

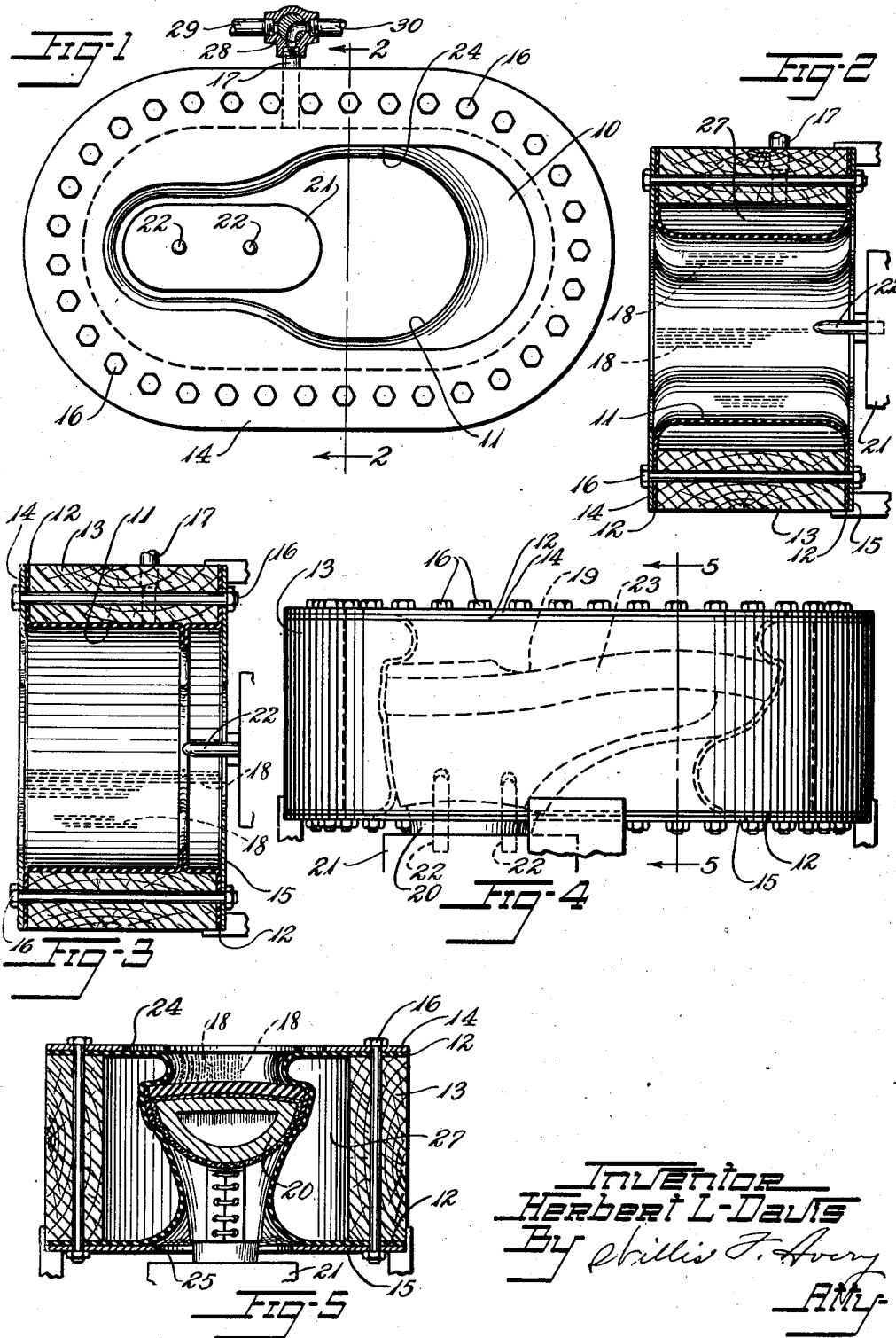
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FOOTWEAR PRESSING APPARATUS

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FOOTWEAR PRESSING APPARATUS

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This invention relates to footwear pressing apparatus for use in applying external pressure to articles of footwear having varying sizes and shapes, and relates particularly to such apparatus useful in pressing trim, for example foxing, on shoes and the like made from rubber, rubber and fabric, fabric, and similar materials.

It is an object of this invention to provide an improved pressing device including an elastic member for applying pressure to boots, shoes and the like by a combination of forces including the elasticity of the elastic member and an additional pressure applied through said member. Another object is to provide such an improved device wherein wrinkling of the elastic member is prevented while the pressure is being applied. Still another object is to provide such a device capable of accommodating articles of different sizes and shapes, surface characteristics, and the like, whereby uniform pressure may be applied over any and all of these. Still another object is to provide such a device wherein the elastic member is stretchable substantially in one direction only. A specific object of the invention is to provide a pressing device including a hollow elastic member of fluid-tight construction having an opening therein to receive the article to be pressed, the opening being normally smaller than the article, said elastic member being collapsible as by vacuum to enlarge the opening and being inflatable as by fluid pressure to apply additional pressure to the article. Other objects will become apparent in the following description of the invention.

One embodiment of this invention and its use in pressing foxing strips on shoes and the like is shown in the accompanying drawing, of which,

Fig. 1 is a plan view showing a pressing device constructed according to the principles of this invention;

Fig. 2 is a vertical section taken along line 2-2 of Fig. 1;

Fig. 3 is a view similar to Fig. 2 but showing the elastic member deflated by vacuum to enlarge the opening;

Fig. 4 is a side elevational view showing the pressing device with a shoe mounted on a last and being pressed by the device; and

Fig. 5 is a vertical section taken along line 5-5 of Fig. 4.

