T. F. TYLER.

WATERPROOFING APPARATUS.

APPLICATION FILED NOV. 14, 1910.

1,092,761. Patented Apr. 7, 1914.

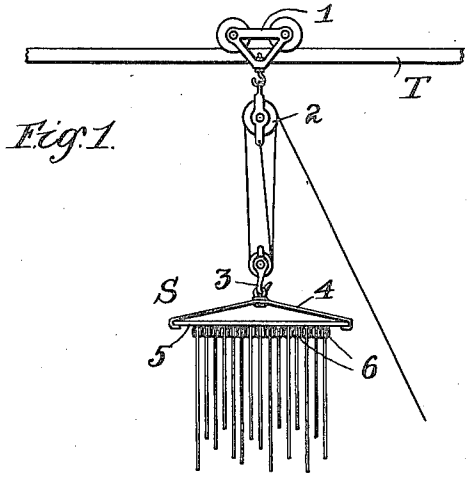


Fig. 1.

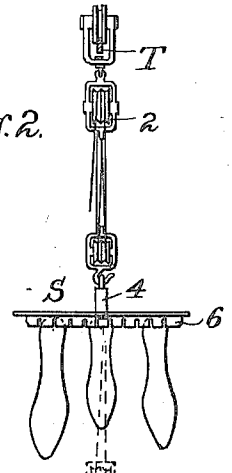


Fig. 2.

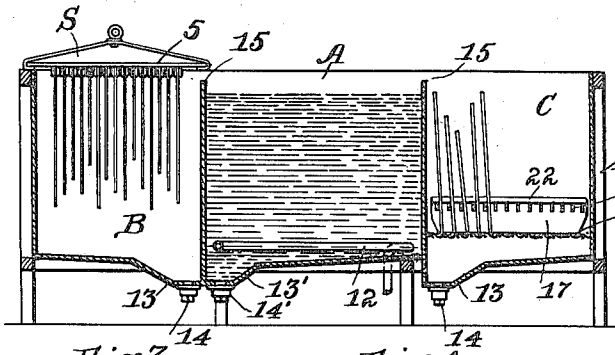


Fig. 3.

Fig. 4.

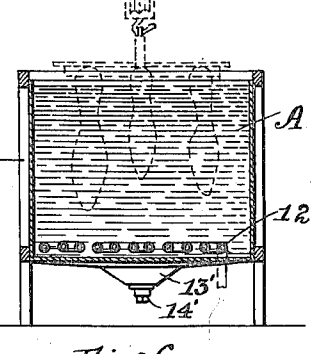
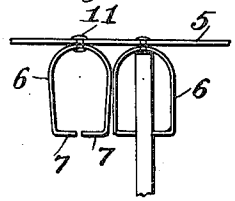


Fig. 6.



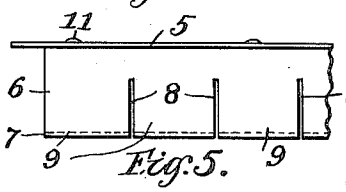


Fig. 5.

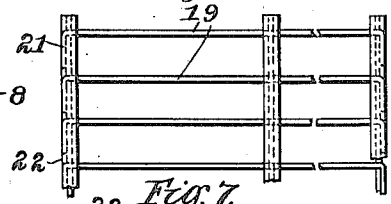


Fig. 7.

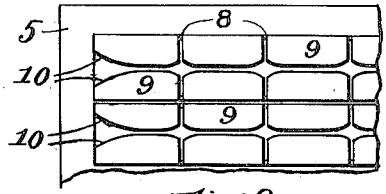
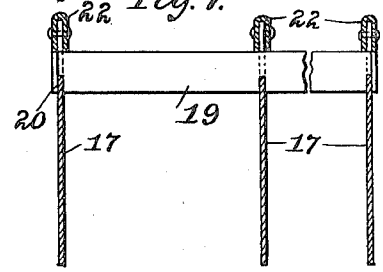
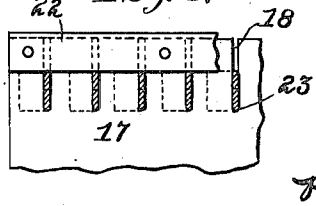


Fig. 8.





Witnesses

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UNITED STATES PATENT OFFICE.

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WATERPROOFING APPARATUS.

1,092,761. Specification of Letters Patent. Patented Apr. 7, 1914.

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To all whom it may concern:

Be it known that I, THADDEUS F. TYLER, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Waterproofing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for waterproofing articles of leather, and the like, and more particularly to waterproofing the soles of boots and shoes.

