

Dec. 19, 1939.

W. W. DE RUSHA ET AL.

2,183,789

SHOE HEEL NAILER

Filed June 9, 1937

2 Sheets-Sheet 1

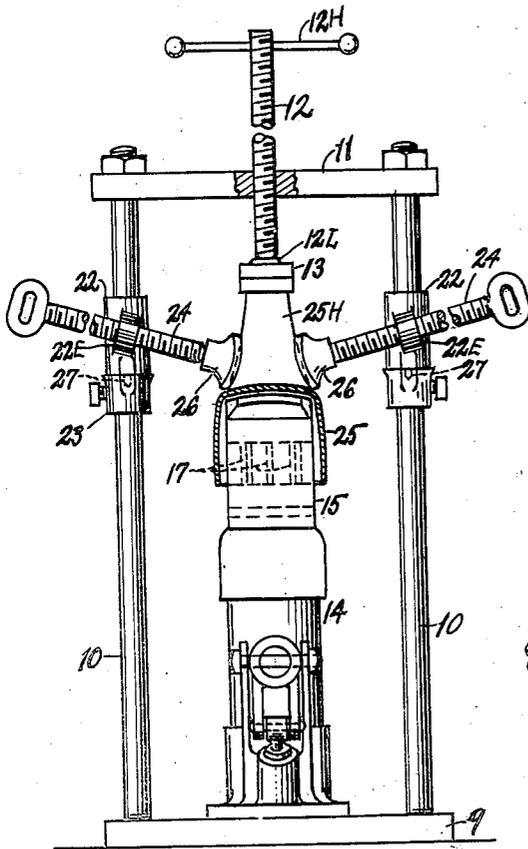
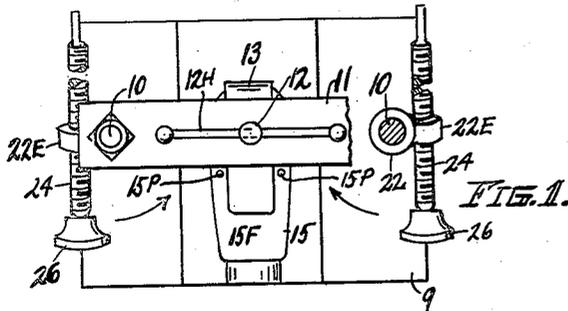


FIG. 2.

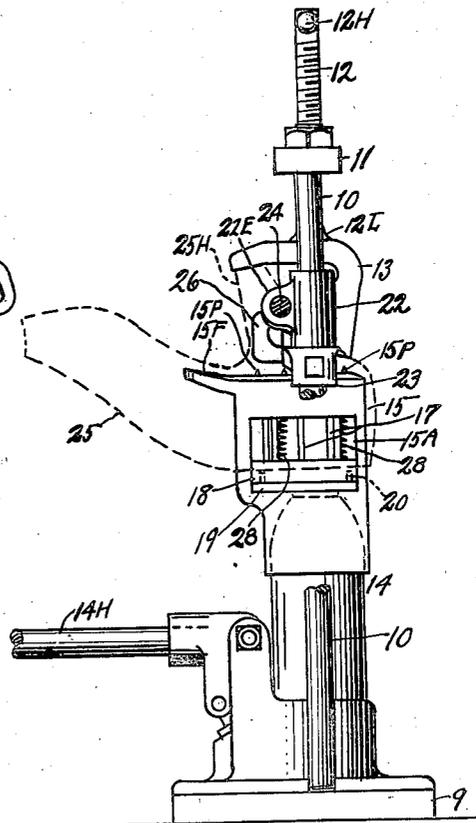


FIG. 3.

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2 Sheets-Sheet 2

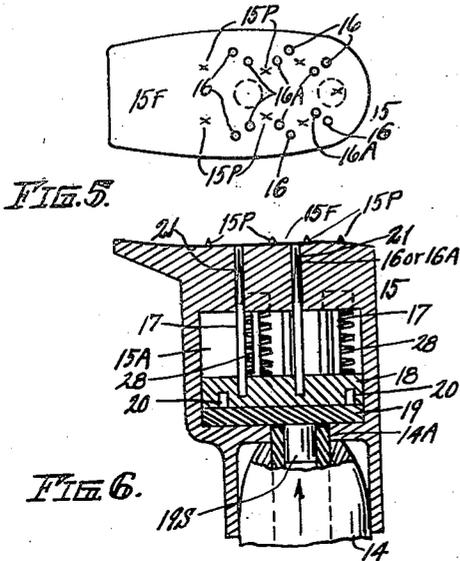


FIG. 5.

FIG. 6.

