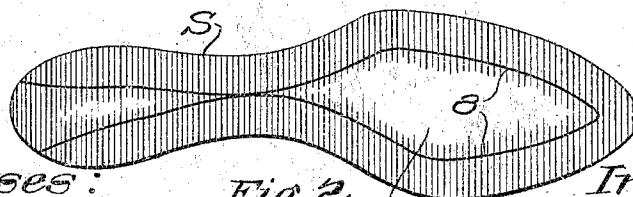
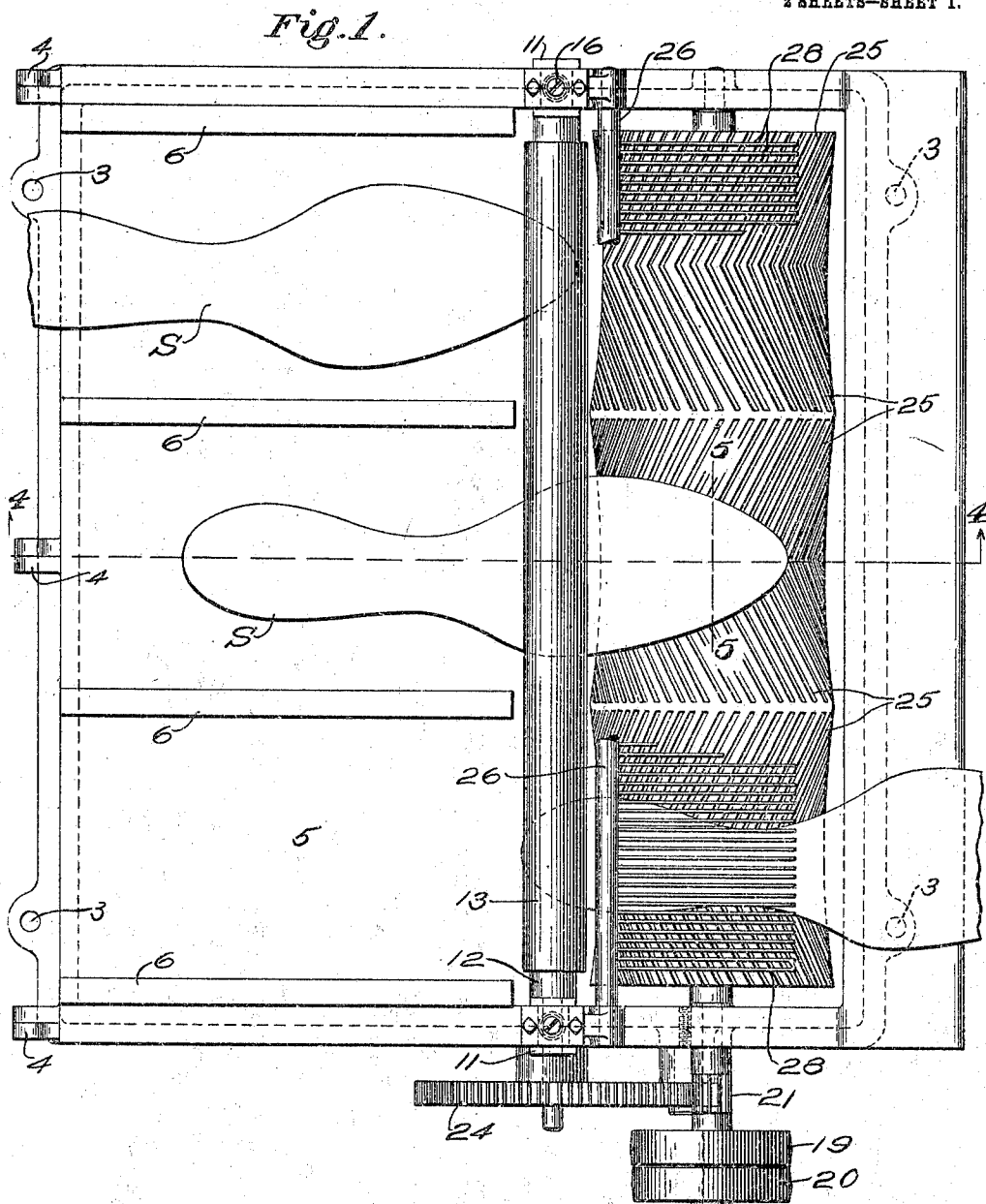


W. H. HOOPER.
 INSOLE TEMPERING MACHINE.
 APPLICATION FILED APR. 15, 1909. RENEWED NOV. 27, 1909.

957,961.

