A. J. RYAN.

BOX TOE TREATING APPARATUS.

APPLICATION FILED SEPT. 8, 1914.

1,269,648. Patented June 18, 1918.

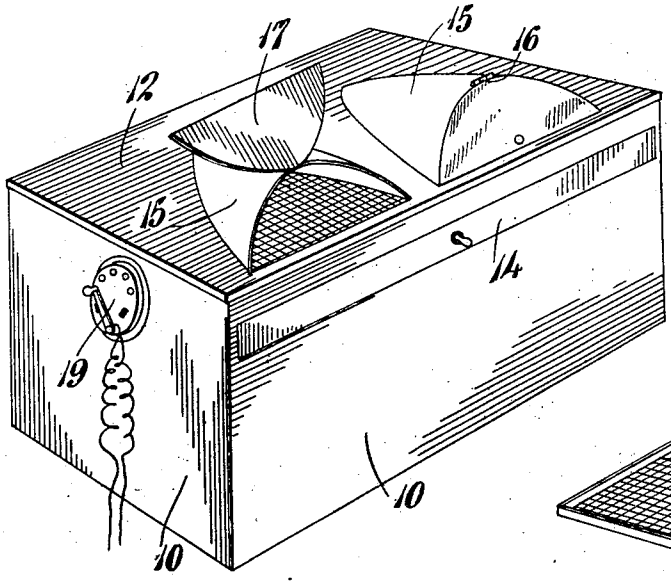


Fig. 1

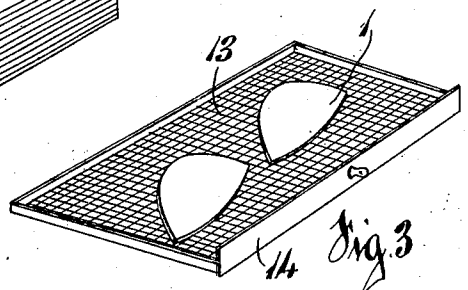


Fig. 3

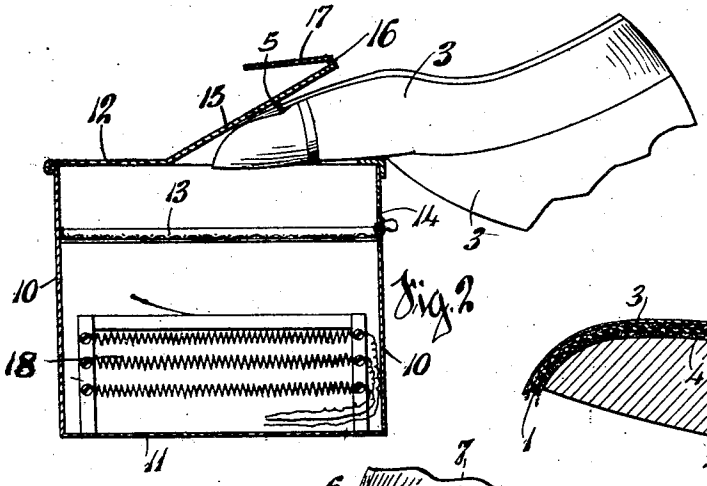


Fig. 2

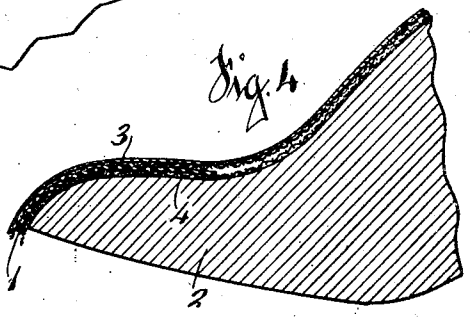


Fig. 4

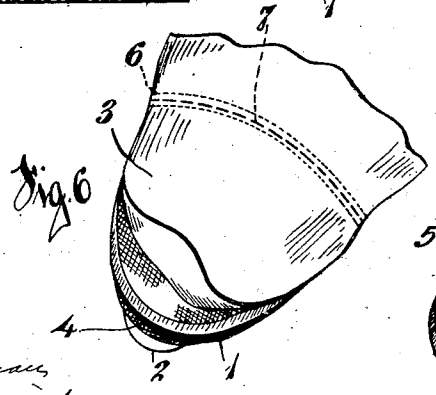


Fig. 6

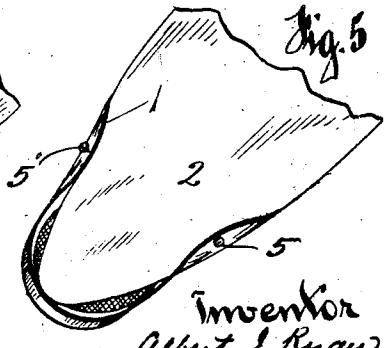


Fig. 5

Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT J. RYAN, OF CINCINNATI, OHIO, ASSIGNOR TO RYAN IDEAL STAIN AND BLACKING COMPANY, OF LYNN, MASSACHUSETTS, (A FIRM COMPOSED OF ALBERT J. RYAN, OF CINCINNATI, OHIO, AND ALEXANDER J. McCORMICK AND DENNIS F. MARKS, OF LYNN, MASSACHUSETTS).

BOX-TOE-TREATING APPARATUS.

1,269,648. Specification of Letters Patent. **Patented June 18, 1918.**

Application filed September 8, 1914. Serial No. 860,551.

To all whom it may concern:

Be it known that I, ALBERT J. RYAN, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Box-Toe-Treating Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The box toe of a shoe of usual commercial use consists in a piece of felt, hardened by permeating its substance with certain gums and waxes. In putting in this box toe it becomes necessary to soften it and let it harden several times as will be explained in the descriptive matter below.

Certain substances have been devised which can be softened quickly and easily by a moderate application of heat, and will cool and harden quickly. In the device illustrated and to be described, the object is to provide a convenient heater, compact and easily regulated which can be used by an operator in putting his box toe into a shoe, where the box toe will not require two or three days to harden after each softening.

The accomplishment of this object is obtained by that certain insulated box, electrically heated, and conveniently arranged to be hereinafter specifically pointed out and claimed, whereby all the heatings are provided for and chance of burning the shoe is done away with.

In the drawings,

Figure 1 is a perspective view of the box complete and closed.

Fig. 2 is a vertical cross section through the box taken at one of the hoods.

Fig. 3 is the tray for the separate box toes.

