June 2, 1936. W. STELKENS 2,042,559

CONDITIONING DEVICE

Filed Nov. 2, 1934

Fig. 1.

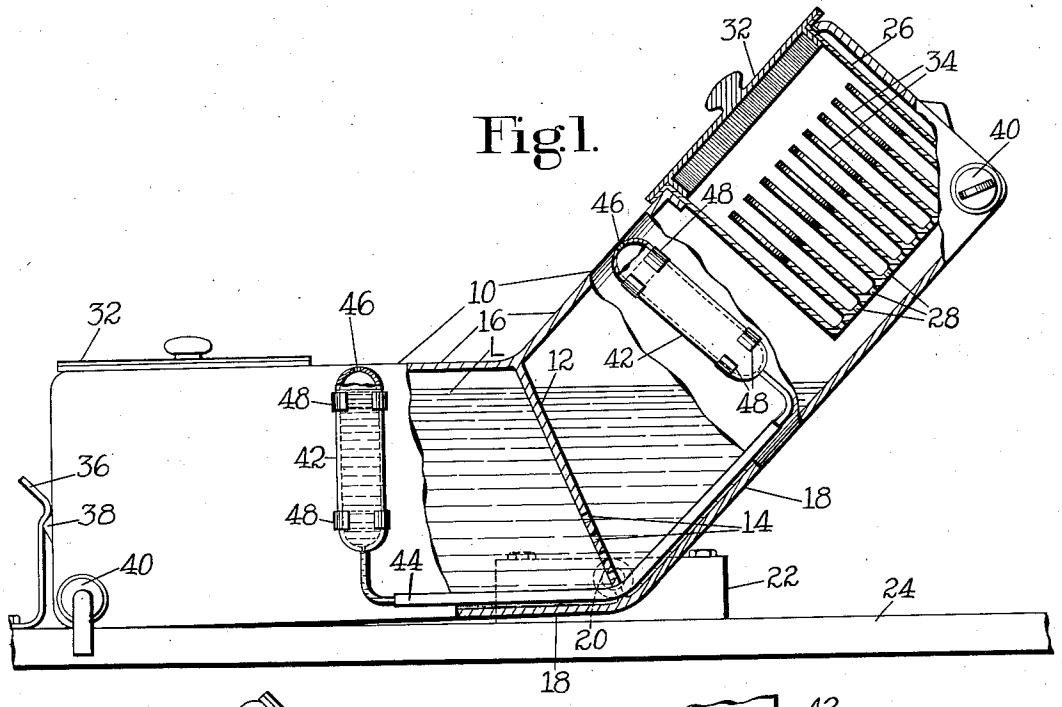


Fig. 4.

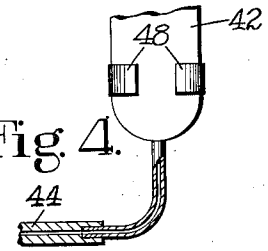
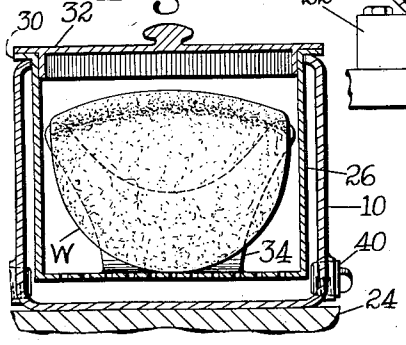


Fig. 2.

Fig. 3.



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CONDITIONING DEVICE

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11 Claims. (Cl. 12—1)

This invention relates to conditioning devices and is herein illustrated and described as embodied in an apparatus for conditioning box toe pieces, counters, and similar articles.

It is a common practice in the manufacture of shoes to render stiffening members, such as box toe pieces and counters, temporarily limp and pliable by subjecting them to the action of a conditioning liquid. The stiffening member while in this limp condition is then assembled with the other upper materials upon a last, and the shoe upper thus assembled is stretched and pulled tightly about the last in the course of the pulling-over and lasting operations. As the conditioning liquid evaporates, the stiffening member, thus conformed to the shape of the last, resumes its inherent stiffness and resilience. In order to obtain the best results and to lessen the time required for evaporation of the conditioning liquid from the lasted upper, it is desirable to remove the stiffening member from the conditioning liquid before it becomes saturated. Proper timing of the immersion of the stiffening members in the conditioning liquid is therefore important.

It is an object of the present invention to provide an improved apparatus by which conditioning operations of the character above referred to may conveniently be carried out.

