

Oct. 11, 1932.

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1,882,005

SHOE STIFFENER CONDITIONING MACHINE

Filed April 5, 1928

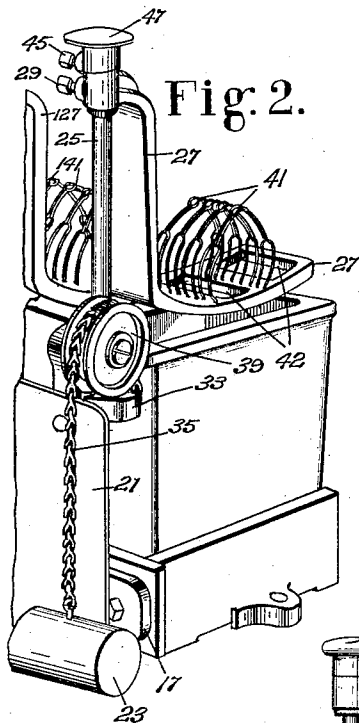


Fig. 2.

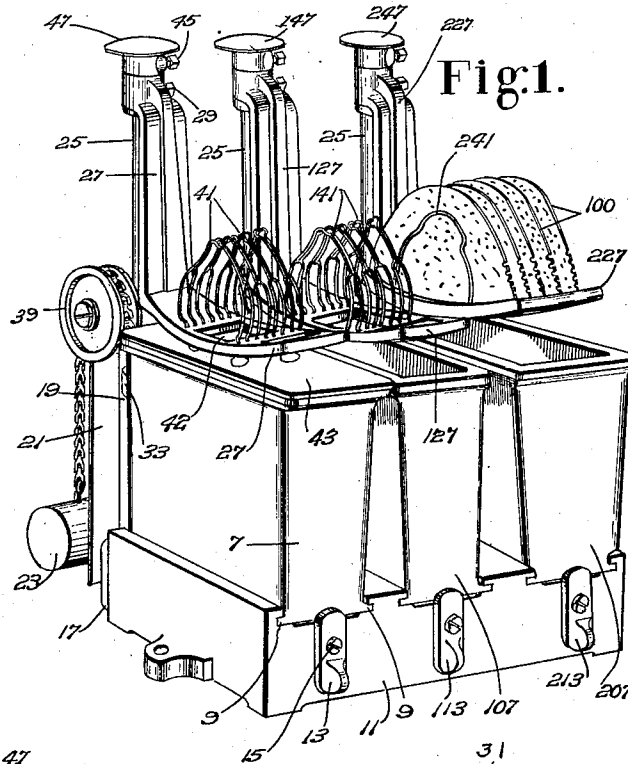


Fig. 1.

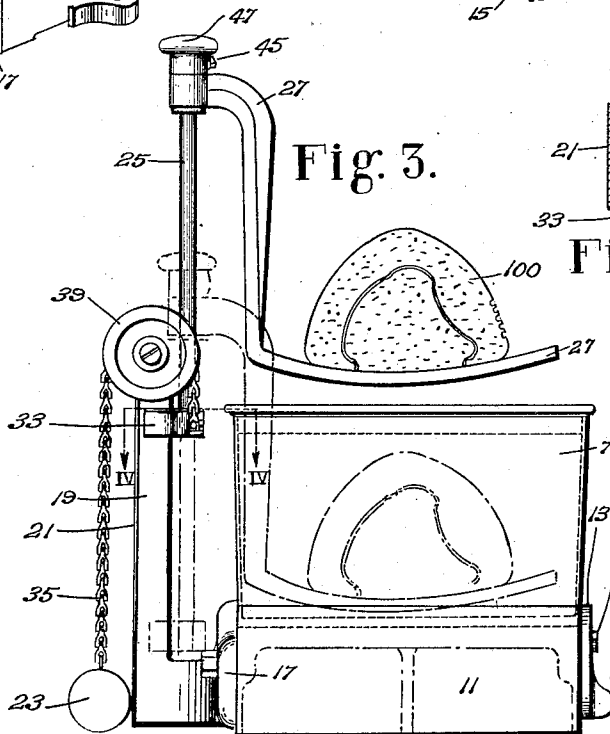


Fig. 3.

