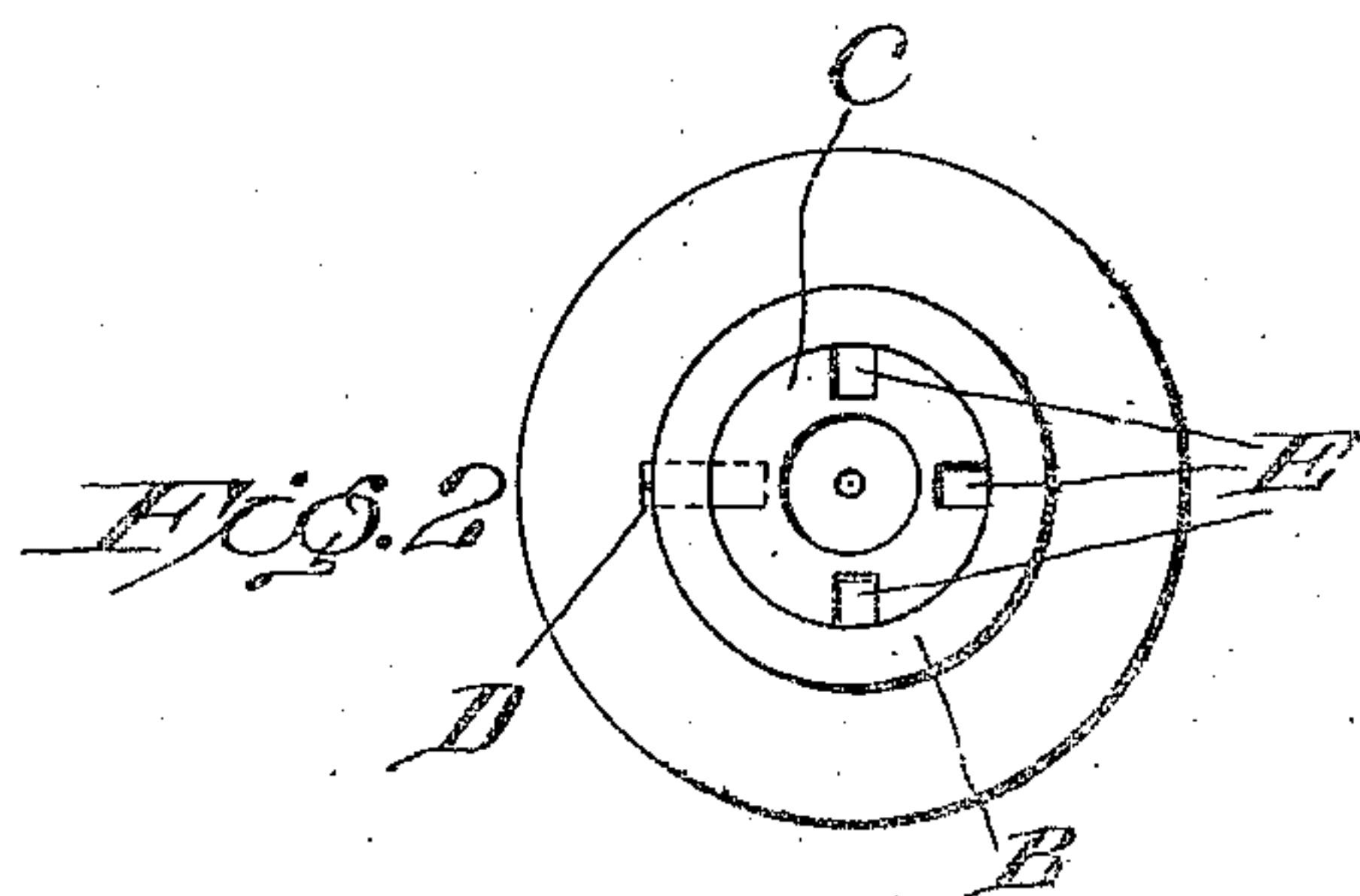
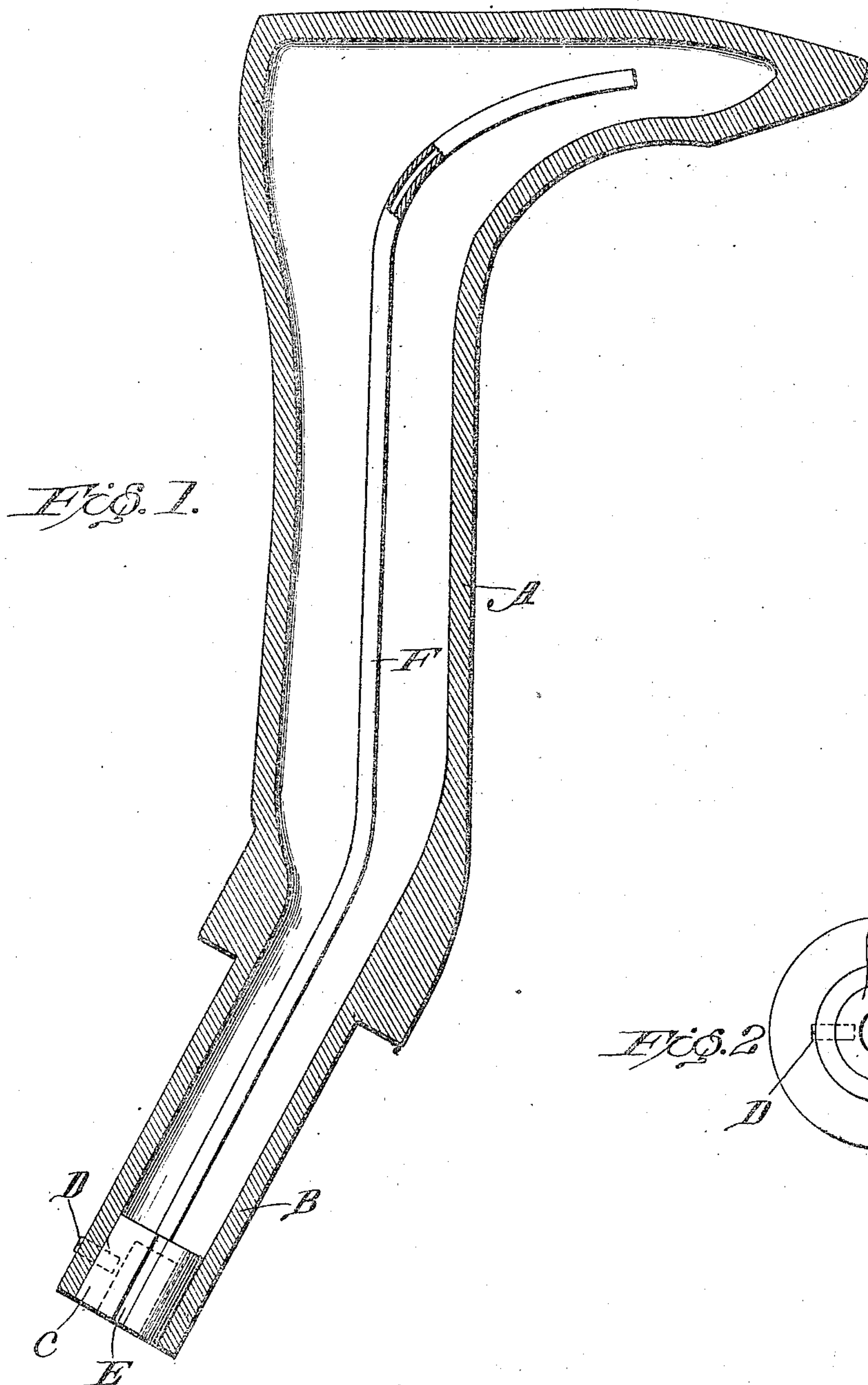


