March 24, 1936. C. HALL, JR 2,034,980

DIE FOR DRIVING NAILS INTO THE HEELS OF SHOES

Filed March 11, 1935 2 Sheets-Sheet 1

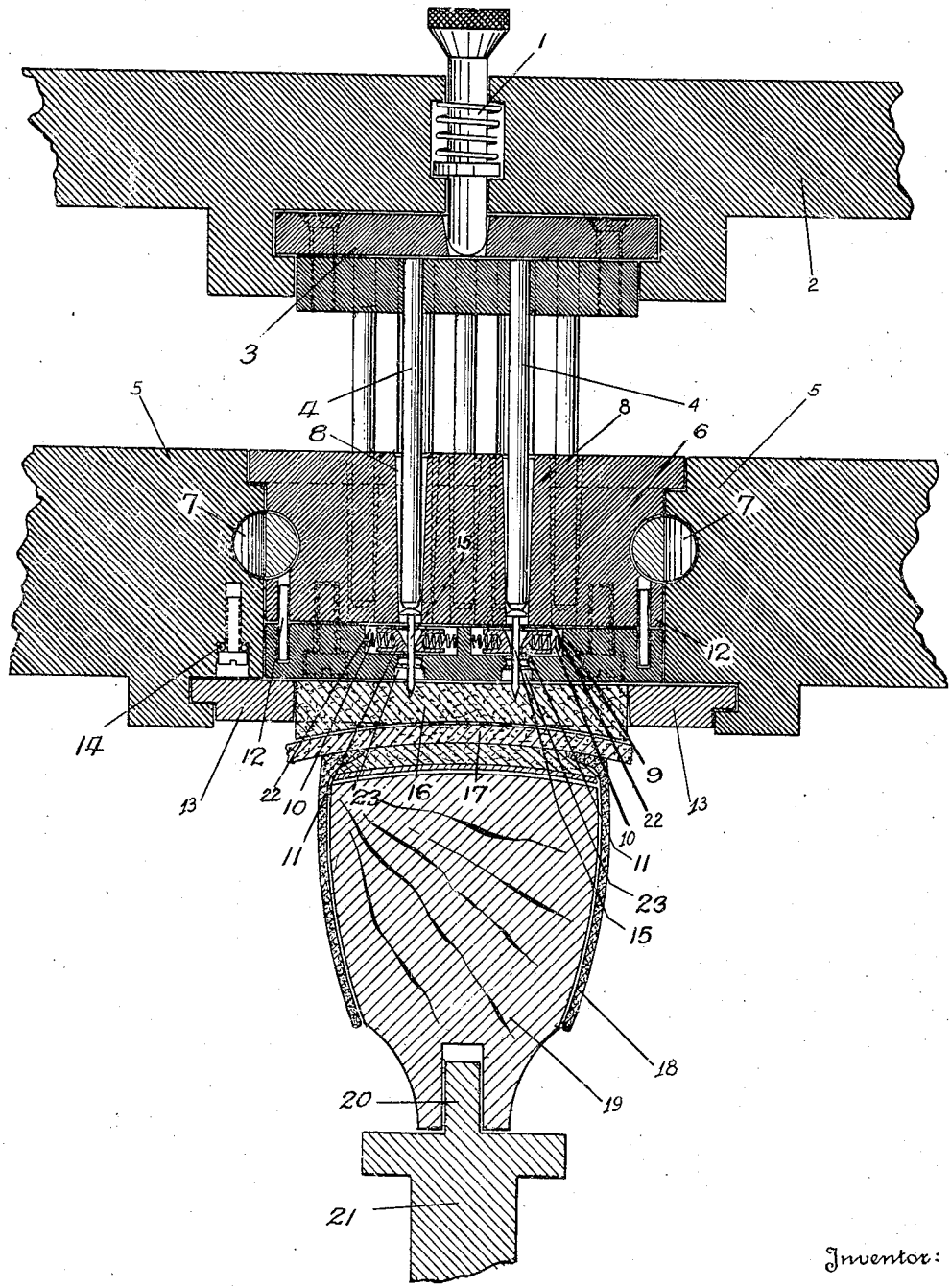


Fig. 1

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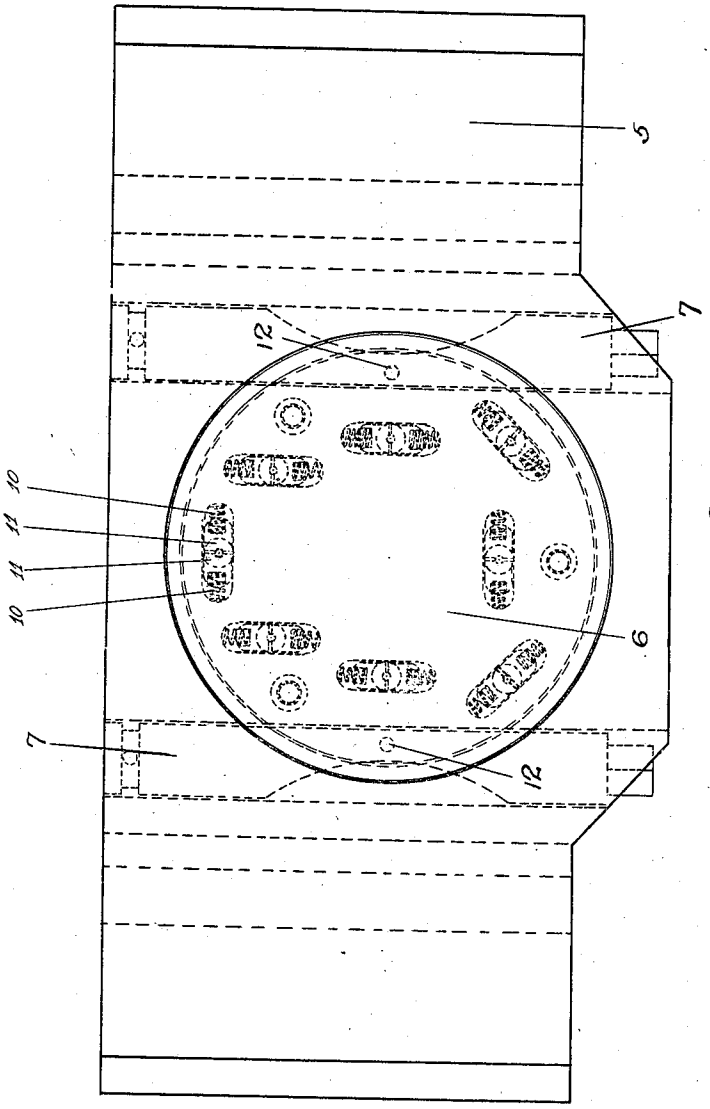


Fig. 2

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2,034,980

DIE FOR DRIVING NAILS INTO THE HEELS OF SHOES

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Application March 11, 1935, Serial No. 10,518
In Mexico January 29, 1935

7 Claims. (Cl. 1—32)

This invention refers to improvements in dies for driving nails into the leather heels of shoes or the like. The invention makes more simple the distribution of the perforations in the die in cases where a single die does not allow for the distribution of all the perforations which correspond to the distribution "Kessler" which is actually used for the nailing of rubber heels to the leather heels of shoes or the like.

By the special construction of the die according to the present invention, it is possible to drive the nails into vertical position even when the heads of the nails are semi-spherical and of a greater diameter than the shank portions of the said nails.

The die according to the present invention is applicable in the manufacture of shoes with detachable rubber heels, where it is necessary first to drive the nails into the leather heel of the shoe and thereafter introduce the heads of the nails in the cavities formed in the rubber heel.

The die according to the present invention will now be described with reference to the accompanying drawings, in which:

Fig. 1 is a vertical cross sectional view of the die according to the present invention, in combination with several parts of the ordinary machine for driving nails through the rubber heel into the leather heel of shoes or the like.

Fig. 2 is a plan view of the die showing in dotted lines the interior mechanism.

As may be seen in Fig. 1, the actual nailing machine used in the shoe factories has a punch carrier 3 located in the bridge 2 by means of the spike 1. When said punch carrier is lowered, the punches 4 enter into the perforations 8 of the principal die.