In accordance with a feature of the invention, there is provided an elongated closed receptacle supported midway between its ends for tilting movement to a position wherein a conditioning liquid will flow from one end of the receptacle toward the other end. The illustrated receptacle is separated into two compartments by a baffle which prevents sloshing of the conditioning liquid, and a pair of racks or cages are positioned at localities adjacent to the respective ends of the receptacle for retaining work pieces when the receptacle is tilted. Upon each tilting movement of the receptacle, the work pieces in one of the cages are immersed in the conditioning liquid, while the work pieces in the other cage are raised above the level of the conditioning liquid. Thus, while one group of work pieces are being subjected to the action of the conditioning liquid, the other group are permitted to drain.

In accordance with a further feature, there is provided a time-indicating device for enabling the operator to ascertatin the proper length of time during which the work pieces should be subjected to the action of the liquid, which timing device is actuated by the tilting movement of the receptacle. The illustrated timing device consists of a pair of glass bulbs attached to the receptacle and connected at their lower portions by a tube which enables a colored liquid to flow from one bulb into the other as the receptacle is tilted.

These and other features of the invention will now be described as embodied in an illustrative machine and pointed out in the appended claims, reference being had to the accompanying drawing, in which

Fig. 1 is an elevational view partly in section of the improved apparatus;

Fig. 2 is a view similar to Fig. 1 but showing the apparatus in a different position;

Fig. 3 is a sectional view taken on the line III—III of Fig. 2; and

Fig. 4 is a detail showing of a portion of a timing device with which the apparatus is equipped.

The illustrated conditioning apparatus comprises a receptacle **10** for a conditioning liquid L. The receptacle **10** is divided into two substantially equal compartments by a partition **12** having in its lower portion a plurality of perforations **14** which permit a ready flow of the conditioning liquid of one compartment to the other while preventing sloshing of the liquid. Each of the compartments has a top wall **16**, the two top walls together forming an obtuse dihedral angle; and each of the compartments has also a bottom wall **18**, which bottom walls also form a similar dihedral angle the vertex of which, however, may be conveniently rounded. The receptacle **10** is mounted at its lower portion for tilting movement upon trunnion pins **20** each of which trunnion pins is supported by a block **22**. The blocks **22** are positioned on opposite sides of the receptacle **10** and are secured to a work table **24**. The axis of the trunnion pins **20** is horizontal and lies within the partition **12**, or centrally with respect to the receptacle.

Supported within each of the compartments is a rack or cage **26** consisting of a rectangular box-shaped member having an open top and perforations **28** formed in its bottom. The receptacle **10** thus constitutes a carrier for the cages **26**. The cages **26** may conveniently be formed of sheet metal. Each of the cages has an outwardly extending flange **30** at its top which rests upon the upper surface of the wall **16**. The remaining portion of the cage extends downwardly through a suitable opening formed in the upper wall **16**. A cover **32** is provided for each of the cages **26**. Within each of the cages **26** are a plurality of upstanding supports **34** for holding work pieces in upright position.

In the operation of the apparatus as so far

described, work pieces W, for example box toe stiffeners, are placed in the cage which occupies the position above the level of the conditioning liquid L, namely the right hand cage as viewed in Fig. 1. The receptacle 10 is then tilted to the position shown in Fig. 2 whereupon the conditioning liquid flows into the right hand compartment and through the perforated bottom wall of the cage 26 until the work pieces are wholly immersed in the liquid. While the work pieces of the right hand cage are thus immersed, the operator loads the left hand cage, which now is above the level of the liquid, with untreated work pieces. After the work pieces in the right hand cage have been subjected to the action of the liquid for a sufficient length of time, the receptacle 10 is tilted back into the position shown in Fig. 1 and the work pieces in the left hand cage are similarly immersed while those in the right hand cage have been raised above the level of the liquid to enable them to drain.

Secured to the work table 24 adjacent to each end of the receptacle 10 is a spring metal latch 36 which engages a projection 38 upon the corresponding end of the receptacle 10 to hold the receptacle in whichever position it may occupy. Each of the compartments further is provided with a drain plug 40.

In order to enable the operator properly to gage the length of time during which the work pieces in either cage are immersed, there is provided a timing device comprising a pair of glass bulbs 42 connected at their lower portions by a tube 44. In the top of each of the bulbs 42 is an opening 46 which serves as a vent and through which a colored indicating liquid may be introduced into the bulbs. One of the bulbs 42 is secured by spring clips 48 to the side wall of one of the compartments of the receptacle and the other bulb is secured by similar spring clips 48 to the side wall of the other compartment. It is evident that as the receptacle is tilted from the position shown in Fig. 1 to that shown in Fig. 2 the colored indicating liquid will flow slowly through the tube 44 from the left hand bulb 42 into the right hand bulb 42, and that a definite interval of time will be required for all of the colored indicating liquid to flow from one of the bulbs into the other bulb. This time interval may be varied as desired by employing a greater or less amount of the colored liquid. This timing device enables the operator to ascertain at a glance the proper instant in which he should reverse the position of the receptacle 10.

