A. THOMA.

APPARATUS FOR AUTOMATICALLY FILLING SHOE BOTTOMS.

APPLICATION FILED APR. 28, 1906.

1,224,428.

Patented May 1, 1917.

2 SHEETS—SHEET 1.

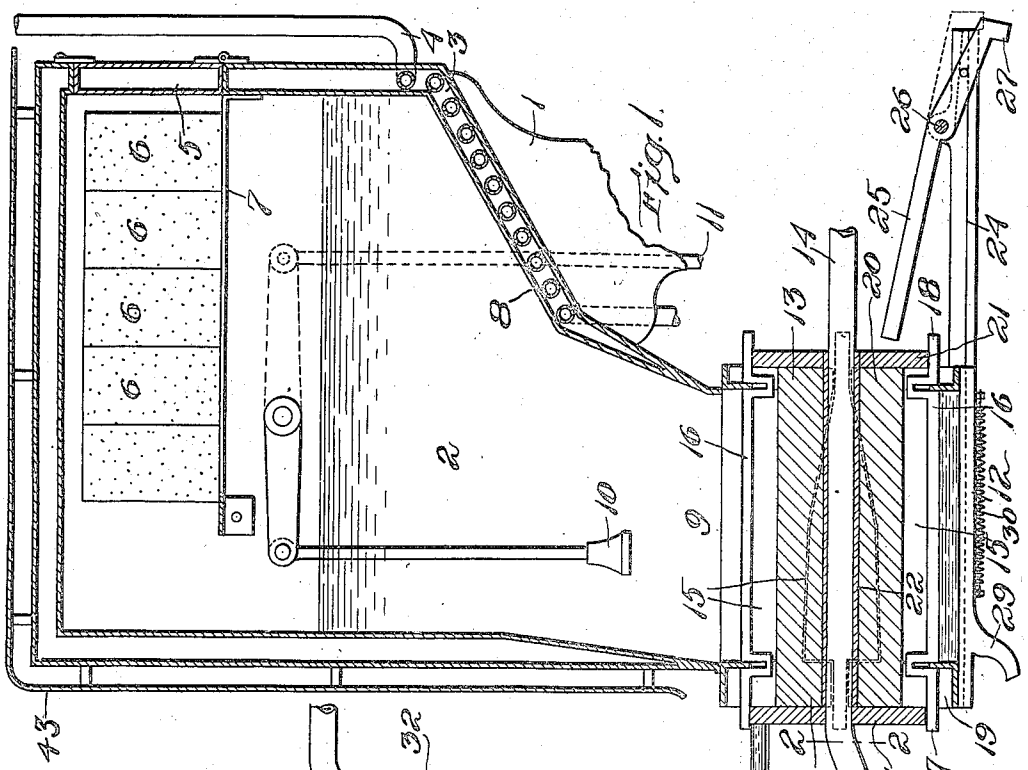


Fig. 1.

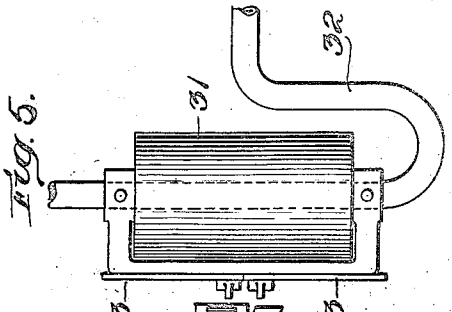


Fig. 5.

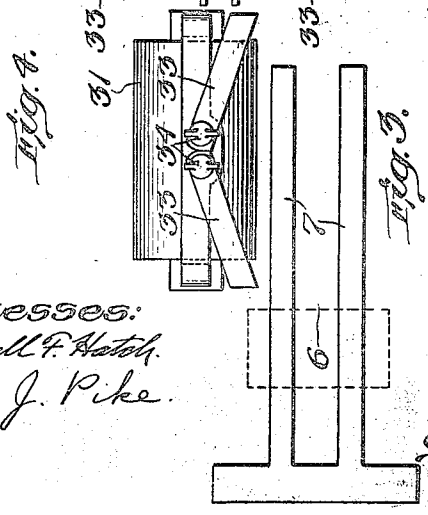


Fig. 4.

Fig. 3.