According to the present invention, said die comprises a body 5 provided with a central opening in which is placed a removable matrix 6 which is secured in place by means of turning bolts 7 with cut away shanks as shown in Fig. 2, so that the body 5 may be a permanent part of the machine while the matrix 6 can be changed when the distribution of the nails on the leather heel is to be varied.

The matrix 6 is provided with a number of vertical perforations 8 through which the punches 4 pass, and on the under side it has secured a conformer plate 9 which is provided with cavities 22 which correspond in number to the perforations 8 of the matrix 6 with which they register. The bottoms of said cavities 22 have a perforation 23 in the center thereof. Within each of the cavities 22 there is placed a metallic washer 11, the bore of which is conical at its upper part and cylindrical at its lower part. Each washer is divided diametrically through the bore and each half is provided with a bore in its side wall, into which is introduced one end of a spring 10, whose other end bears against the side wall of the cavity 22, keeping the two halves normally united.

As will be seen in Fig. 1, the nails 15 are dropped into the vertical perforations 8 of the matrix 6 and by the punches 4 they are forced through the cavities 22 and consequently between the two halves of the metallic washers 11 which will open up when the head of the nail is going through and will close when the head has passed. Once a head has passed between the two halves of a washer 11 it will be forced into a perforation 23 where it will be conformed to the proper shape.

In Fig. 1, 12 are locating pins for the conformer plate 9; 13 is a socket plate for receiving the leather heel 16 of the shoe which plate is removably mounted in the die body 5; 14 are screws for holding the plate 13 in place, 17 is the sole of the shoe, 18 the leather sides thereof, 19 the last, 20 the spike on the foot 21 of the machine.

Having thus described the invention, what I claim is:

1. A machine for driving nails in the heel of a shoe, comprising an apertured die body, heel receiving and locating means on the under side thereof, a matrix removably mounted in the aperture of the die body, said matrix having a group of perforations for the passage of the nails, a conformer plate on the bottom of the matrix having a group of cavities corresponding to the perforations in the matrix, apertured guide means in each of said cavities adapted to expand during passage of nail heads through their apertures and then to contract, and a head with a group of punches corresponding to the perforations in the matrix and cooperating with the latter to drive the nails.

2. A machine according to claim 1, in which each guide means consists of a diametrically divided washer with the upper part of its bore conical and the lower part of its bore cylindrical, and springs between the wall of the cavity and the halves of the washer controlling their separation and approach as the nail head passes through the bore.

3. A machine according to claim 1, in which the conformer plate has holes in its bottom aligned with the apertures of the guide means and the perforations of the matrix, said holes being adapted to impart a predetermined form to the nail heads.

4. A machine according to claim 1, in which each guide means consists of a diametrically divided washer with the upper part of its bore conical and the lower part of its bore cylindrical, and springs between the wall of the cavity and the halves of the washer controlling their separation and approach as the nail head passes through the bore and in which the conformer plate has holes in its bottom aligned with the holes of the washer and the perforations of the matrix, the holes in said plate being adapted to impart a predetermined form to the nail heads.

5. An exchangeable matrix for use in a machine of the kind described, comprising a member having a group of perforations for the passage of the nails, a conformer plate on the bottom of said member having a group of cavities corresponding to the perforations, and apertured guide means in each of said cavities adapted to expand during passage of nail heads through their apertures and then to contract.

6. An exchangeable matrix for use in a machine of the kind described, comprising a member having a group of perforations for the passage of the nails, a conformer plate on the bottom of said member having a group of cavities corresponding to the perforations, and apertured guide means in each of said cavities adapted to expand during passage of nail heads through their apertures and then to contract, each of said guide means consisting of a diametrically divided washer with the upper part of its bore conical and the lower part of its bore cylindrical, and springs between the wall of the cavity and the halves of the washer controlling their separation and approach as the nail head passes through the bore.

7. An exchangeable matrix for use in a machine of the kind described, comprising a member having a group of perforations for the passage of the nails, a conformer plate on the bottom of said member having a group of cavities corresponding to the perforations, said conformer plate having holes in its bottom aligned with the perforations of the matrix and adapted to impart a predetermined form to the nail heads, a diametrically divided washer in each of said cavities having the upper part of its bore conical and the lower part of its bore cylindrical, and springs between the wall of each cavity and the halves of the washer therein controlling their separation and approach as the nail head passes through the bore.

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