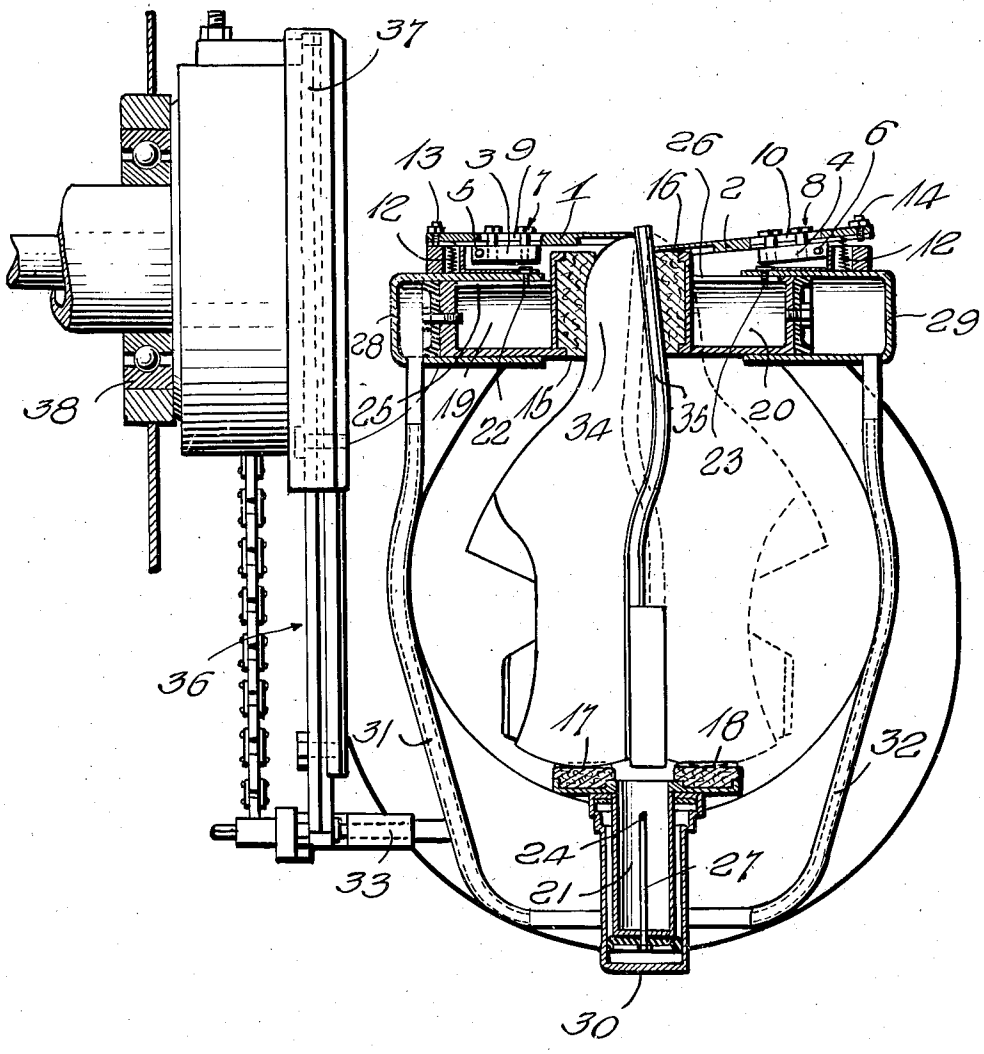
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SHOE SUPPORT WITH CLAMPING MEANS

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SHOE SUPPORT WITH CLAMPING MEANS

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Generally, with bootmakers' machines for the treatment of the edges of the soles or of the perimeters at the lower portions of shoes or the like, the shoe has been clamped in such manner that, depending on whether it is a right or a left shoe, it is brought to one or the other of two positions that correspond mirror-fashion in relation to an imaginary center plane of the shoe. Hence it follows that in an automatic machine for the treatment of, for example, the edge of the sole, always two sets of cam discs are required, namely one for right shoes and another for left ones, as these cam discs control the movements of the shoe carrier in relation to the tools which mostly operate permanently on the spot. Machines of this kind are, for example, polishing machines for the cut, automatic machines for sewing-through and the like, in which the work-piece (i. e. the shoe) is clamped on a carrier which performs, in operation, such plane rotational and translational movements that the work-piece is positively presented for treatment to the working tools and/or is carried past the working tools according to the desired or given shape of the sole.

According to the present invention two different sets of cam discs for right and left shoes are rendered unnecessary with machines of the kind referred to, by clamping the individual shoes in a novel manner. The clamping method of the invention is based on that the individual shoes or the like, i. e. the right and left ones, are alternatively brought into such a position in the carrier that the right shoe corresponds to a mirror-reflection of the respective left shoe, however in relation to that plane in which the shoes are moved by the shoe carrier itself, so that the position as well as the shape of the projection of the edge of the sole relatively to the tool are always identical for right and left shoes of equal size.

It is possible to fix shoes in accordance with this method in any desired clamping device provided the construction of the latter admits. Conveniently, however, the clamping device is equipped beforehand with suitable adjustment stops arranged on the shoe carrier and adapted to contact alternatively the upper edge and the tread surface of the sole, and to secure the correct position of each shoe (whether a right or a left one) in relation to the tool.

In the accompanying drawing an embodiment of a shoe carrier for performing the invention is shown by way of example.