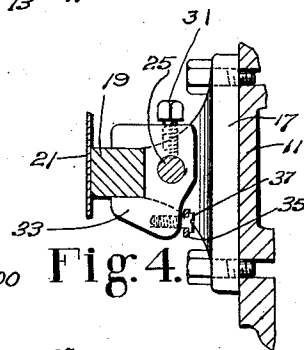


Fig. 4.

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SHOE STIFFENER CONDITIONING MACHINE

Application filed April 5, 1928. Serial No. 267,692.

This invention relates to machines for tempering articles and is herein illustrated as embodied in a machine for treating so-called "self-hardening" boot and shoe stiffeners with a softening liquid preparatory to assembling the stiffeners in the uppers of boots and shoes.

In the manufacture of boots and shoes it is common to make use of a box toe blank which consists of a fabric base impregnated with a stiffening substance such as celluloid. A blank of this kind is immersed for a short interval in a solvent for the celluloid, for example, in a mixture of alcohol and acetone, in order to render the blank limp and pliable. The blank, when it emerges from the liquid, carries more or less surplus liquid upon its surface, and is commonly allowed to stand for a short time to permit part of this liquid to be absorbed by the blank and the rest to drain away; after which the softened blank is assembled in the upper of a shoe and conformed to the toe portion of the last during the pulling-over and lasting operations.

A general object of the present invention is to provide a machine by the use of which stiffener blanks may be prepared rapidly and uniformly for use. While the invention is herein disclosed as embodied in a machine intended primarily for the softening of shoe stiffeners, it will be evident that the machine is not limited in its range of usefulness merely to softening operations, but may be employed generally for all forms of treatment wherein shoe stiffeners or like articles are to be subjected to the action of a liquid. It is understood, therefore, that the invention is not limited in its application merely to softening operations or to shoe stiffeners.

According to one feature of the present invention there is provided a receptacle for liquid, and a carrier is mounted upon a vertical slide outside of the receptacle and is held normally above the liquid by means of a weight. In the illustrated machine the carrier is provided with clips adapted to hold several blanks in separated relation and with a knob adapted to be engaged by the operator to push the carrier down into the liquid. Pushing the carrier down raises the weight so that, as soon as the operator releases the car-

rier, it returns to its normal position above the liquid, in which position surplus liquid which may be carried upon the surfaces of the blanks drains back into the receptacle. With this construction, blanks may be rapidly and uniformly tempered; and the operator may vary the interval of the immersion as is at times desirable, since some kinds of blanks—those intended for men's heavy shoes, for example—contain much more of the stiffening substance than do others and require a longer immersion. The weight serves to return the carrier gradually to its normally elevated position, thereby avoiding any likelihood of splashing off drops of the liquid adhering to the blanks or of dislodging the blanks from the carrier, as might occur upon the sudden release of a resilient means for returning the carrier to normal position.

This and other features of the invention, including certain details of construction and combinations of parts will be described as embodied in an illustrated machine and pointed out in the appended claim.

Referring to the accompanying drawing,

Fig. 1 is a perspective view of a machine in which the present invention is embodied;

Fig. 2 is a perspective view taken at a different angle of a portion of the same machine;

Fig. 3 is an end elevational view of the machine; and

Fig. 4 is a detail view in section taken on the line IV—IV of Fig. 3.

The illustrated machine comprises three units each consisting of a receptacle for softening liquid, a carrier, and a weight connected with the carrier for holding the carrier normally in position above the liquid, a plurality of units being provided so that the box toes upon one carrier may be draining while those on another are being removed one by one and assembled in the upper of a shoe. Inasmuch as the units are all alike only one of them will be described in detail.

The left-hand unit, as viewed in Fig. 1, comprises a receptacle 7 having at its bottom two horizontal ribs 9 which are slidably received in undercut guideways formed in the base 11, a latch 13 pivoted to the base at

15 serving to hold the receptacle in place and, when turned 90 degrees, to permit its removal. The receptacle, at its rear end abuts against a plate 17 which is fastened to the rear of the base 11. Rigid with the base 11 and spaced from its rear and from the rear of the receptacle is an upright guide 19 which is rectangular in cross-section; and fast to the rear edge of this guide is a thin plate 21 with which a weight 23 contacts and up and down the rear surface of which the weight slides, as will presently appear. As shown in Figs. 3 and 4, the guide 19 may conveniently be made integral with the plate 17 of the same unit. There are three guides like the guide 19, one for each receptacle; and the plate 21 extends over the rear faces of all of the guides.