In the embodiment shown in the accompanying drawing the pressing device comprises a fluid-tight hollow or generally annular elastic member 10 made of rubber or analogous material and having a centrally located opening or pas-

sageway 11 extending therethrough of generally the same shape as, but smaller than, the dimensions of the shoes to be pressed. The elastic member 10 is made with upper and lower flaring side portions or skirts 12, 12 clamped to a substantially rigid rim member 13 of wood placed between them. A fluid-tight seal is insured by providing an upper flange 14, a lower flange 15, and a plurality of bolts 16, 16 all of which hold the skirts 12, 12 clamped against the wooden rim 13 as shown.

To provide for enlarging the passageway and for applying pressure there is provided a pipe 17 extending through the wooden rim 13 to the interior of the elastic member 10, i. e., to the closed annular chamber 27 defined by the elastic member 10 and the rim member 13. The outer end of this pipe is connected to a double valve 28, one branch 29 of which communicates with a source of vacuum while the other branch 30 communicates with a source of air or other fluid under pressure.

If the elastic member 10 were made of rubber alone, the force of the compressed air, or other fluid, used for applying pressure as hereinafter described would be partially wasted in merely inflating the elastic member. It is, therefore, advisable to build into the elastic member means for controlling the direction in which the pressure may be applied so that maximum pressure is applied to the article being pressed. This is accomplished by incorporating in the elastic member cotton cords 18, 18 or the like disposed in parallel arrangement around the passageway 11 with all cords lying substantially parallel to the axis of the passageway. These cords 18, 18 do not interfere with the enlargement and contraction of the passageway 11 but do prevent ballooning of the elastic member 10.

The elastic material of the elastic member must be fluid tight and should be freely extensible. The preferred material for this is soft vulcanized rubber and it may comprise either natural, synthetic, or reclaimed rubber.

In using the pressing device shown and described for molding foxing on shoes the device is made with a passageway 11 smaller than the smallest shoe to be pressed. Vacuum is applied through the vacuum pipe branch 29 by turning the valve 28 to the required position, causing the elastic member 10 to collapse against the rim member 13, as shown in Fig. 3, and thereby greatly enlarging the passageway 11 and permitting convenient placement of the shoe. The shoe 19 is mounted on a last 20 and the last

mounted on a support 21 by means of pins 22, 22. The foxing strip 23 is then applied in the usual manner. The shoe 19, still mounted on the last 20, is then placed in the device through large holes 24, 25 provided in the two flanges 14, 15, the vacuum is turned off in the pipe 17, and compressed air under, for example, 25 pounds per square inch pressure is supplied through the pressure pipe branch 30. The elastic member 10 fills with air and presses the foxing 23 on the shoe 19 under uniform pressure and, being flexible, conforms itself readily to the shape and contour of the shoe. For the same reasons the elastic member 10 also adjusts itself to shoes having varying surface configurations. The pressure applied to the shoe consists of a combination of air pressure plus the force of elasticity of the elastic member 10 obtained by distorting the elastic material, in this case rubber.

The pressing device of this invention can accommodate shoes having a wide variety of sizes and shapes as the passageway where the pressure is applied automatically adjusts itself to the size and shape of the shoe. This passageway should be made smaller than the smallest shoe so that there will be no danger of the rubber member wrinkling around the shoe and causing unsightly grooves to be pressed into the foxing.

Having described my invention together with a typical embodiment of the same, it is to be understood that the invention is not to be limited by any of the details of the description, unless otherwise specifically indicated, but rather is to be construed broadly within the true spirit and scope of the invention as set out in the accompanying claims.

I claim:

1. Apparatus for pressing footwear comprising an elastic member having an opening therein normally smaller than the article of footwear to be pressed, a substantially rigid member arranged about the elastic member and having a fluid-tight attachment thereto so as to provide a fluid-tight chamber between the rigid member and the elastic member, means associated with the elastic member for limiting stretch thereof in a direction generally parallel to the axis of the said opening while permitting free stretching thereof in other directions, vacuum means communicating with said chamber for collapsing the elastic member outward toward said rigid member and thereby to enlarge said opening for re-

ceiving the article of footwear, means for returning the elastic member toward its normal position, and means for applying pressure to said member against said article.

2. Apparatus for pressing footwear comprising an elastic member of annular shape having a central passageway extending therethrough, said passageway being of generally the same shape as, but smaller than, the article of footwear to be pressed, a substantially rigid member arranged about the elastic member and having a fluid-tight attachment thereto so as to provide a fluid-tight chamber between the rigid member and the elastic member, means associated with the elastic member for limiting stretch thereof in a direction generally parallel to the axis of the said passageway, said last-named means comprising cords incorporated in the elastic member arranged in generally parallel relationship and substantially parallel to the principal axis of said passageway, vacuum means communicating with said chamber for collapsing the elastic member outward toward said rigid member thereby enlarging said passageway for receiving the article of footwear, means for returning the elastic member toward its normal position, and means for supplying fluid under pressure to said chamber for positively pressing the elastic member against the article.

3. In a pressing apparatus of the type in which a generally annular elastic member is forced by fluid pressure against an article placed within the annulus of the member, filamentary means associated with the elastic member for preventing ballooning of the elastic member by limiting stretch thereof in a direction generally parallel to the principal axis of the annulus while permitting free stretching thereof in other directions.

4. In a pressing apparatus of the type in which a generally annular elastic member is forced by fluid pressure against an article placed within the annulus of the member, means associated with the elastic member for limiting stretch thereof in a direction generally parallel to the axis of the annulus while permitting free stretching thereof in other directions, said means comprising cords incorporated in the elastic member arranged in generally parallel relationship and substantially parallel to the principal axis of the annulus.

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