Patented May 17, 1910.

2 SHEETS—SHEET 1.



Witnesses:
 Roswell F. Hatch.
 Amelia M. Ross

Fig. 2.

Inventor:
 T. William H. Hooper
 by Robt. D. Hains,
 Atty.

W. H. HOOPER.
INSOLE TEMPERING MACHINE.

APPLICATION FILED APR. 15, 1909. RENEWED NOV. 27, 1909.

957,961.

Patented May 17, 1910.

2 SHEETS—SHEET 2.

Fig. 3.

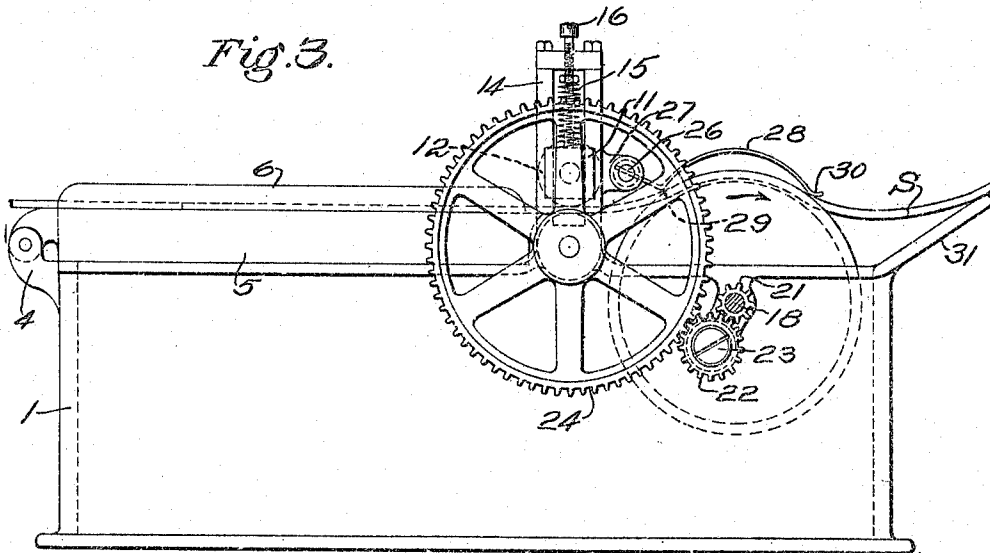


Fig. 4.

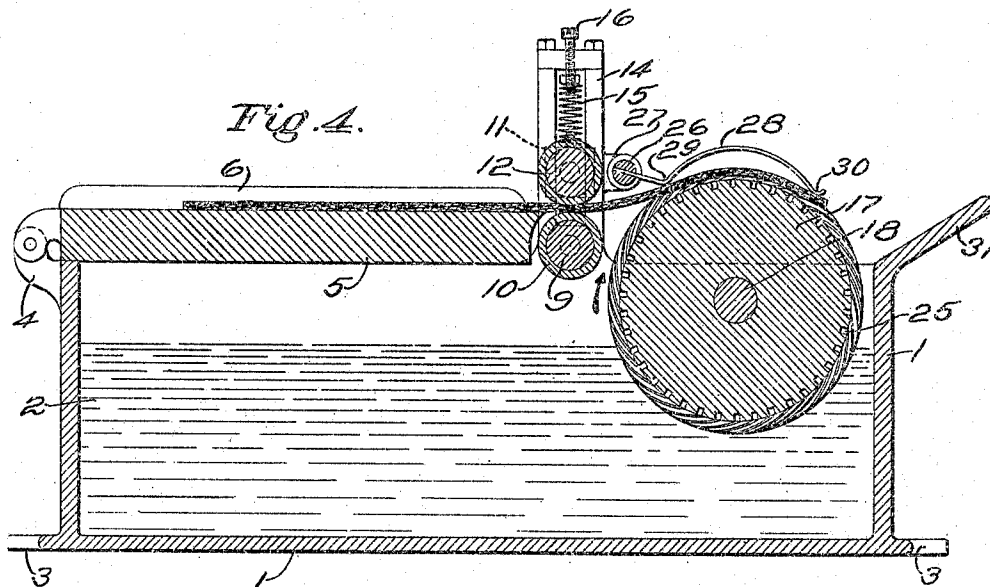
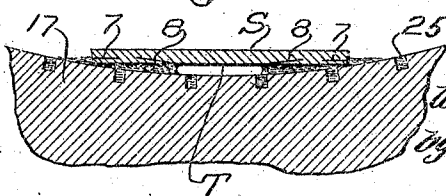