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W. H. O'CONNOR.
STEAM HEATED LAST.
APPLICATION FILED JULY 13, 1915.

1,155,087.

Patented Sept. 28, 1915.



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UNITED STATES PATENT OFFICE.

WILLIAM H. O'CONNOR, OF HORSEHEADS, NEW YORK.

STEAM-HEATED LAST.

1,155,087.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed July 13, 1915. Serial No. 39,634.

To all whom it may concern:

Be it known that I, WILLIAM H. O'CONNOR, a citizen of the United States, and resident of Horseheads, county of Chemung, State of New York, have invented certain new and useful Improvements in Steam-Heated Lasts, of which the following is a specification.

My invention relates to improvements in lasts used in finishing and shaping boots and shoes and relates particularly to lasts provided with heating means to facilitate the drying of the gum or paste used in the manufacture of shoes.

The object of my invention is to provide an improved steam-heated last adapted to be used in making leather, cloth and canvas shoes of all weights and in lasting McKay sewed shoes or Goodyear welt shoes. The last here disclosed is however particularly adapted to be used in the manufacture of baby shoes and is designed to supersede the old wooden last heretofore employed. In the manufacture of baby shoes, where wooden lasts are employed, an insole is pasted into the shoe, the shoe is pulled over a wooden last and pounded into shape, a tack is placed in the heel to prevent the shoe from slipping relatively to the last and the shoe and last then placed on a rack for twelve hours to dry the paste. This involves the use of a large number of lasts and also delays the delivery of the shoes from the factory for twelve hours.