Fig. 4 is a longitudinal vertical section through a last and upper with box toe in place.

Fig. 5 is a bottom view of the part shown in Fig. 4, showing the box toe partly pulled over and tacked to the last.

Fig. 6 is a top plan view of a sewed box toe in an upper before the first operation.

The operations necessary in putting in a box toe are as follows: The gum-stiffened segmental shaped felt 1, which forms the toe, is heated until it becomes soft. The operator takes his last 2, and over it places the upper 3 with lining 4. Then by hand he inserts the box toe between the upper and the lining and bends the whole over the last. This operation of bringing the shoe top down over the last, or "pulling-over" the shoe, is accomplished by machine or hand, and tacks 5, 6, are driven through the shoe into the edges of the last to hold the parts in pulled over position, the tacks being one at each side of the toe and one (not shown) at the point of the toe.

In one method of manufacture, the box is treated with the gum just before being heated, and is sticky to handle, and must be put away to dry for several days. In another method, the box already gummed is exposed to raw steam which softens the waxes. In either case, the use of a heater is not of particular importance, and the operator's hands gets gummy and the shoe soggy. But as above stated, there are now hardened boxes on the market which will soften at one hundred and seventy-five to two hundred and twenty-five degrees Fahrenheit and harden immediately, and these are of immense practical importance to shoe manufacturers, if they have some convenient and safe method of heating which can be available at any moment to the pulling-over operator.

To continue with the method of putting in the boxes with reference to the quick hardening box,—the shoe after being pulled over and tacked on, must then be "wiped in". As the box hardens immediately, the shoe toe will be stiff and unworkable without another heating. Accordingly the operator takes the last and shoe together and subjects them to another heating, and as soon as the box is soft, the shoe is wiped in, by an apparatus which smooths the shoe over the last, and runs a wire around the parts to hold them in place.