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

1. A conditioning apparatus comprising a pair of closed compartments having communication with each other, a support constructed and arranged for movement of said compartments to a position wherein a conditioning liquid in one compartment will flow into the other compartment and a holder for work pieces in each compartment.

2. A conditioning apparatus comprising an elongated receptacle, a support constructed and arranged for tilting movement of said receptacle to a position wherein a conditioning liquid at one end of the receptacle will flow toward the other end, and a holder for work pieces at each end of said receptacle.

3. A conditioning apparatus comprising an elongated receptacle, a pivotal support upon which said receptacle may be tilted to a position wherein a conditioning liquid will flow from one end of said receptacle toward the other end, and a pair of racks positioned at localities adjacent to the respective ends of said receptacle for retaining work pieces when the receptacle is tilted.

4. A conditioning apparatus comprising a receptacle having two compartments communicating with each other, the bottom walls of the two compartments forming an obtuse dihedral angle and the top walls of the two compartments forming a similar dihedral angle, a pivotal support about which said receptacle may be tilted to cause a liquid to flow from one compartment into the other, and a baffle between said compartments to prevent sloshing of the liquid when the receptacle is tilted.

5. A conditioning apparatus comprising an elongated receptacle for containing a conditioning liquid, a cage adjacent to each end of said receptacle for supporting work pieces, and a support constructed and arranged for movement of said receptacle from a position wherein the work pieces in the cage adjacent to one end of said receptacle are immersed in the conditioning liquid to a position wherein the conditioning liquid will flow toward the other end of the receptacle to act upon the work pieces in the other cage, leaving the work pieces which were first immersed to drain.

6. A conditioning apparatus comprising means for simultaneously immersing one group of work pieces in a conditioning liquid while removing a previously immersed group of work pieces from the liquid to enable the previously immersed group to drain, and a device actuated by said immersing means for indicating the desired length of time of immersion.

7. A conditioning apparatus comprising a pair of cages for supporting work pieces, a carrier for said cages constructed and arranged for movement from a position wherein the work pieces in one cage are immersed in a conditioning liquid and the work pieces in the other cage are above the level of the conditioning liquid to a position wherein the work pieces which were above the level of the conditioning liquid are immersed in the conditioning liquid while the work pieces which first were immersed are above the level of the conditioning liquid, and a time indicating device actuated by said carrier in its movement from one position to the other.

8. A conditioning apparatus comprising a receptacle having two compartments communicating with each other, said receptacle being mounted for movement from a position wherein work pieces in one of said compartments are immersed in a conditioning liquid to a position wherein the conditioning liquid will flow into the other compartment to act upon work pieces in the other compartment, leaving the work pieces which were first immersed to drain, and a timing device operated by said receptacle upon said movement thereof to indicate a desired length of time of draining and soaking of the work pieces in the respective compartments.

9. A conditioning apparatus comprising a receptacle having two compartments communicating with each other, a support constructed and arranged for movement of said receptacle from a position wherein work pieces in one of said compartments are immersed in a conditioning liquid to a position wherein the conditioning liquid will flow into the other compartment to act upon work pieces in the other compartment, leaving the work pieces which were first immersed to drain, and

a gravity operated timing device carried by said receptacle and actuated by said movement thereof to indicate a desired length of time of draining and soaking of the work pieces in the respective compartments.

10. A conditioning apparatus comprising a receptacle having two compartments communicating with each other, said receptacle being mounted for movement from a position wherein work pieces in one of said compartments are immersed in a conditioning liquid to a position wherein the conditioning liquid will flow into the other compartment to act upon work pieces in the other compartment, leaving the work pieces which were first immersed to drain, and a timing device carried by said receptacle consisting of a pair of connected bulbs for an indicating liquid which, upon said movement of said receptacle, flows from one of said bulbs into the other bulb and thereby measures a definite time interval during which the work pieces in the respective compartments may be permitted to drain and to soak.

11. A conditioning apparatus comprising a receptacle having two compartments communicating with each other, a cage in each of said compartments for supporting work pieces, a pivotal support upon which said receptacle may be tilted from a position wherein the work pieces in the cage of one of said compartments are immersed in a conditioning liquid to a position wherein the conditioning liquid will flow into the other compartment to act upon the work pieces in the other cage, leaving the work pieces which were first immersed to drain, and a timing device carried by said receptacle consisting of a pair of bulbs connected by a tube, said bulbs and tube being constructed and arranged to enable an indicating liquid to flow from one bulb into the other bulb upon said tilting movement of said receptacle, the flow of the indicating liquid serving to measure a definite time interval during which the work pieces in the respective receptacles may be permitted to drain and to soak.

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