

F. M. FURBER.
 TOOL FOR USE IN THE MANUFACTURE OF SHOES.
 APPLICATION FILED MAR. 20, 1914.

1,182,162.

Patented May 9, 1916.

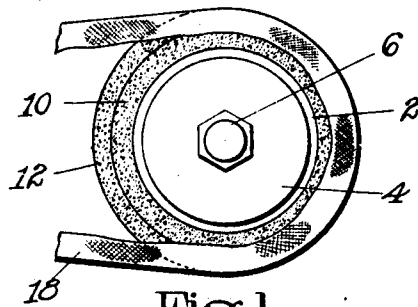


Fig. 1.

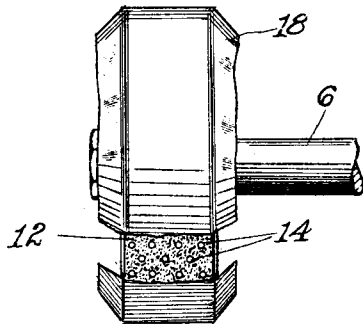


Fig. 2.

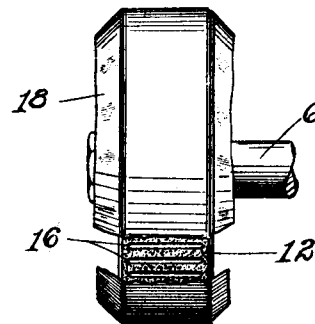


Fig. 4.

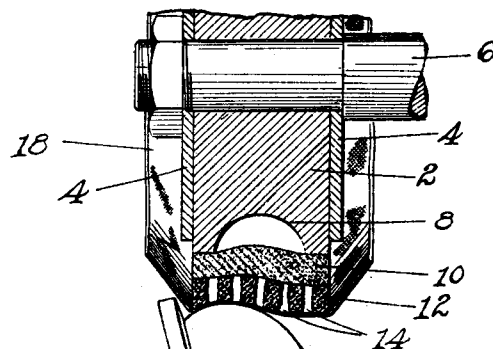


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE

FREDERICK M. FURBER, OF REVERE, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TOOL FOR USE IN THE MANUFACTURE OF SHOES.

1,182,162.

Specification of Letters Patent.

Patented May 9, 1916.

Original application filed October 21, 1911, Serial No. 655,867. Divided and this application filed March 20, 1914. Serial No. 326,114.

To all whom it may concern:

Be it known that I, FREDERICK M. FURBER, a citizen of the United States, residing at Revere, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Tools for Use in the Manufacture of Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to tools of the character used in machines for performing the polishing, abrading, or rubbing operations on boots or shoes.

It is the chief object of the invention to devise a tool of this character which will operate efficiently on the work and will conform readily to the contour of the part of the work on which it is operating.

The invention will be herein described as embodied in a tool designed particularly for use in the machine described in prior Patent No. 1,096,423, granted May 12, 1914, and assigned to the assignee of the present invention, the present application being a division of the application upon which said patent was granted.

Referring now to the drawings, Figure 1 is an end elevation of a tool constructed in accordance with this invention; Fig. 2 is a side elevation of the tool shown in Fig. 1; Fig. 3 is a sectional view through the axis of the tool shown in Fig. 2, the upper part of the tool being broken away; and Fig. 4 is a view similar to Fig. 2 of a slightly different form of tool.

The tool shown comprises a hub having the shape of a thin roll or cylinder 2, which may be of wood. This hub is supported on opposite sides by metal plates 4 that serve to distribute the strain of the devices by which the hub is clamped on the shaft 6 which gives the tool its operative movement. In the peripheral surface of the roll 2 a comparatively wide groove is formed, as indicated at 8, Fig. 3. This groove extends entirely around the periphery of the hub and is of such a width that it leaves a flat narrow marginal strip of the peripheral surface of the roll at each side of the groove. Supported on these marginal strips and spanning the groove 8 is a pad or tire, consisting in the form shown of a layer 10 pref-