Fig. 5.

Witnesses:
R. F. Hatch.
Amelia M. Ross



Inventor:
William H. Hooper
By R. A. Harris,
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM H. HOOPER, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THOMAS G. PLANT,
OF BOSTON, MASSACHUSETTS.

INSOLE-TEMPERING MACHINE.

957,961.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed April 15, 1909, Serial No. 490,172. Renewed November 27, 1909. Serial No. 530,241.

To all whom it may concern:

Be it known that I, WILLIAM H. HOOPER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Insole-Tempering Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The invention to be hereinafter described relates to a sole tempering machine, more particularly for use in the treatment of channeled insoles.

As well known by those skilled in the art, insoles are usually provided with a channel lip by forming a slit or cut in the material of the insole and then turning up the lip. The character of the insole material is frequently such that difficulty is experienced in turning the lip up from the channel, and the present invention aims to provide means which will so temper that portion of the insole where the channel lip is formed that the said lip may be readily upturned, all as will be more fully explained in connection with the accompanying drawings of one form of mechanical means for carrying the invention into practice, it being understood that the true scope of the invention is not confined to details except in so far as set forth by the claims.

In the drawings: Figure 1 is a plan view of one form of sole tempering machine embodying the present invention; Fig. 2 is a face view of a channeled insole, showing by shaded lines the tempered portions of an insole after treatment in accordance with the present invention; Fig. 3 is a side elevation of the machine; Fig. 4 is a section on the line 4-4, Fig. 1; and Fig. 5 is a detail section on line 5-5, Fig. 1, showing the action of the tempering roll upon the insole.

The tank 1, of any suitable character adapted to contain the tempering liquid 2, has a series of lugs 3, by which the tank may be secured to a support or table, and side lugs 4 to which may be jointed or hinged the feed table 5, the construction being such that the feed table 5 may be swung up when desired to afford access to the interior of the tank.

In the present embodiment of the invention the feed table is contrived as a substantially flat stationary surface, though any

character of feed table may be employed, and it is divided into a plurality of feed sections by the partitions or strips 6, each section being adapted to receive and support an insole S as it is presented to the action of the machine. The insole S may be of any usual or desired character and formed with a slit or cut to produce a channel and lip, the sole indicated being shown as having the slits 7 and 8, Fig. 5, each extending into the material of the insole.

Mounted in suitable bearings at each side of the tank 1 is a feed roll 9, Fig. 4, preferably, though not necessarily, covered with rubber or composition 10, the top surface of the feed roll 9, as a good practical construction, being preferably disposed substantially in the plane of the feed table surface.

Mounted in bearings formed in blocks 11, Figs. 3 and 4, is a feed roller 12 which, if desired, may extend the full width of the tank and be covered with rubber or composition 13, though obviously this may be otherwise. The blocks 11 are mounted to move in guides 14 and are normally under the influence of springs 15 acting to depress the blocks 11 and maintain the upper and lower feed rolls in close relation, a set screw 16 or other adjusting means being provided to vary the spring tension to suit conditions of use.