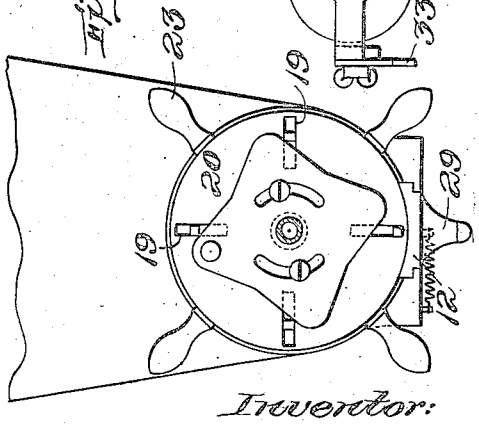


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 6.

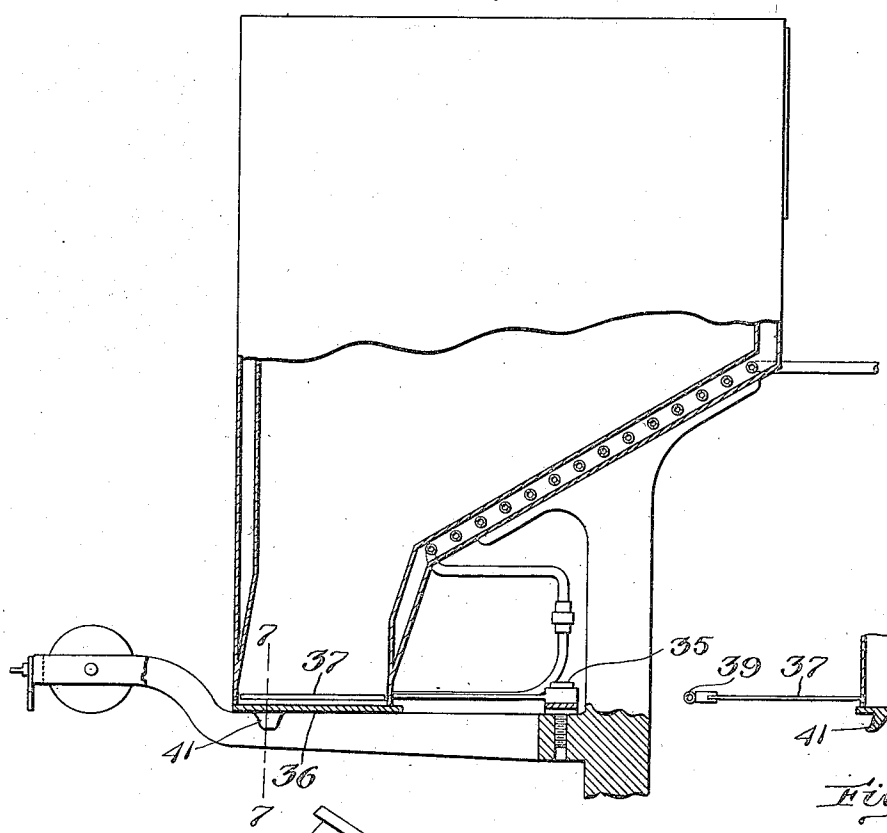


Fig. 7.

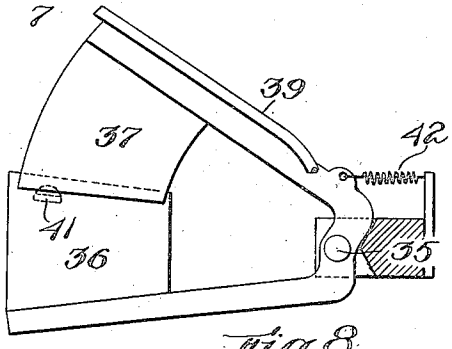


Fig. 8.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR AUTOMATICALLY FILLING SHOE-BOTTOMS.

1,224,428. Specification of Letters Patent. Patented May 1, 1917.

Application filed April 28, 1906. Serial No. 314,127.

To all whom it may concern:

Be it known that I, ANDREW THOMA, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Apparatus for Automatically Filling Shoe-Bottoms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My present invention is an apparatus for facilitating the filling of shoe bottoms according to the system set forth in my Patent No. 808,224 of December 26, 1905.