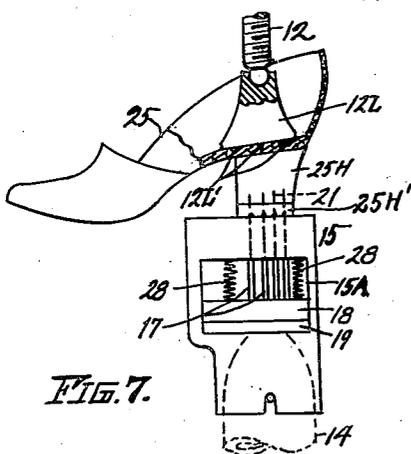


FIG. 7.

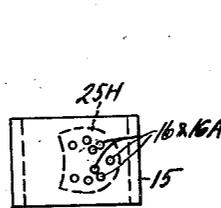


FIG. 8.

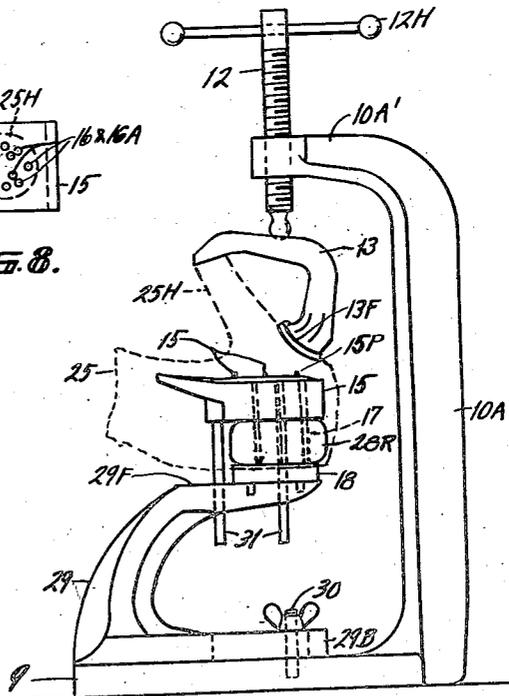


FIG. 9.

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2,183,789

SHOE HEEL NAILER

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Application June 9, 1937, Serial No. 147,282

3 Claims. (Cl. 1—32)

Our invention relates to a shoe nailing device adaptable for use in the manufacture and repairing of shoes and may also be designated a shoe heel attaching device.

An object of this device is to provide a simple, highly efficient heel attaching device of inexpensive construction particularly useful for shoe repairing purposes and with which a heel may be quickly attached, the lift easily attached also and other repairs made to the heel and adjacent parts such as putting on a heel brace (nailed or cemented) on the breast and adjacent parts of the heel and shoe. Splitting of the wood of the heel is eliminated with the use of our device. One up to 12 or more nails may be driven at one time into the heel or lift. Other objects and advantages of our device are hereinafter fully set forth, reference being had to the accompanying drawings, in which—

Fig. 1 is a top view of a preferred type of our device in open position to allow easy placement of a shoe on the last. Fig. 2 is a front view of Fig. 1 showing the heel part of a shoe in position and the side-heel-compressors in operative position. Fig. 3 is a right side elevation of Fig. 2 showing a shoe in dotted outline only and a portion of the rear side standard of the device removed. Fig. 4 is a modification of Fig. 3. Fig. 5 is a top view of a last such as used in our device and Fig. 6 is a longitudinal section of Fig. 5 and including additionally a portion of the hydraulic jack. Fig. 7 is a side elevation of a modified form of last, a shoe in position thereon to have its heel lift attached. Fig. 8 is a top view of the last in Fig. 7. Figs. 1, 2 and 3 illustrate a preferred embodiment of our device including a built-in jack.

Referring to the drawings by reference numerals, like characters designate corresponding parts in the various views, our device comprises a portable unit in all forms of which 9 is a flat metal base.

From said base extends upwardly (as in Figs. 1, 2 and 3) a pair of rigid posts 10, and in Fig. 4 a single rigid post 10A. 11 is a horizontal cross bar rigidly connecting the upper end parts of the posts 10 whereas in Fig. 4 the upright 10A is formed at its upper end with an integral horizontal arm 10A' the end of which is threaded vertically for a screw rod 12 movable vertically over the base plate. In Figs. 1-3 the screw rod 12 is threaded through the central part of the cross bar 11 and said screw rod 12 in any case may be provided at its upper end with a handle 12H to facilitate movement of the rod.

In the most efficient form of our device illustrated in Figs. 1-3 inclusive, 14 designates (as a whole) a hydraulic jack mounted rigidly on base 9 intermediate the posts 10, its lifter member or ram 14A reciprocable vertically in its central part and projectible upwardly. 14H is the necessary removable jack handle actuated to provide quick and powerful raising movement of 14A said movement utilized to drive nails into heels or lifts of heels as will presently be described.

