultaneously to grip the upper, to pull it heightwise of the last and to draw its marginal portion inwardly over the sole. In the illustrated construction, there is provided a presser-foot arranged to rest on the sole in a location substantially midway between its opposite edge faces, the grippers being movable relatively to the presser-foot about an axis extending laterally of the last to pull the upper heightwise of the last and being also mounted for movement toward each other laterally of the last to draw the marginal portion of the upper inwardly over the sole. As herein shown, each gripper comprises an inner jaw and an outer jaw, the inner and outer jaws of the grippers being mounted for swinging movements about a common axis and each outer jaw being provided with a handle for swinging it toward its cooperating inner jaw to grip the upper. The handles are arranged to be grasped by the hand of the operator and by movement toward each other to oper-

ate the grippers simultaneously to grip the upper. Extending between the inner jaws is a spring tending to swing them apart and against the resistance of which the inner jaws may be moved toward each other to cause the grippers to draw the marginal portion of the upper inwardly over the sole by further movement of the handles toward each other after the grippers have been swung relatively to the presser-foot to pull the upper heightwise of the last by depression of the handles.

The novel features of the invention will now be more particularly described by reference to the accompanying drawings and thereafter pointed out in the claims.

In the drawings,

Fig. 1 is a plan view of a shoe with portions of the upper at the opposite sides of the last held tightly conformed to the contour of the last by the novel pincers;

Fig. 2 is a plan view of the pincers with the gripper jaws open; and

Fig. 3 is a view partly in side elevation and partly in section of the pincers shown in Fig. 2.

The novel pincers comprise outer jaws 10, 12 which are pivoted for swinging movements on an upwardly extending pin 14 secured to a base plate 16 and inner jaws 18, 20, also pivotally mounted on the pin 14. The outer jaws 10, 12 are each provided with a forwardly and downwardly extending handle 22 for moving them relatively to the inner jaws to grip the upper. Fast to the base plate 16 is a downwardly extending stud 24 to which there is pivotally connected by a transversely extending pin 26 a presser foot 28 which serves by engagement with the bottom of a shoe as a support for the gripper jaws and relatively to which they may be swung by the handles 22 to pull the upper heightwise of the last at the opposite sides simultaneously. Extending between the inner jaws 18 and 20 is a strong compression spring 30 having its opposite end portions seated in recesses formed in the inner jaws and against the resistance of which the inner jaws may be moved toward each other, as hereinafter more particularly explained, by the pressure of the outer jaws on the margin of the upper to cause the gripper jaws to draw the marginal portion of the upper inwardly over the bottom of the last. The spring 30 tends to swing the inner jaws apart and holds them normally with an abutment 32 on each inner jaw in engagement with a stop 34 projecting upwardly from the base plate 16. For holding the outer jaws 10, 12 initially in open positions relatively to the inner jaws to permit

the marginal portion of the upper at the opposite sides of the last to be inserted between the outer and inner jaws of each gripper there is provided a light compression spring 36 which extends between the outer jaws and has its end portions housed within recesses formed in the outer jaws, the initial open positions of the outer jaws being determined by pins 38 carried by the outer jaws and engaging the inner jaws in recesses 40 formed in the latter.

The inner jaws (Fig. 2) extend beyond the base plate 16 and have rearwardly and downwardly bent end portions extending below the bottom face 42 of the base plate with their lower end faces 44 located in a plane inclined at an angle of approximately 60° to the vertical axis of the stud 24. It will be seen that the presser foot 28 forms a fulcrum support for the gripper jaws in pulling the upper heightwise of the last and that the stud 24 has its end face beveled at 46 to permit the gripper jaws to be moved downwardly by upward movement of the handles 22 to position the inner jaws close to the bottom face of the sole with their end faces 44 substantially parallel thereto. It will be understood that the end portions of the outer jaws are bent similarly to the end portions of the inner jaws to bring their gripping portions in positions to cooperate with the gripping portions of the inner jaws to grip the upper. Preferably, the parts of the pincers are made of a comparatively light material, for example, an alloy containing aluminum, with the gripping portions of the outer and inner jaws formed by steel plates 48 having serrated upper gripping faces 50.

While the novel pincers constructed as herein shown may be used in lasting different portions of shoes of various kinds, they are illustrated herein with reference to their use in pulling the upper materials of a Veldtschoen shoe at the opposite sides of the last tightly over the last and inwardly over the bottom of the last in locations where the upper is to be clamped against the opposite side faces of the last by the side clamping members of the machine of the application above referred to, thus preparing the shoe especially for the operation of the side clamping members thereon. It will be understood that machines of the type referred to in the above-mentioned application are each provided with a shoe-supporting jack which is arranged to be swung from a forwardly inclined position rearwardly to bring the shoe into engagement with a heel-end clamping device or heel band which, in the power operation of the machine, clamps the upper materials about the heel-end of the last and conforms them to the contour of the end and side faces of the last prior to the operation of heel-lasting wipers, with which such machines are provided, and that the side clamping members above referred to are arranged to clamp the upper materials against the last at its opposite sides in locations just forwardly of the heel-end portion of the last and of the heel band prior to the closing of the heel band against the sides of the last in order to insure against any objectionable displacement of the upper materials relatively to the last by the action of the heel band and wipers thereon.