Mounted in suitable bearings so as to dip into the tempering liquid 2 in the tank 1 is a tempering roll 17 carried by a driving shaft 18, on which is mounted the usual fast and loose pulleys 19 and 20, Fig. 1. Secured to the driving shaft 18 is a pinion 21, Fig. 3, which is in driving relation with a pinion 22 mounted on the stud 23 projecting from the tank 1, said pinion 22 being in operative engagement with a pinion 24 mounted on the shaft of the lower feed roll 9, the construction being such that upon rotation of the driving shaft 18 by a belt or other suitable driving connection with any desired form of power, the tempering roll 17 will be driven and the feed roll 9 correspondingly driven, but at a much decreased speed, so that as the sole is fed between the feed rolls 9 and 12, the surface of the tempering roll 17 will travel past the adjacent surface of the insole, as will be apparent. The tempering roll 17 is preferably formed with concaved surface portions, as indicated in Fig. 1, each of said portions corresponding to a feed section of

the feed table and to receive and act upon the surface of an insole fed thereto. The concaved portions of the tempering roll 17 are each provided with outwardly and forwardly extending grooves 25, said grooves preferably beginning midway of the length of each section of the roll and diverging in opposite directions. The construction is such that as the tempering roll 17 rotates in the direction of the arrow, the tempering liquid is carried upward by the roll and, owing to the divergent character of the grooves 25, as the roll surface moves upward and toward the surface of the insole to be tempered, the tempering liquid tends to run downward to the point of meeting of the grooves midway in the length of the roll section, so that, as the toe of the insole passing between the feed rolls meets the roll section, it is subjected to a thorough tempering or wetting, and, as the forepart of the insole moves over the top of the roll section, the concave character of the roll section obviates unnecessary wetting of the central portion of the insole, as indicated at T, Figs. 2 and 5, while the edge portions of the sole, Fig. 5, have applied thereto the tempering liquid so that the channel lip may be readily upturned. The character of the grooves 25 insures that surplus liquid will not be carried to the outer edge of the sole as the latter passes over the tempering roll section, and therefore prevents any of the tempering liquid getting on the top surface of the sole, as will be readily apparent to those skilled in the art.

Extending transversely of the tank 1 is a guide finger supporting rod 26, said rod being preferably supported on lugs 27 projecting from or secured to the guideways 14. Secured to the rod 26 are the series of yielding guide fingers 28, said guide fingers being preferably curved, as shown, so that as the sole S is slowly fed through or between the feeding rolls, its surface will be held in contact with the tempering roll in order that the liquid may be properly applied to the channeled portion of the insole. The elastic or yielding fingers 28 are preferably constructed to bear against the insole at two points 29 and 30, Fig. 4, so that as the insole passes over the tempering roll it may have an extended bearing on the surface thereof.

Projecting from the delivery side of the tempering roll is an inclined receiving table 31, onto which the insole is fed and by which it is supported as it is delivered from the tempering roll 17.

Various changes and modifications may be made in the mechanical details of structure herein shown and described as one form or embodiment of the invention, and it is apparent, of course, that the tempering roll 17 may be formed of a varying number of roll sections, that is, it may have three or

more or less of said sections, as indicated in Fig. 1, and the feeding table 5 may be similarly varied as to size and extent to correspond with the number of roll sections formed on the tempering roll. If only one roll section is provided for the tempering roll, obviously only one delivery section will be necessary on the table 5, and the extent and dimensions of the various parts would be correspondingly varied, it being understood that the tempering roll is, in any event, provided with a roll section having a grooved concave surface to deliver the tempering liquid to the channeled edge portion of the sole, not only along the sides of the forepart, but at the toe portion as well, without such liquid being permitted to rise to or upon the upper surface of the insole.

What is claimed is:

1. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tempering roll having a concaved liquid carrying surface, said surface being provided with liquid carrying grooves disposed diagonally thereof, feeding means for directing an insole over said tempering roll, and liquid supplying means for said tempering roll.

2. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tempering roll the diameter of which varies in different portions of the roll, a series of liquid carrying grooves disposed in the surface of said roll and extending diagonally thereof from a portion of less to a portion of greater diameter, means for feeding an insole that the toe portion thereof may receive treatment by the part of the roll of less diameter and the following edge portions of the sole by parts of the roll of progressively varying diameters, and operative means for the feeding means and tempering roll.

3. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a concaved liquid carrying surface which receives liquid from said tank or receptacle, feeding means for delivering an insole to said tempering roll, and means for operating the tempering roll at greater speed than the feeding means to cause the tempering liquid to be applied at the toe and along the edge portions of the insole.

4. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a concaved liquid carrying surface which receives liquid from said tank or receptacle, feeding means for

delivering an insole to said tempering roll, means for operating the tempering roll at greater speed than the feeding means to cause the tempering liquid to be applied at the toe and along the edge portions of the insole, and guide fingers extending transversely of said tempering roll to cause the insole to have an extended bearing on the tempering roll as it passes thereover.

5. In an insole tempering machine, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a concaved liquid carrying surface which receives liquid from said tank or receptacle, said concaved surface having a series of liquid carrying grooves diverging in the direction of rotation of said roll, insole feeding means, and means for operating said feeding means and tempering roll.

6. In an insole tempering machine, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a concaved liquid carrying surface which receives liquid from said tank or receptacle, said concaved surface having a series of liquid carrying grooves diverging from the central depressed portion of said surface in the direction of rotation of said roll, insole feeding means, and means for operating said feeding means and tempering roll.

7. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tempering roll the diameter of which varies in different portions of the roll, a series of liquid carrying grooves disposed in the surface of said roll and extending diagonally thereof from a portion of less to a portion of greater diameter, means for feeding an insole that the toe portion thereof may receive treatment by the part of the roll of less diameter and the following edge portions of the sole by parts of the roll of progressively varying diameters, and means for operating the tempering roll at a greater speed than the feeding means.

8. In a machine for tempering the edge portions of an insole that the channel lip may be upturned, the combination of a tempering roll having a concaved liquid carrying surface, said surface being provided with liquid carrying grooves disposed diagonally thereof, feeding means for directing an insole over said tempering roll, liquid supplying means for said tempering roll, and a series of guide fingers for directing

the insole to the action of an extended portion of the tempering roll.

9. In a machine for tempering the edge portions of a channeled insole that the channel lip may be upturned, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a plurality of concaved surface sections, each provided with a series of liquid carrying diverging grooves extending from a portion of less to a portion of greater diameter, feeding rolls disposed adjacent the tempering roll, means for operating the feeding and tempering rolls, and a series of guide fingers for directing an insole over the tempering roll.

10. In a machine for tempering the edge portions of a channeled insole that the channel lip may be upturned, the combination of a tank or receptacle for the tempering liquid, a tempering roll having a plurality of concaved surface sections, each provided with a series of liquid carrying diverging grooves extending from a portion of less to a portion of greater diameter, feeding rolls disposed adjacent the tempering roll, means for operating the feeding and tempering rolls, and a series of yielding fingers having directing portions 29 and 30 for directing the insole over the tempering roll.

11. In a machine for tempering an insole that the channel lip may be upturned, the combination of a tank or receptacle for the tempering liquid, a tempering roll dipping into the liquid in the tank or receptacle and having a concaved liquid carrying grooved surface, feeding rolls for feeding the channeled surface of the insole to the action of said tempering roll, and guide fingers extending transversely of the tempering roll to cause the latter to act on the edge portions of the insole and temper the same.

12. In a machine for tempering an insole that the channel lip may be upturned, the combination of a tank or receptacle, a table, feed rolls 9 and 12 adjacent said table, a tempering roll 17 having diverging grooves 25 in the surface thereof, and means for rotating the tempering roll and feed rolls.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM H. HOOPER.

Witnesses:

ROSWELL F. HATCH,
REDFIELD H. ALLEN.