Our device comprises in part a last member or head hereinafter designated the nailer-head 15 in which a preferred form comprises a metal frame with a downward flanged opening or socket arranged to fit on and over the top part of the jack, the upper part of said head comprising the shoe last and being formed with an elongated face 15F of such contour that the rear part of a shoe 25 (with heel up) may be positioned and retained thereon, the retention of the shoe being facilitated by prongs 15P. Just over said socket the nailer head is formed with a rectangular opening designated 15A in which is reciprocable vertically certain nail driving means which will now be described.

Over the aperture 15A the head 15 is drilled vertically groups of bores 16-16A (outer and inner groups respectively) in such spaced arrangement as most effective for nailing the base of a heel to a shoe. In each bore is slidably retained a plunger 17 fixed at its lower end in a driver plate 18 guidingly retained in the aperture 15A and on a push plate 19 having a stem 19S projecting downward into the jack member 14A, said plates 18-19 doweled together as at 20. The said plates and said plungers or drivers 17 are of such proportions that when the plates are in lowest position the drivers project only slightly into their bores and into said bores may be dropped (head down) nails 21 (as in Fig. 6). Assuming that a shoe 25 is to have its heel 25H securely nailed on, the shoe is first placed on the last with the rear or heel end of the shoe bearing forwardly against the last, the heel 25H projecting upwardly as shown in Figs. 2, 3 and 4, being of course in somewhat inclined plane. The heel is then engaged by an inverted L-shaped heel-contacting yoke 13 one end of which bears down on the lift of the heel, the other end being flared and having a padded face 13F to simultaneously engage the rear and base part of the heel, after which the threaded rod is adjusted downwardly to contact the upper part of the yoke and bear downwardly, the yoke thus holding the heel firmly against longitudinal displacement.

To prevent side slip of the shoe and to hold the heel further rigid and prevent splitting of it we provide a pair of adjustable clamp members engaging the opposite sides of the heel at its base and capable of being adjusted to thus clamp the heel at opposite sides. These members comprise each a collar 22 rotatable on a post 10 and movable vertically and supported on a collar 23 on the post, each collar 22 having an upright projecting lug 22E threaded to receive a threaded clamp rod 24 in approximately horizontal plane, or inclined plane, the inner end of each rod 24 pivoted in a heel engaging pad 26.

Each collar 22 is keyed to its support collar 23 by means such as a dowel 27 when the heel clamp member is positioned to engage the side of the heel as in Fig. 2. Said clamp members are adjusted firmly against opposite sides of the heel simultaneously. At this point it will be readily understood that the shoe and its heel are firmly held in position.

Assuming now that the required number of nails 21 have been placed in the proper bores of the last member 15, said nails are forced into the heel of the shoe by simply actuating the hydraulic jack lever 14H forcing the ram 14A, the plates 18—19 and plungers 17 upwardly the nails driven simultaneously by the latter into the heel. The plungers may be of such length that they will drive the heads of the nails into the shoe flush or deeper, and when the nailing is thus completed the plungers and associated parts are restored to original position by compression coil springs 28 (see Figs. 3, 6 and 7) or a rubber pad 28R placed between the plate 18 and the head 15H as in Fig. 4.

The nailing head is modified in Fig. 7 being without the sole supporting tongue, this head therefore being smaller and comprising a desirable form of nail driver for the lift 25H' of a heel, the plungers 17 being grouped more closely together for insertion of nails in the smaller end part or lift of a heel, the contour of such lift being shown by dotted lines 25H in Fig. 8. To nail the lift the shoe is positioned as in Fig. 7 (lift end down) to contact the upper face of member 15, the shoe being held rigidly by direct downward contact of the flared lower member 12L of the threaded rod 12, inside the shoe. The number 12L is also provided with prongs 12L' which engage the shoe and prevent slip or twisting tendency.

In the simpler, modified form of our device illustrated in Fig. 4, the last member 15 pressed upwardly within the shoe is reciprocable vertically and the plunger retaining plate 18 is stationary being suitably keyed and resting on the upper horizontal face 29F of a metal frame 29 having a base 29B removably and adjustably secured to the top face of base 9, as at 30. The last member is retained slidably (vertically) by means of downwardly extending rods 31 extending through corresponding bores in the upper part of the goose-neck frame 29 and plate 18. The nail driving action is the same as above described that is the nails are forced into the heel by the plungers except that in this modification the plate 18 and its plungers are stationary and the last member 15 and the shoe on it are forced downwardly by the screw member 12, yoke 13 holding and forcing the heel part of the shoe down and the nails are simultaneously positioned in the heel. This modified form of the device is of course a most inexpensive design but is very efficient though of slower action.