By employing steam heated lasts the number of lasts required is very materially reduced and the time required in drying is cut down from twelve hours to a few minutes, thus saving both in time of manufacture and cost of lasts. I am aware that steam heated lasts have been employed before in the manufacture of shoes and do not claim broadly this idea, but my invention consists in an improvement in steam heated lasts which renders them more practical and efficient.

In the steam heated lasts heretofore used the interior of the last is hollowed out to form a steam chamber, and steam is introduced at the top or rear of this chamber and to reach the toe of the last, has to pass through the whole chamber, being continually in contact with the side walls. As a consequence, a large amount of the heat of the steam is absorbed by the side walls and the toe and bottom or sole of the last are

never in contact with steam in its originally heated condition. It is desirable that the sole and toe be even more highly heated than the sides, and to effect this result I have provided a last in which the fresh hot steam is used to heat the sole and toe, the side walls being heated by the steam after passing out of contact with the sole.

One form of my invention is shown in the accompanying drawings in which:

Figure 1 is a longitudinal sectional view of a hollow metal last showing my improved heating means. Fig. 2 is a bottom plan view of the lower end of the last showing the steam inlet and outlets.

The last A is of metal, preferably brass, and has walls of such thickness that it is very sturdy and strong and well adapted to resist the strains incidental to the forming of shoes thereon, yet thin enough to readily transmit heat from the steam to the leather. This last has a reduced cylindrical portion B adapted to be inserted into a frame or holder to support the last. This cylindrical portion is hollow and in the upper end thereof a steam tight plug of metal C is fastened by means of a set screw D, adapted to pass through a hole in the cylinder B, and engage a threaded hole in the plug C. The plug C which is preferably of brass, is in the form of a hollow cylinder having a plurality of longitudinal grooves E in its outer surface extending from end to end. When fastened in position as shown in the drawings, the tubular passage through the center and the grooves in the outer surface of the plug form passages between the hollow interior of the last and the outside.

In the form of plug which I have here illustrated the central tubular opening in the plug C is an inlet for the hot steam used in heating the last, and to conduct this hot steam immediately to the toe I have connected in any suitable way to the plug C the pipe F, which extends out into the extreme end of the toe. This pipe F is attached below the cylindrical passage of the plug and conducts all the steam entering through said passage to the toe. The pipe F is preferably of flexible material as thin copper, capable of being bent to conform to the interior of the last. The steam after issuing from the pipe, heats the toe and then passes back along the side walls of the last supplying them with heat, and finally passes out through the grooves E in the plug.

Water formed in the steam chamber, due to the condensation of the steam, also escapes through the grooves E, as the last, when in use, is in such a position that the grooves E are lower than the chamber.

The means for introducing steam into the plug and the means for conducting exhaust steam away from the plug form no part of my invention and are not shown.

It is obvious that the construction of the plug may be varied in numerous ways and other changes made in my invention, which I have shown in its simplest form, and I do not wish to confine myself strictly to the device shown in the drawings.

A last such as disclosed is particularly adapted to the manufacture of babies' soft soled shoes and whenever used serves to make the leather soft and pliable, and prevents wrinkling on the tip, especially when patent leather is being used.

Owing to the flexibility of the pipe F it may be readily inserted into the last so that its extremity will reach the toe. The cavity in the last is necessarily irregular and crooked and it would be difficult to transmit steam directly to the toe through a rigid pipe or connection.

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

1. The combination with a last for boots and shoes having a chamber therein extending into the toe, of a pipe extending through

said chamber approximately into the toe of the last.

2. The combination with a last for boots and shoes having a chamber therein extending into the toe, of a pipe extending to approximately the end of said chamber in the toe of the last, and removable from said last.

3. The combination with a last for boots and shoes having a chamber therein extending into the toe and closed at its upper end by a removable plug, having an inlet and outlet therein, of a pipe connected to said plug, and extending through said chamber to approximately the end thereof, in the toe of the last.

4. In a last for boots and shoes, having a chamber therein conforming to the outer shape of the last, a removable plug fitted into the upper end of said chamber inlet, inlet and outlet passages therein and a pipe adapted to conform to the inner configuration of said chamber, attached to said plug and registering with the inlet passage therein, and extending through said chamber to the lower end thereof.

5. The combination with a last for boots and shoes having a steam chamber therein, of a pipe extending through said chamber and having a discharge end approximately at the extremity of said chamber which is nearest the sole of the last.

In testimony whereof I affix my signature.

WILLIAM H. O'CONNOR.

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