Heretofore, in waterproofing soles of boots and shoes, it has been customary to employ a series of four vertically arranged tanks and with this apparatus the operation proceeds as follows: A barrel of the waterproofing material is emptied into the lowermost tank and is then pumped into the highest tank where it is heated. After being heated it is drawn off into one of the tanks below it in which a number of soles to be waterproofed have been stood, in suitable racks, with their heel ends upward. These soles are left there until the leather has become impregnated with the material. After the proper length of time has elapsed, the waterproofing material, while still heated, is drawn off and emptied into a second impregnating tank where a second set of soles are waterproofed, while the set which has just been waterproofed are drying. After the first set of soles has dried they are removed from the racks in which they have been standing and a new supply of waterproofing material, previously pumped into the uppermost tank, is delivered to this tank and a new set of soles is placed in the racks therein to be waterproofed. At this time the material from the second waterproofing tank may be drawn off into the lowest tank, permitting the soles in the second tank to dry, and this material is pumped from the lowest tank to the uppermost tank to be used over again in the two central tanks as just described. There are many disadvantages to this mode of operation which represents, in general, the prior art. One disadvantage is that it requires a large amount of waterproofing material which must be constantly renewed, as it is depleted during the impregnation of the soles, so as to keep a proper level in the tanks. This is expensive and further expense is incurred in the necessary requirement of a pump and valves for drawing the material from one tank to another. When the material is cold it is pumped with difficulty and this causes much inconvenience and delay. The most serious disadvantage, however, is the manner in which the apparatus requires the soles to be placed in the tanks during their impregnation by the waterproofing material. It is not necessary to impregnate the heel seat with waterproofing material and, therefore, for economy's sake the soles are placed in their racks heel end up, the material being only of such a depth as to rise to a point about opposite the breast line of the heel. In order to provide for an impregnation of soles of varying sizes at the same time, the racks are made with slanting bottoms so that the smallest sizes will not be immersed a sufficient depth to cover their heel seats. But when soles are brought to the apparatus, they are in an unsorted condition and, therefore, in using this apparatus the services of a "sorter" are required to separate the soles into sizes so that they may be properly placed in the racks.

The object of the present invention is to provide an apparatus which will obviate all of the disadvantages above set forth. The old apparatus is, therefore, simplified by entirely doing away with all pumps and valves for drawing a charge of waterproofing material from one tank to another. The apparatus also is so designed that a minimum initial supply of waterproofing material is needed and this can be used without renewal for some time. It is also so designed that a set of soles may be impregnated with the waterproofing material without regard to their size and the services of the sorter are thus entirely eliminated.

To the accomplishment of this object and such others as may hereinafter appear, as will be readily understood to those skilled in the art, the invention comprises the features and combinations of parts hereinafter described and particularly pointed out in the appended claim.

The preferred form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of the apparatus; Fig. 2 is a transverse section through the impregnating tank; Figs. 3, 4 and 5 are an end elevation, side

elevation and an underside plan, respectively, of a portion of the sole clip or holder; and Figs. 6, 7 and 8 are a plan, a longitudinal section, and a cross-section, respectively, of a rack which may be employed when drying the soles.

In the illustrated embodiment of the invention the apparatus consists generally of three compartments side by side in a suitable frame F, the central compartment A of which is used as a tank for receiving waterproofing material, and the end tanks B and C of which are used for drying the soles after they have been impregnated with the material. Above the frame F and running on a track T, which may be suspended from the ceiling, or supported upon uprights rising from the frame as may be convenient, is a carriage 1 sustaining a mechanical power herein shown as a block and tackle 2 having the usual hook 3 at its lower end which detachably sustains a sole support S. With this arrangement the sole support can be moved on the track to a position above any of the compartments A, B or C. The block and tackle may be of any well known design which permits the sole holder to be lowered to any desired point and there locked against further movement. The provision of a movable carriage on a track is not essential as it is obvious that if the holder was suspended by a rope, chain, or other simple flexible connection, from an eye bolt above the frame F, it could be swung along to a position above any one of the compartments as might be desired.

The sole support S comprises a bail 4 which carries a base plate 5 having upon its under side a series of sole clips or holders 6, illustrated in detail in Figs. 3, 4 and 5. These clips are preferably formed of spring sheet material bent into U-shape, as shown in Fig. 3, but provided with inwardly directed clamping fingers at their open ends for engaging and holding a sole by its opposite faces. In practice, a number of soles are placed in one clip regardless of their size, as shown in Fig. 2. The clips should, therefore, be arranged to accommodate the varying thicknesses of the soles and to this end they are provided with a succession of spaced cuts or slits 8 (Fig. 4) forming between them separate clamping members 9, one or more of which may be utilized for clamping a sole without regard to the thickness of the sole which is next in line. The entering ends of the clamping edges 7 may be beveled at 10 (Fig. 5) so as to provide for easy insertion of the soles from either end of the clip. Preferably, a number of these clips are arranged side by side, as shown in Figs. 1 and 5, and are connected to the underside of the base plate 5 by rivets 11 (Fig. 3), or any other suitable form of connection. The number of clips which may be utilized for one set of soles is determined solely by the size of the impregnating tank with which the sole support is to be used.

