

L. A. WOLFF.
 PROCESS OF MANUFACTURING FELT SHOES.
 APPLICATION FILED SEPT. 30, 1919.

1,344,930.

Patented June 29, 1920.

Fig. 4.

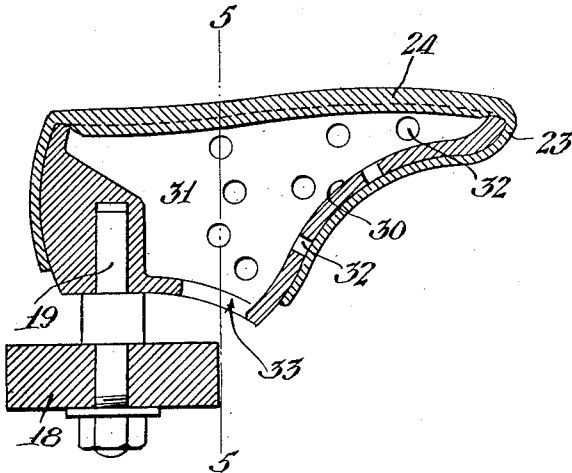


Fig. 5.

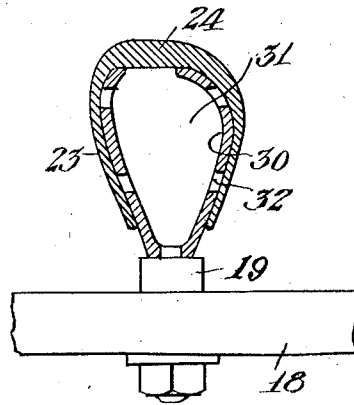


Fig. 1.

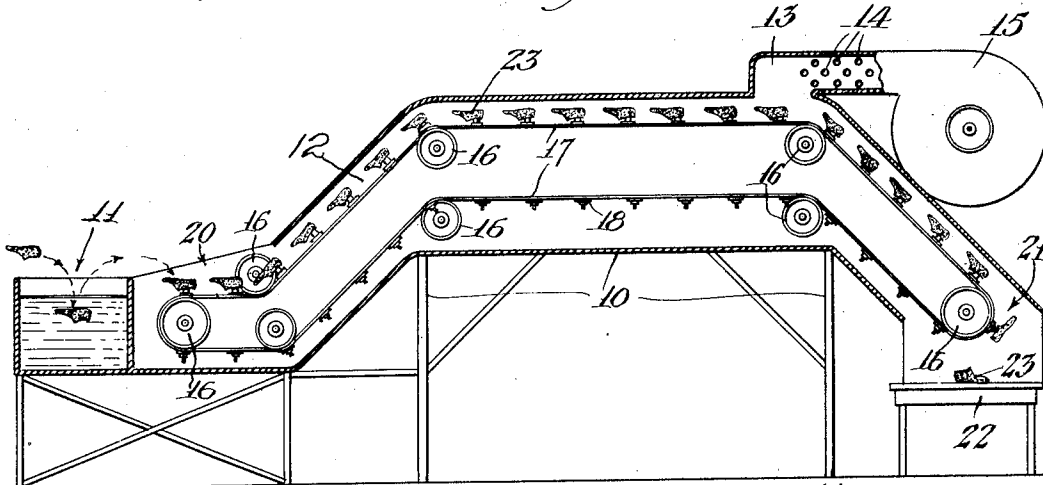


Fig. 2.

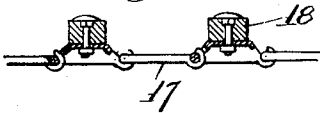
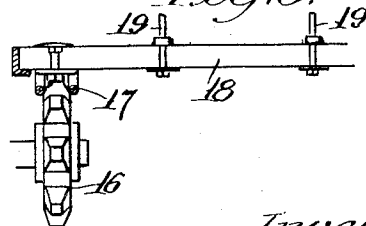


Fig. 3.



Inventor
 Lionel A. Wolff
 by Graham Harris
 Attorneys

UNITED STATES PATENT OFFICE.

LIONEL A. WOLFF, OF LOS ANGELES, CALIFORNIA.

PROCESS OF MANUFACTURING FELT SHOES.

1,344,930.

Specification of Letters Patent. Patented June 29, 1920.

Application filed September 30, 1919. Serial No. 327,597.

To all whom it may concern:

Be it known that I, LIONEL A. WOLFF, a subject of the King of Great Britain, (who have declared my intention of becoming a citizen of the United States,) residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Process of Manufacturing Felt Shoes, of which the following is a specification.