erably of soft, spongy rubber and a second layer 12 of the same material mounted on the layer 10. Preferably this second layer has numerous perforations formed there-through in order to make it very soft and yielding. These perforations or holes may be either of cylindrical form, as indicated at 14 in Figs. 2 and 3, or they may be in the form indicated at 16 in Fig. 4, in which the slots are of an oblong shape and lie with their longest dimensions across the face of the tool. It usually is preferable in either construction not to have the perforations extend to the edge of the member 12, since it is found very desirable for many purposes to have a smooth and yielding but comparatively firm edge on the tool which will enable it to operate close to the various creases in a shoe, as for instance, the crease between the welt and upper, while still affording a very soft and yielding face between the edges which will conform readily to the contour of the parts of the shoe upon which the tool is operating. The roll 2 constructed as described with the groove 8 contributes to these characteristics of the tool since it supports the edges of the working face of the tool but leaves the part between the edges of this face without a support other than that provided by the layers of rubber, and thus enables this portion of the face to yield readily to the curves or projections of the work.

A cover 18 of any form or material suited to the requirements of the particular operation to be performed may be used on this tool; and this cover may either fit the tool closely all around, or as shown may be in the form of a belt, as the circumstances of the particular case require.

The layers 10 and 12 of rubber may be mounted on the roll 2 by cutting each layer from a strip of material, cementing the first layer 10 upon the marginal, peripheral surfaces of the hub and cementing its ends together, and then cementing the second layer upon the surface of the first one. The number of layers required and their thickness obviously will depend somewhat on the requirements of each individual case. If desired, the tire may be made in one piece by molding it to the required form and dimensions. It will be apparent that the material of the tire, as thus formed and mounted

upon the roll, is substantially free from tension, and that the spongy character and the thickness of the material permit a relative yield between the outer and inner surfaces of the tire under pressure of the work to cause the outer surface of the tire to conform to the contour of the work, while the groove in the roll also facilitates the conformity of the tire to the contour of the work by permitting the portions of the tire over the groove to yield bodily.

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

1. A tool of the character described comprising a relatively firm support, and a pad of untensioned spongy rubber mounted upon the support, said support having a recess formed beneath the pad to increase the tendency of the pad to yield under pressure of the work against it.
2. A tool of the character described comprising a roll having a recessed face and a pad spanning said face comprising a perforated section of yielding material.
3. A tool of the character described comprising a roll having a groove extending around its periphery and a tire of spongy rubber encircling said periphery and spanning the groove therein, said tire being free from tension longitudinally of the roll and formed of sufficient thickness to prevent it substantially from entering said groove except through pressure of the work against it.
4. A tool of the character described comprising a roll having a groove extending around its periphery and a tire encircling said periphery and comprising a perforated section of yielding material, spanning said groove and extending over the peripheral surface of the roll at opposite sides of the groove.
5. A tool of the character described comprising a roll having a groove extending around its periphery, a layer of spongy rubber encircling said periphery and spanning said groove and a second layer of soft rubber mounted on the first layer and having perforations formed therethrough.
6. A tool of the character described comprising a thin roll having a relatively wide groove extending around its periphery and a narrow strip at each side of said groove,

and a tire of yielding material encircling the periphery of said roll and spanning said groove, said tire having the middle portion of its working face perforated.

7. A tool of the character described comprising a roll, and a tire of spongy rubber encircling the roll, said tire being formed of sufficient thickness to permit a relative yield between its outer and inner surfaces under pressure of the work so as to cause the outer surface of the tire to conform to the contour of the work, and the roll having a groove extending around its periphery beneath the tire to permit the portions of the tire over the groove also to yield bodily under pressure of the work.

8. A tool of the character described, comprising a thin roll having a relatively wide groove extending around its periphery with a narrow strip at each side of said groove, and a tire mounted on the periphery of said roll and spanning said groove, said tire comprising two layers of spongy rubber, the outer layer having the middle portion of its face perforated.

9. A tool of the character described comprising a relatively firm support having a curved face and a recess in said face, and a section of resilient material mounted upon said face and spanning the recess therein, said recess being formed to permit a portion of said material to yield in response to pressure of a shoe so as to conform to the contour of the shoe.

10. A tool of the character described comprising a relatively firm support having a recessed face, and a section of resilient material mounted upon said face and spanning the recess therein, said recess being formed to permit a portion of said material to yield in response to pressure of a shoe so as to conform to the contour of the shoe, and a portion of the material over the recess having perforations to increase the tendency of the material to yield to pressure.

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

FREDERICK M. FURBER.

Witnesses:

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ELMER B. GRUSH.