It is well known in the art that in the making or repairing or replacement of shoe heels, particularly on women's shoes, there is considerable waste and expense caused by split heels or improperly mounted heels. In the form of our device shown in Figs. 1, 2 and 3 these losses are eliminated. Obviously the heel engaging and clamping means securely holding the heel while nailing prevents splitting of the material of which such heels are usually made.

Also when the nailing of a heel has been completed with this device the heel end of the shoe and the heel are rigidly positioned and the breast of the heel and adjacent bottom part of the shoe are in convenient position to secure thereto any type of shoe-heel brace.

The heel side-clamping members it will be readily understood can be disengaged and swung free as to the positions shown in Fig. 1 from the position shown in Fig. 2. First the heel clamps are released from their clamping positions, then the collar 22 is raised until its dowel pin 27 is unseated after which the collar and its rod 24 can be swung around, the dowel pin 27 riding on the upper end face of the stationary collar 23. Thus is provided ample clearance between the posts 10 for the operator to place a shoe in position or to remove it from the nail driving zone.

Modifications in structure other than those shown may be embodied in constructing the device without departing from the scope and spirit of the invention.

We claim:

1. A shoe-heel building and repairing device comprising a base, an upright frame on said base, support means in said upright frame for removably holding the heel part of a shoe in inverted position, means mounted on the frame for adjustably and frictionally engaging and clamping the shoe heel from opposite sides and coring the shoe heel from opposite sides and the heel lift responding adjustable means over the heel lift for engaging the latter downwardly, a nail driver for engaging the latter downwardly, a nail driver member below said shoe heel support comprising in part a plurality of upwardly directed plungers guided in bores in the shoe heel support each bore adapted to retain a nail, point up, and said driver comprising further a vertically actuated driver member in which said plungers are retained, said driver member to be actuated upwardly to drive the nails into the shoe heel, said upright frame comprising a pair of upright posts, said nail driving means mounted intermediate said posts, a cross bar connecting the upper ends of the posts, said shoe heel clamping and lift contact means comprising a pair of threaded rods, one for each post, a sleeve on each post movable longitudinally and rotatably within predetermined limits thereon and having a threaded extension lug for the threaded rod, one end of the latter having a foot piece adapted to be adjusted by rotation of the rod toward and into engagement with a side of the shoe heel, and a single vertically adjustable screw rod threaded through the top cross bar of the frame and its lower end adaptable for frictional engagement with the lift of the shoe heel.

2. A shoe-heel building and repairing device comprising a base, an upright frame on said base, support means in said upright frame for removably holding the heel part of a shoe in inverted position, means mounted on the frame for adjustably and frictionally engaging and clamping the shoe heel from opposite sides and coring the shoe heel from opposite sides and the heel lift responding adjustable means over the heel lift

for engaging the latter downwardly, a nail driver member below said shoe heel support comprising in a part a plurality of upwardly directed plungers guided in bores in the shoe heel support each bore to retain a nail, point up, and said driver comprising further a vertically actuated driver member in which said plungers are retained, said driver member to be actuated upwardly to drive the nails into the shoe heel, said upright frame comprising a pair of upright posts, said nail driving means mounted intermediate said posts, a cross bar connecting the upper ends of the posts, said shoe-heel clamping and lift contact means comprising a pair of threaded rods, one for each post, a sleeve on each post movable longitudinally and rotatably within predetermined limits thereon and having a threaded extension lug for the threaded rod, one end of each rod having a foot piece adapted to be adjusted by the rod toward and into engagement with a side of the shoe heel, and a single vertically adjustable rod threaded through the top cross bar of the frame and its lower end adaptable for frictional engagement with the lift of the shoe heel, and an inverted L-shaped heel engaging member intermediate the heel and the lower end of the vertical adjustment rod, said member flared and rounded at its lower extremity to fit against the rear part of the shoe

heel and its upper end arranged to bear simultaneously against the shoe heel lift, downwardly, as shown and described.

3. A shoe-heel building and repairing device comprising a base, an upright inverted U-frame on said base, support means in said frame for removably holding the heel part of a shoe in inverted position, means on said frame for adjustable and frictional engagement and clamping of the shoe heel from opposite sides, and vertically adjustable means over the heel lift for engaging the latter downwardly, a nail driver member below said shoe heel support and oscillatable vertically to drive nails into the shoe-heel, said shoe-heel side engaging means comprising a pair of threaded rods, one for each frame upright, a sleeve on each said upright movable vertically on and rotatable horizontally about the upright within predetermined limits thereon each sleeve provided with an ear threaded for engagement of the threaded rod, a foot piece on one end of the rod and adapted to be adjusted by rotation of the rod into frictional engagement with the shoe heel at its adjacent side, and means on each upright frame member to a rigidly retain its said heel contact means in operation as such.

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