In using the apparatus shown in my above mentioned patent the operator is required to exert considerable physical power in applying the superheating roll. For the purpose of facilitating and quickening the filling of shoe-bottoms I have devised mechanism for automatically accomplishing what has heretofore been a comparatively slow and difficult hand operation. I provide a heating tank which maintains a supply of filler at the required condition of pliability and has in its bottom an automatic delivering mechanism, so that the operator simply shoves the shoe into place and the predetermined or right amount of filler is automatically deposited therein. As the shoe is withdrawn it comes in contact with a leveler and a cleaner or scraper which brushes away surplus filler. The entire operation is accomplished instantly by a simple in-and-out movement of the shoe, and, as the operator's hands are free, he can more quickly and skilfully handle the shoe. Also, I have found that some shoe manufacturers prefer a comparatively stiff and resisting filler, and, accordingly, to enable such a filler to be worked with ease and rapidity, I provide means for imparting an extra softening heat thereto just as the layer of filler is being placed in the shoe, and then the superheating roll immediately follows with proper pressure over the top surface and crowds the filler into all the crevices and cavities before it sets. A further feature resides in the arrangement of the heating chamber by which fresh filler is constantly supplied without interfering with the already softened mass or with the continuous filling of shoes.

In the drawings I have illustrated two embodiments of my invention:

Figure 1 is a central vertical sectional view of the upper portion of the apparatus.

Fig. 2 is a fragmentary detail taken on the dotted line 2, 2, Fig. 1;

Fig. 3 is a plan view of the supporting ledge or shelf 7;

Figs. 4 and 5 are views in front elevation and top plan of the spreader and scraper mechanism;

Fig. 6 is a view in side elevation, parts being broken away, showing a modified construction of the apparatus;

Fig. 7 is a sectional detail on the line 7, 7, Fig. 6;

Fig. 8 is a plan view of the supporting mechanism.

On a suitable pedestal or base 1 is a tank or filler chamber 2 provided with a steam jacket 3, supplied at 4. A door 5 at the rear end of the chamber admits the cakes or loaves 6 of filler which are placed on a skeleton shelf 7, so that as they become softened they will fall automatically by their own weight into the melted mass of filler material beneath, which tends constantly to slide down the inclined wall 8 to the outlet end 9 of the chamber, being further propelled now and then by a plunger 10 operated by a foot lever and rod 11.

The bottom 12, as shown in the machine of Fig. 1, slides longitudinally beneath a rotary delivery device 13 mounted in the outlet of the chamber to rotate on a steam pipe 14 as an axis. This delivery device 13 is shown as cylindrical and provided with four pockets 15, each having the general shape or contour of the shoe bottom to be filled, and containing a movable dumping bottom 16 whose ends 17, 18, work in guides 19 in the ends 20 of the carrier device 13. Any suitable means for regulating the depth of the pockets 15 is provided, such as cams 21 at the ends of a sleeve 22, and the carrier or delivery device is rotated by handles 23. At the rear a track 24 on which the bottom 12 slides, is provided with a tapper 25 pivoted at 26 and having a depending end 27 to be struck by the bottom 12 when the latter has been fully opened, and thereby cause the forward end to tap the end 18 of the adjacent mov-

able dumper and positively eject the separated portion of filler contained in the bottom pocket. A projection 29 serves to operate the sliding bottom 12 when engaged by the toe of a shoe, as the latter is shoved forward into place to receive the filler, and said bottom is retracted by a spring 30.

In the path of movement of the shoe at the front of the apparatus is a leveling tool, shown as a superheating roll 31, mounted on a steam pipe 32 and provided with opposite scraping knives 33 loosely pivoted at 34 for automatically adjusting themselves to the shape and position of various welts for brushing off any grains of filler which may be crowded over by the hot roll 31.

In use, the loaves of filler are placed on the shelf 7 and as they soften they break and drop into the mass below. The pockets 15 fill automatically and all the operator has to do is simply to quickly shove the shoe forward and then draw it back again. He places the toe of the shoe against the rest 29 and the inward movement thereupon slides the bottom 12 instantly back and at the same instant the tapper end of the tapper 25 taps the pocket bottom 16 and dumps the contained portion of filler out of the pocket into the cavity of the shoe bottom. The size of the pocket is adjusted to contain the correct amount of filler, and, as the latter is delivered to the shoe in the approximate shape of the shoe-cavity, it will be readily understood that the filling operation is quickly completed simply by drawing the shoe back in pressing engagement with the leveling roll 31. As the shoe passes the roll 31, the down-hanging ends of the scrapers drag over the welt at the opposite sides of the shoe-bottom and brush off surplus filler. Other forms of brushes may be employed, but I prefer the knives as they easily retain the proper heat by their contact with the roll.