The shoe carrier is shown equipped with adjustment stops 1 and 2 for securing the correct position of the shoe tip in a longitudinal as well as in a transverse direction. The stops 1, 2 are adjustably attached to guide blocks 3, 4 by means of set screws 7, 8 engaging longitudinal slots 9, 10. The blocks 3, 4 are pivoted about pivots 5, 6 and are under the influence of springs 11, 12 which cause alternatively the abutting of the stops on the toe of the shoe or on the treading surface of the sole, as can be seen from the drawing. Both abutments 1, 2 are equipped with stop-screws 13, 14 by which their deflection is limited in one direction.

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The clamping of a shoe in the carrier is effected by pads 15, 16 and 17, 18 consisting of resilient material. The heel pads 17, 18 become alternatively operative as a right or a left shoe is clamped; in the drawing right and left shoes are shown in full lines and in dotted lines respectively. These pads are carried by pistons 19, 20, 21 which are prevented from rotating in their respective cylinders 28, 29, 30 by screws 22, 23, 24 engaging grooves 25, 26 and 27 in the pistons. Fluid under pressure, air for example, is brought to act on the said pistons, which fluid is distributed to the cylinders 28, 29, 30 by means of pipes 31, 32. The fluid is supplied, for example by means of a rubber hose, to the branch 33 of the pipe 31.

For clamping a shoe the pressure fluid is brought to bear simultaneously on all of the pistons 19, 20, 21 firstly at low pressure whereby these pistons advance towards the shoe which had been inserted by hand. In the position of the shoe represented in the drawing in full lines the pad 15 bearing on the toe 34 of the shoe performs a shorter movement than the pad 16 bearing on the tread surface 35 of the sole. The pressure of piston 19 from the left to the right comes therefore into effect first but cannot cause any undesirable shifting of the shoe because this relatively low pressure is taken up by the right hand adjustable abutment 2 that bears on the tread surface of the sole. The pressure is conveniently chosen so low that even the operator himself can hold the shoe by hand in the required position until all of the pads 15, 16 and 17 have assumed their correct position whereafter the full clamping pressure is switched on. When clamping a left shoe (as indicated in the drawing in dotted lines), conversely the adjustable abutment 1 comes to bear against the tread surface of the sole, and again secures the correct position of the shoe although in this case the elastic pad 16 of the piston 20 acts on the toe of the shoe prior to the pad 15 of the piston 19. The adjustable abutments 1, 2 bearing alternatively

against the edge of the sole at the toe of the shoe ensure in any case that the shoe is brought into correct position by means of the heel pad 17 or 18, as determined by the setting of the screws 13 and 14.

From the foregoing and the drawing it will be clear that the shoes are alternatively clamped, according to the invention, so that the projection of the soles on to the center plane of the clamping device coincide Accordingly, the shoe carrier can perform the same working movement for the treatment of a right shoe as for a left one, which movements are composed of rotations about the axis of the clamping head or chuck 37 in the journal 38, and of translational movements of the slide carriage 36 which is shiftably arranged in the said head to which the whole clamping device is attached.

The clamping device allows a quick automatic clamping of the shoes without any danger to the operator's hands.

I claim:

1. A footwear carrier for a bootmaker's machine including a support for a piece of footwear having a sole provided with an upper rim and a tread surface and adjustable abutments for alternatively contacting the upper rim of the sole and the tread surface of the sole of the piece of footwear, whereby right and left pieces of a pair of the footwear can be alternatively clamped in position corresponding to mirror reflections of one another.

2. A carrier as set forth in claim 1, including displaceable heel support pads, the said adjustable abutments being pivoted in the direction of movement of said pads whereby they can be swung outwardly when required.

3. A carrier as set forth in claim 1, including two heel support pads disposed in the sense of mirror-reflections of one another in relation to the sole plane of a piece of footwear clamped in the carrier.

4. A carrier as set forth in claim 1, including two opposed displaceable pads for clamping between them the toe of a piece of footwear, and means for displacing said pads to clamping position.

5. A carrier as set forth in claim 1, including displaceable heel support pads, two opposed displaceable toe clamping pads, and means for displacing said pads to clamping positions, the adjustable abutments being pivoted in the direction of displacement of the heel support pads whereby they can be swung outwardly when required.

6. A carrier as set forth in claim 1, including two displaceable heel support pads disposed in the sense of mirror-reflections of one another in relation to the sole plane of a piece of footwear clamped in the carrier, two opposed displaceable toe clamping pads, and fluid pressure means for displacing said pads to clamping positions, the adjustable abutments being pivoted in the direction of displacement of the heel support pads whereby they can be swung outwardly when required.

7. A carrier as set forth in claim 1, including two opposite toe clamping pads, plungers supporting the pads, and fluid pressure cylinders in which the plungers are movable, the adjustable abutments being mounted on the said cylinders.

8. A footwear carrier for an automatic bootmaker's machine, this machine including a machine tool and the footwear carrier including a support for a piece of footwear provided with a sole portion, and having a treat surface, the footwear carrier further including adjustable abutments for contacting the surface of the piece of footwear, whereby right and left pieces of a pair of the footwear can be alternatively clamped in positions corresponding to mirror reflections of one another with regard to the treat surface of the footwear, so that the outline of the sole portion in relation to the machine tool is always the same for both pieces of the pair of the footwear.

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