In operating with the apparatus, the suspended sole support S is first filled with soles, no regard being paid to their size, the soles being inserted in the clips just as they are taken from the pile brought to the apparatus for treatment. The tank A having been filled with waterproofing material, which may be viscol, or any other suitable material, and heated by means of a steam coil 12 arranged at the bottom of the tank, the sole support is lowered and the soles are immersed in the material such a distance that the surface of the material comes to about the breast line of the smallest sole in the support, as shown in Fig. 2. The support is then locked against further downward movement and the soles are left immersed in the material a sufficient length of time, according to the weight of stock and tannage, to cause them to become thoroughly impregnated. The soles are now ready to be dried and to this end the sole support is raised and, without removing the soles, moved to a point above one of the end tanks where it is again lowered placing the soles within the drying compartment and permitting the plate 5 to rest upon the upper end of the compartment and form a cover therefor, the compartment and plate being of such relative size as to provide for this. Any drip from the soles, while they are being dried, runs down the slanting bottom of the drying compartment into the trap 13 and may be drawn off through the plug 14. The drying compartments B and C, as preferably arranged, have a common wall with the tank A and are kept heated by the heat radiated from the waterproofing material. With this arrangement, therefore, no separate heating means need be provided to keep the drying compartments at the desired temperature for drying out the soles. While one set of soles is mulling and drying in one drying compartment, another sole support has been supplied with a set of soles and is hung on the hook 3 and lowered into the impregnating tank A.

An important feature of the invention will here be recognized by those skilled in the art. Although the impregnation of the first soles has used up a portion of the material in the impregnating tank, nevertheless no additional waterproofing material is required for some time, as in order to thoroughly impregnated as much of the surfaces of the second set of soles as is desired, it is only necessary to lower them a little farther than the first set was lowered or until the new level of the material comes to the breast line of the heel seat upon the

smallest sole of the second set. This is provided for by making the sole support and tank of such size relatively that the base plate 5 can slip down within the walls of the tank. Thus the initial supply of waterproofing material may be used until it becomes too shallow to properly care for the longest sole of any set being waterproofed and it is only when this occurs that a renewal of the material is necessary.

With the arrangement of compartments shown in Fig. 1, two sets of soles may be drying while one set is being impregnated with the waterproofing material so that when a set of dried soles is removed it may be immediately replaced by a set fresh from the impregating tank and the process is thus made continuous and no loss of time entailed. The partitions 15 between the tank A and the compartments B and C may be cut off slightly at their tops, as shown in Fig. 1, or provided with holes, so that if the tank A is filled too full at first, the overflow will run into the drying compartments where it can be caught in the traps 13 and afterward drawn off. The tank A is also preferably provided with a sloping floor having a trap 13′ into which sediment may settle and be drawn off through the plug 14′.

Some manufacturers prefer to remove the soles from the holders or clips 6 for the drying operation and, therefore, instead of using the sole support as a cover for the drying compartment and drying the soles while still held by the support, a drying rack, such as is illustrated in Figs. 1, 6, 7 and 8, may be used. This rack preferably rests upon a piece of wire netting 16 arranged across the drying compartment slightly above its floor to hold the soles above the drip.

A preferred form of drying rack is constructed as follows. A series of parallel vertical supports 17, spaced apart such a distance as to enable the widest sole to be treated to be placed between them, are cut at their upper edges with a series of parallel slits 18 (Fig. 8). In these slits are set a series of horizontal connecting and sole holding plates 19 which have formed in their under edges a series of parallel cuts or slits 20 (Fig. 7), the first and last of these slits being a short distance from their ends. The support 17 and plates 19 are then assembled, as shown in Figs. 6 and 7, with their slits 18 and 20 interlocking and the ends 21 of the plates 19 bent over at right angles against the supports. To lock the plates 19 in place a locking member is used, a preferred form of which comprises a doubled, or U-shaped, piece of metal 22 fitted over the upper edge of each of the supports 17, above the plates 19, and securely riveted in place. The article thus completed forms a compact, rigid and convenient drying rack in which soles may be set between the plates 19, as shown in Fig. 1. In order that the soles may not be marred by a scraping of the edges of the plates 19 against their surfaces as they are seized and withdrawn in bunches from the drying racks, the plates 19 are preferably made of steel, the corners of the upper and lower edges of which are rounded off, as shown at 23 (Fig. 8), thus effectually preventing any injury to the soles from this cause as they are moved.

While it is preferred to employ the specific construction and arrangements of the parts as shown and described, since this construction and arrangement is the simplest and most efficient embodiment of the invention which has yet been devised, it will be understood that this construction and arrangement is not essential except so far as it is specified in the claim and may be varied or modified without departing from the broader features of the invention.

What is claimed as new, is:—

An apparatus of the class described, having, in combination, an open impregnating tank, an open drying compartment adjacent thereto, a single means for supporting and introducing work to be treated vertically into both the tank and drier, a plate above said parts having means at its under side for supporting the work to be treated, and means for raising and lowering the plate, said tank, compartment and plate being so proportioned relatively that the plate can be introduced within the tank but forms a cover for the drying compartment, substantially as described.

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