In Figs. 6–8, I have shown another means of separating individual filler-portions or layers from the main body or mass of heated filler material, said means accomplishing this result by a side movement of the shoe instead of a lengthwise movement. I mount on a pivot 35 a bottom slide or plate 36, and a cutting blade or knife 37 overlapped slightly, so as to prevent the filler mass from dropping or running out, these plates 36 and 37 being parallel and spaced apart according to the desired thickness of filler layer to be delivered. The knife 37 is kept hot by a pipe 39 and a stop 40 arrests the parts suddenly which ejects the filler-layer. The operator engages the side of the shoe with a projection 41 on the bottom 36 and gives a quick lateral movement, receives the severed layer of filler in the shoe cavity, and then pulls the shoe forward in engagement with the leveling roll and scrapers, the same as before, the delivering mechanism being retracted meanwhile by a spring 42. A heat shield 43, lined with asbestos or the like, and separated from the tank for air-circulation, diverts the heat from radiating toward the operator's face.

Not only is the act of filling the shoes made uniform and rapid by my improved apparatus, but the strain on the operator is much less than in the apparatus shown in my above mentioned patent, and the operator is relieved of the fatigue of holding a hot tool in his hand. Also by applying an extra heat to the thin layer or small segregated mass of filler just as it is dumped or laid in the shoe-cavity it becomes practicable to use a less tractable and harder-setting filler than before, as preferred in some factories.

I have selected the two preferred types of my automatic apparatus which are best adapted to both kinds of welt shoes (Goodyear or English welts and McKay welts).

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

1. A filler machine, constructed and arranged to permit the presentation thereto of a shoe with its bottom cavity in position to be filled by said machine, and having means operable at the will of the operator for controlling the filler delivery and amount delivered as desired, into said bottom cavity.

2. An insole filling machine, comprising, in combination, automatic insole-filling mechanism to provide an insole with a layer of adhering filling material, said mechanism including means for putting a predetermined quantity of said material into the insole cavity, and operating means for actuating said last-mentioned means.

3. An apparatus for filling shoe-bottoms, comprising a reservoir of filler supply, measuring means for removing a predetermined measured amount of the filler from said supply, and work presenting means to present an insole in operative relation to said measuring means to receive said measured amount of shoe filler.

4. In a machine for handling shoe-bottom filler, means for delivering shoe filler to the bottom cavity of a shoe, controlling means for regulating the amount of filler delivered, and bottom laying means adjacent the delivery portion of the machine in position to permit the operator to press the shoe forcibly with both hands against the same for leveling and packing the filler into the shoe-bottom cavity.

5. A machine for filling the bottom cavity of shoes, comprising means for delivering shoe-bottom filler material into a shoe-bottom, means under the control of the operator, for the predetermined regulation of the amount of filler so delivered, and laying

means adjacent the delivery portion of the machine for leveling and pressing the delivered filler into the shoe-bottom.

6. In a machine for handling shoe-bottom filler, a reservoir of filler supply, means for removing filler from said reservoir and delivering the same to the bottom cavity of a shoe, said means including controlling means for the predetermined regulation of the amount of filler so removed, and bottom-laying means adjacent the delivery portion of the machine.

7. A machine for filling the cavity of a shoe-bottom, having, in combination, a filler chamber provided with a delivery orifice arranged to tend to deliver the filler by gravity, forcing mechanism for aiding in the delivery of said filler from said chamber, and means under the control of the operator to render the filler-forcing mechanism operative.

8. A machine for filling the cavity of a shoe-bottom, having, in combination, a filler chamber provided with a delivery orifice arranged to tend to deliver the filler by gravity, and mechanism for forcing said filler from said chamber, including means located in the delivery orifice, under the control of the operator, for rendering the filler-forcing mechanism operative with relation to the shoe bottom cavity.

9. An apparatus for filling shoe-bottoms, comprising a reservoir of filler supply, means for separating from the filler mass enough for one shoe, and automatic mechanism for depositing the same in a shoe-bottom.