My invention relates to the art of manufacturing felt shoes. In this art it is common practice to build up a shoe out of pieces of felt, this shoe, however, being somewhat larger than the desired size. It is further common practice to provide a heavily padded sole in such shoes. This shoe, after having been sewn together, is ordinarily placed upon a wooden last, the shoe and the last being then dipped in water for the purpose of shrinking the felt, which is allowed to dry on the last. In the manufacture of felt shoes in quantities by this method, a large number of lasts are required, as the shoes dry slowly even if placed in a heated room. This is due in a large measure to the fact that the wood last and padded sole absorb a great deal of water which must be dried out before the shoe is taken from the last.

An object of my invention is to provide a process by which felt shoes may be produced in quantity with a comparatively small number of lasts and in which the drying operation is very much shortened as compared to the present method.

A further object is to provide a process by which the shrinking operation can be much more surely and completely accomplished. This object is partly accomplished by the method of handling the shoes and partly by a novel form of last which I have invented, which will be described hereinafter.

Referring to the drawings, which are for illustrative purposes only, Figure 1 is a diagrammatic view showing the apparatus employed, this apparatus being partly shown in section for the sake of clearness. Fig. 2 is a side elevation showing the chain and flights used in one embodiment of my invention. Fig. 3 is another view of the chain, sprockets and flights. Fig. 4 is a section through the last with a felt shoe in place thereon. Fig. 5 is a section on a plane represented by the line 5—5 in Fig. 4.

In the embodiment of my invention shown in these drawings, I employ a framework 10 at one end of which is placed a dipping tank 11. On this frame-work support is a box 12, which is continuously supplied with hot air through a pipe 13, this air being heated by means of steam pipes 14, and being supplied by means of blower 15. Located inside the box 12 is a conveyer comprising suitably arranged sprockets 16 over which two chains 17 pass, these chains being connected by cross flights 18, which may be of wood, each flight having a plurality of pins 19. The sprockets 16 are driven by any convenient means not shown. The intake end 20 of the conveyer is open and the outlet end 21 is open and placed over a table 22 on which the shoes 23 are discharged.

The felt shoes 23 are built up out of several pieces of felt and may be provided with a heavily padded sole 24. These shoes are considerably larger than the desired size when they are originally sewed together and it is necessary to shrink them to form and size over a suitable last, such a last being shown at 30 in Figs. 4 and 5.

This last is formed of aluminum and has the general form shown. It will be noted that the sole of the last is entirely omitted so that the padded sole 24 of the shoe extends into the central cavity 31 of the last. The last is also provided with a plurality of holes 32 and with a large opening 33 at the bottom.

The shoes 23 are placed on the last and the shoe and last are dipped in the water in the tank 12, the last being then placed on the pin 18 as shown on Fig. 4. When in this position and during the passage of the last through the box 12, the interior of the last is free to drain through the central opening 31 and the opening 33. This allows a large part of the moisture in the padded sole 24 to readily escape without the necessity for vaporizing.

As the last with the shoe in place travels upwardly into the heated air in the top of the box 12, the felt of the shoe is heated and a portion of the moisture carried therein is turned to steam which tends to shrink the felt and cause the shoe to grip tightly about the last 30. Since the last is made of metal and since the interior of the last is open to the hot air of the box 12, there is conduction of heat through the walls of the last to the felt of the shoe, which greatly hastens the

drying process. The aluminum being an excellent conductor of heat tends to equalize the temperature. If any portion of the shoe dries out before the rest the temperature of this portion tends to rise. The aluminum last, however, conducts this heat away delivering it to such portions of the shoe as are still moist and therefore in need of heat. The result is that the shoe is uniformly dried and shrunk. The steam produced from the drying felt escapes inwardly through the openings 32 into the interior of the last. The heavily padded sole 24 is subjected to heat both on the inside and the outside and the vapors produced can readily escape in both directions.

Shoes and lasts are delivered to the table 22 sufficiently dry so that the lasts can be immediately removed and re-used.

By the use of this process, felt shoes can be produced in quantity with a small number of lasts and under controlled and what may be termed automatic conditions.

I claim as my invention:—

1. The method of shrinking felt shoes which comprises placing a shoe on a hollow aluminum last having perforations therein; dipping said last and shoe in a liquid; allowing the superfluous liquid to drain away through openings in the last; and sub-

jecting the last and shoe to the action of heat, the last being so supported that water vapor which escapes from the felt into the interior of the last can escape from said interior through unobstructed openings in the walls of the last.

2. The method of shrinking felt shoes which comprises placing a shoe on a hollow aluminum last having perforations therein; dipping said last and shoe in a liquid; inverting said last and thus allowing the superfluous liquid to drain away through openings in the last; and subjecting the last and shoe to the action of heat; the last being so supported that water vapor which escapes from the felt into the interior of the last can escape from said interior through unobstructed openings in the walls of the last.

3. A last for use in shrinking felt shoes which comprises a metal shell without a sole.

4. A last for use in shrinking felt shoes which comprises a metal shell without a sole; and provided with perforations through which water vapor may escape into the interior thereof.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 24th day of September, 1919.

LIONEL A. WOLFF