At the upper end of the guide 19 is an enlargement or head having a vertical bore through which a rod 25 is slidable. At the upper portion of the rod the curved stem of a carrier 27 is fastened by a set screw 29; and at the lower end of the rod is fastened, by means of a set screw 31, a yoke 33 which is slidably mounted upon the upright guide 19. A chain 35, fast at one end to a screw 37, which is threaded into the yoke, passes up over a pulley 39, which is rotatably mounted upon the head of the guide 19, and has attached to its opposite end the weight 23.

The carrier 27 has extending over the receptacle 7 a blank-supporting portion which is curved to conform roughly to the curve at the rear edge of a box toe blank 100, and this portion is provided with four spring clips 41 adapted to hold four box toe blanks in upright position and in spaced relation. In this curved portion of the carrier 27 are a plurality of holes 42 to permit liquid which drains from the blanks to return to the receptacle 7.

There is provided for the receptacle a cover 43 which is placed in position when the unit is not being used so as to prevent the escape of the fumes of the volatile liquid in the receptacle. Before the unit can be used, this cover must, of course, be removed. At the top of the rod 25 there is fastened by a set screw 45 a knob 47 for engagement by the palm of the hand of the operator to push the carrier down into the liquid, the knob being smooth to facilitate repeated use.

Assuming that the base 11 has been fastened upon a bench and that the cover 43 has been removed, the operation of the device is as follows: A plurality of box toe blanks are placed by the operator in the spring clips 41 and the knob 45 pushed down into the position shown in dotted lines in Fig. 3, further downward movement being prevented by contact of a surface on the stem of the carrier 27 with the top of the head on the guide 19. The carrier 27 is now in the position shown in dotted lines in Fig. 3,

and the blanks 100 are immersed in the liquid. After a suitable short interval the knob is released, whereupon the weight 23, through the chain 35, returns the carrier 27 to its normal position above the liquid, the upward movement of the rod 25 and carrier 27 being limited by contact of the upper surface of the yoke 33 with the under surface of the head on the guide 19. Surplus liquid now drains from the blanks back into the receptacle; and when this draining is completed or has proceeded for a suitable interval the blanks are taken one by one from the clips and assembled in the uppers of shoes. In some cases, however, as will be explained, the blanks on this carrier are permitted to stand while the previously immersed blanks upon the carrier of another unit are being used.

The unit which includes the receptacle 7 has been described in detail. The other two units shown are like the one which has been described. It is believed to be unnecessary to describe these other two units in detail but to the parts of them which correspond to those of the described unit have been given reference numerals like those of the first unit but increased respectively by one hundred and by two hundred.

Calling the units respectively No. 1, No. 2, and No. 3, from left to right as viewed in Fig. 1, the only difference between them is that No. 3 is somewhat larger than the other two so that a somewhat greater number of blanks may be immersed at one time if desired.

Assuming that the covers have been removed from two of the receptacles, as is shown in Fig. 1, and that only two units, Nos. 2 and 3, are to be used, the procedure is as follows: A plurality of blanks are placed in the clips 141 of unit No. 2, immersed and allowed to rise. Then another plurality of blanks are placed in the clips 241 of unit No. 3 and similarly immersed and allowed to rise. Then the blanks are taken one by one from unit No. 2 and used. This stage in the procedure is shown in Fig. 1. Then another plurality of blanks are placed in the clips 141 of unit No. 2 and immersed. Thereafter the procedure continues as has been described.

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

A device for treating toe stiffeners and like articles with a liquid having, in combination, a receptacle for liquid having a depth greater than the length of a stiffener from toe end to rear edge, a carrier for the stiffeners, means adapted for manual manipulation to move the carrier into the liquid sufficiently to immerse the stiffeners, a vertical guideway positioned outside of said receptacle, said carrier being slidably mounted on said guideway, and gravity actuated means

for normally holding the carrier above the level of the liquid in the receptacle and for gradually returning the carrier to its normal position above the level of the liquid in the receptacle upon release of said immersing means.

In testimony whereof I have signed my name to this specification.

CHARLES S. EMERSON.