10. An apparatus for filling shoe bottoms, comprising a reservoir of filler supply, means for separating from the filler mass enough for one shoe, and means for depositing said separated filler in a shoe bottom.

11. In an apparatus for filling shoe bottoms, a filler supply chamber, heated means beneath the filler mass for separating a thin layer of filler therefrom, and means for depositing said separated layer in a shoe bottom.

12. An apparatus for filling shoe-bottoms, comprising a reservoir of filler supply, means for separating from the filler mass enough for one shoe, and automatic mechanism operated by presenting a shoe thereto for depositing the same in a shoe-bottom.

13. An apparatus for filling shoe-bottoms, comprising a reservoir of filler supply, adjustable means for separating from the filler mass enough for one shoe, and automatic mechanism for depositing the same in a shoe-bottom.

14. In an apparatus for filling shoe-bottoms, a filler-supply chamber, and filler-delivery mechanism, including means for delivering the filler in substantially the shape of the shoe cavity.

15. In an apparatus for filling shoe-bottoms, a filler-supply chamber, and filler-delivery mechanism, including means for delivering the filler in substantially the shape of the shoe cavity, and means for discharging the filler in said shape bodily.

16. In an apparatus for filling shoe-bottoms, a filler-supply chamber, means beneath the mass of filler in said chamber for separating a thin layer of filler therefrom, and automatic mechanism for depositing said separated layer in a shoe-bottom.

17. In an apparatus for filling shoe-bottoms, a filler-supply chamber, heated means beneath the mass of filler in said chamber for separating a thin layer of filler therefrom, and automatic mechanism for depositing said separated layer in a shoe-bottom.

18. In an apparatus for filling shoe-bottoms, a filler-supply chamber, heated rotary means beneath the mass of filler in said chamber for separating a thin layer of filler therefrom, and automatic mechanism for depositing said separated layer in a shoe-bottom.

19. In an apparatus for filling shoe-bottoms, a filler-supply chamber, adjustable means beneath the mass of filler in said chamber for separating a thin layer of filler therefrom, and automatic mechanism for depositing said separated layer in a shoe-bottom.

20. In an apparatus for filling shoe-bottoms, a chamber containing filler, means for separating a small portion of filler from the mass of filler, and quick-acting automatic ejecting mechanism for depositing said separated portion in a shoe-bottom.

21. In an apparatus for filling shoe-bottoms, a chamber containing filler, means for separating a small portion of filler from the mass of filler, quick-acting automatic ejecting mechanism for depositing said separated portion in a shoe-bottom, and leveling means in the path of the shoe for leveling down the deposited filler as the shoe is removed.

22. In an apparatus for filling shoe-bottoms, a chamber containing filler, means for separating a small portion of filler from the mass of filler, quick-acting automatic ejecting mechanism for depositing said separated portion in a shoe-bottom, leveling means in the path of the shoe for leveling down the deposited filler as the shoe is removed, and means for removing surplus filler from the adjacent welt surface.

23. In an apparatus for filling shoe-bottoms, means including a heating chamber for delivering filler to a shoe, heating means for said filler, and means inclosed within said heating chamber constructed and operating to provide additional filler supply, to the heated filler without interfering with said heated filler.

24. In an apparatus for filling shoe-bottoms, a heating chamber for filler provided with an outlet at its lower portion, and means inclosed within said heating chamber for automatically supplying to the heated filler additional filler at its upper portion.

25. In an apparatus for filling shoe-bottoms, a heating chamber for filler provided with an outlet at its lower portion, means within the upper part of said chamber for automatically supplying additional filler to the filler in the lower part of the chamber, and feeding means for propelling the filler downward without interfering with the free supplying and commingling of said additional filler with the heated filler in the lower part of the chamber.

26. An apparatus for filling shoe-bottoms, having a hopper for delivering filler material by gravity, controlling means for separating from the filler mass enough filler material for a shoe-bottom cavity prior to the final deposit of said separated filler in said cavity, and means for pressing said material down into said cavity.

27. An apparatus for filling shoe-bottoms, having a hopper for delivering filler material by gravity, controlling means for permitting the delivery of enough filler material for a shoe-bottom cavity, means for pressing said material down into said cavity, and means for removing surplus grains of filler material.

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

ANDREW THOMA.

Witnesses:
GEO. H. MAXWELL,
M. J. SPALDING.