In the use of the novel pincers the operator, after mounting the last and shoe on the jack of the machine above referred to, places the presser foot 28 on the sole on the last in a location substantially midway between its opposite edge faces and with the gripper jaws in positions to engage

the upper materials close to the bottom face of the sole at the opposite sides of the shoe just forwardly of its heel-end portion moves the handles 22 toward each other to swing the outer jaws 10 and 12 against the resistance of the spring 36 toward the inner jaws 18 and 20 to grip the marginal portion of the upper therebetween. The operator then swings the handles 22 downwardly to cause the gripper jaws to pull the upper heightwise of the last, after which he imparts a further closing movement to the handles 22 to increase the pressure of the outer jaws on the upper and thereby to force the inner jaws 18 and 20 toward each other against the resistance of the spring 36 to cause the gripper jaws to draw the marginal portions of the upper inwardly over the sole. By reference to the drawings it will be seen that as the grippers are moved upwardly by depression of the handles 22, the upper is pulled heightwise of the last with a component of movement lengthwise of the last toward its heel-end, thus tensioning the waist portions of the upper slightly toward the heel end of the last so as to prevent the action of the wipers of the machine from pressing the waist portions of the upper forwardly of the shoe into a position in which pleats might tend to be formed in the subsequent lasting of the forepart and waist portions of the shoe. Preferably, the upper is thus held by the pincers tightly conformed to the contour of the last while the jack is swung into operative position and until after the wipers have begun their advancing and closing movements to wipe the marginal portion of the upper around the heel-end inwardly over the sole.

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

1. A lasting tool for pulling an upper over a last, comprising a pair of grippers for gripping the upper at the opposite sides of the last, said grippers being mounted for movement toward each other laterally of the last to draw the marginal portion of the upper inwardly over a sole on the last, a presser-foot arranged to rest on said sole to provide a fulcrum support for said grippers in pulling the upper heightwise of the last, and means for operating both said grippers simultaneously to grip the upper, to pull it heightwise of the last and to draw its marginal portion inwardly over the sole.

2. A lasting tool for pulling an upper over a last, comprising a pair of grippers for gripping the upper at the opposite sides of the last, a presser foot for supporting said grippers arranged to rest on a sole on the last and relatively to which the grippers are movable heightwise of the last about an axis extending laterally of the last to pull the upper, said grippers being also mounted for movement toward each other laterally of the last to draw the marginal portion of the upper inwardly over the sole, and a pair of handles for operating said grippers to grip the upper and for imparting to them their movements heightwise and laterally of the rest.

3. A lasting tool for pulling an upper over a last, comprising a pair of grippers for gripping the upper at the opposite sides of the last, a presser foot for supporting said grippers arranged to rest on a sole on the last and relatively to which the grippers are movable about an axis extending laterally of the last to pull the upper, said grippers being also mounted for movement toward each other laterally of the

last each about an axis extending heightwise of the last to draw the marginal portion of the upper inwardly over the sole, and a pair of handles for operating said grippers to grip the upper and for also swinging them about their different axes to pull the upper heightwise of the last and to draw its marginal portion inwardly over the sole.

4. A lasting tool for pulling an upper over a last, comprising grippers for gripping the upper at the opposite sides of the last, said grippers being mounted to swing toward each other laterally of the last each about an axis extending heightwise of the last, spring means tending to swing said grippers apart and against the resistance of which they are thus movable toward each other, and a pair of handles for operating said grippers to grip the upper and for swinging them toward each other to draw the marginal portion of the upper at the opposite sides of the last inwardly over the bottom of the last.

5. A lasting tool for pulling an upper over a last, comprising a pair of grippers for gripping the upper at the opposite sides of the last, said grippers being mounted to swing toward each other laterally of the last and each comprising an inner jaw and an outer jaw relatively movable to grip the upper, a presser foot arranged to rest on a sole on the last to provide a fulcrum support for said grippers in pulling the upper heightwise of the last, a pair of handles for closing said gripper jaws and for operating the grippers to pull the upper heightwise of the last, and a spring tending normally to hold said grippers against movement toward each other but arranged to yield to permit such movement of the grippers to draw the marginal portion of the upper inwardly over the sole in response to further movement of said handles toward each other after closing the jaws.

6. A lasting tool for pulling an upper over a last, comprising a pair of grippers for gripping the upper at the opposite sides of the last, said grippers being mounted for movement toward each other laterally of the last and each comprising an inner jaw and an outer jaw movable relatively to the inner jaw to grip the upper therebetween, spring means for holding said grippers against movement toward each other, and a pair of handles, one connected to each of said outer jaws for moving them toward said inner jaws to grip the upper and for thereafter increasing the pressure of said outer jaws on the upper to cause the grippers to move toward each other against the resistance of said spring means to draw the marginal portion of the upper inwardly over the bottom of the last.

7. Lasting pincers comprising inner jaws mounted for swinging movements toward and from each other laterally of a last about an axis extending heightwise of the last, a stop for limiting the swinging movements of said inner jaws away from each other, spring means for holding said inner jaws in engagement with said stop and against the resistance of which the inner jaws are movable toward each other, and outer jaws mounted for swinging movements about the same axis as said inner jaws and arranged to cooperate therewith to grip the marginal portion of an upper mounted on the last at the opposite sides of the last, said outer jaws being provided with handles for moving them toward the inner jaws to grip the upper and for forcing said inner jaws toward each other against the resistance of said spring means to draw the marginal portion of the upper at the opposite sides of the last inwardly over the bottom of the last.

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