In the drawings, the last is shown without any of the portions of the sole of the shoe mounted thereon, but it must be understood that in the ordinary practice the insole will be in place before the pulling-over is done. Thus the danger in this latter operation is considerable, because, although a fairly high temperature will not injure the best leathers used for uppers, it will almost surely ruin the sole portions of the shoes. Cheaper upper leather would be ruined also,

and it may be stated that for practical and efficient operation, the heater used must be of a heat generating nature that can be completely controlled.

The method above described is, of course, not the only way of working in a box toe. Some toes are sewed in the upper before the pulling-over operator gets the shoe. Such boxes have an ungummed flap 6 (dotted lines, Fig. 6), and this flap is sewed by a seam 7 (dashes, Fig. 6). The heating before pulling-over to soften the toe must then be done in company with the upper, and the best method is to bring the upper over the last, and hold it thus while heating. The further operations are then followed as in the case already dealt with.

In any instance, the shoe cannot leave the sight of the operator while it is being heated, because of the danger of heating too long.

From the above exposition, the theory upon which my heater is constructed can now be understood. It is desired to have an absolutely regulated temperature, a convenient and compact and movable structure, a place for box toe heating, and a place in full view for pulled over shoe heating.

There is accordingly provided a box of heat insulating material such as asbestos board, having sides 10, 10, a bottom 11 and a top lid 12. This top need not be a hinged lid, but it is made so for convenient access to the interior for repairs and the like.

A tray drawer 13, of wire gauze or screening, is provided, with a front 14, and the box is provided with the ordinary ways (not shown) for the drawer to slide on. This drawer is intended to accommodate the box toes separated (Fig. 3), and there need not be any depth to the drawer, nothing but a sliding tray being preferably used to accommodate these flat boxes.

The top or hinged lid, as the case may be, is provided with one or more hoods 15 in its surface, of semi-funnel shape, and over the open front of the hoods are hung, by hinges 16, the segmental flaps 17, to prevent escape of the heat from the box. Into these hoods are inserted the toes of pulled over shoes for the second heating since the heat rises through the box into the hoods, they being merely raised up portions of the top.

The ordinary way is to put the shoe in last down, but in the case of the sewed box toe, the parts are reversed and the last turned up. It can be appreciated that this means of giving the secondary heating is of great practical advantage, as the shoe is in the hands and in sight of the operator and naturally subject to his constant attention to prevent burning or scorching.

As a heating means, it is possible with this small and compact box to use an electric heater. This heater 18 is of ordinary structure, on a small scale, and is connected up with a small rheostat 19. It is of great importance in this heater that I am able to use an electric heat. The box can be connected up to the regular electric lighting system, as the heater is a small one, and the amount of current admitted to the heater absolutely regulates the amount of heat generated in the box.

It will be understood that this heating device sits on the work bench, one for each operator. A mere doubling up of parts would make it accommodate two or more operators, but while this would approximate my invention and be covered by it, it would be departing from the preferred form of an individual machine, small, convenient, actuated from electric light lines. A small steam coil, if substituted for the electric light heater would in some ways serve the purpose of my electric heater, but for safety and convenience would be much less preferable.

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

1. A receptacle having a heater in the lower portion thereof, a foraminated partition above the heater to prevent contact therewith while permitting the heat to rise therethrough, and a top cover for the box having openings therein, with the cover arched over the openings, of a shape to permit the insertion under the arched portions of the toe of a shoe.

2. A receptacle having a heater in the lower portion thereof, a foraminated removable partition above the heater to prevent contact therewith while permitting the heat to rise therethrough, and a removable top cover for the box having openings therein, with the cover arched over the openings, of a shape to permit the insertion under the arched portions of the toe of a shoe.

3. A receptacle having a heater in the lower portion thereof, a foraminated partition above the heater to prevent contact therewith while permitting the heat to rise therethrough, and a top cover for the box having openings therein, with the cover arched over the openings, of a shape to permit the insertion under the arched portions of the toe of a shoe, and flaps to close the openings of the arched portions and prevent escape of the heat when the shoe is removed.

ALBERT J. RYAN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."