C. RIEWE.

Material for Insoles and Apparatus for Manufacturing the same.

No. 199,226. Patented Jan. 15, 1878.

Fig. 1

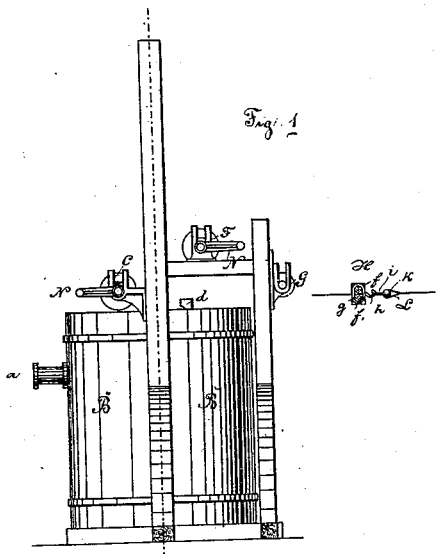


Fig. 2

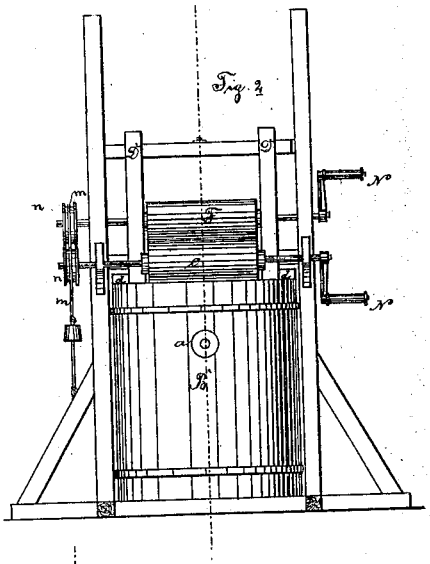


Fig. 3.

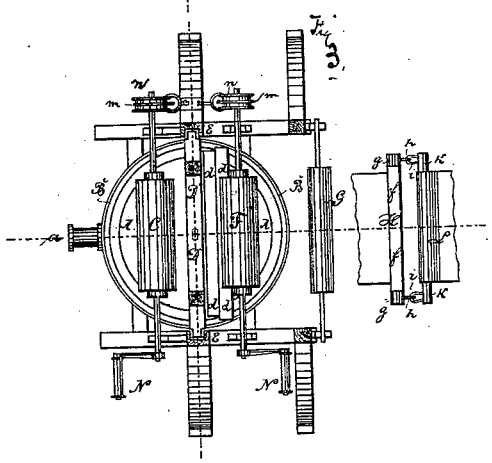
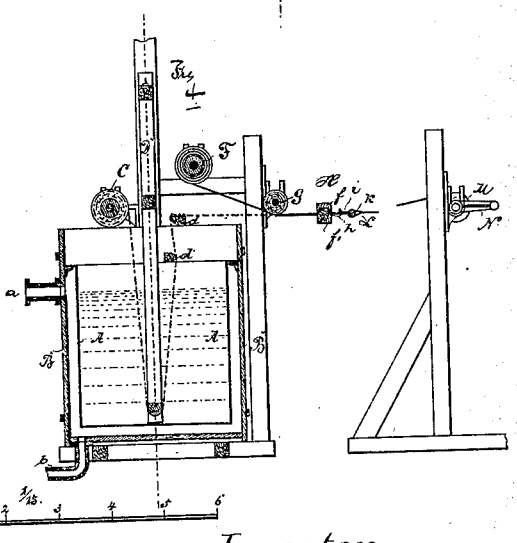


Fig. 4



Witnesses:

W. Gardner

A. Scott

Inventor

Carl Riewe

per A. Schleicher

Attorr

UNITED STATES PATENT OFFICE.

CARL RIEWE, OF BAERWALDE, POMERANIA, PRUSSIA.

IMPROVEMENT IN MATERIAL FOR INSOLES AND APPARATUS FOR MANUFACTURING THE SAME.

Specification forming part of Letters Patent No. **199,226**, dated January 15, 1878; application filed December 6, 1877.

To all whom it may concern:

Be it known that I, CARL RIEWE, of the city of Baerwalde, Province of Pomerania, Kingdom of Prussia, have invented certain new and improved material for water-proof sole and a new and improved apparatus for manufacturing the same, of which the following is a specification:

The object of the present invention is to produce a material adapted to be used for making an insole for boots and shoes which shall possess the characteristics of lightness, dryness, warmth, and of being impervious to moisture, and which at the same time may be produced at a small cost.

The invention consists in an apparatus for preparing a water-proof material or sheet of linen and wool, consisting, essentially, of a tank for the waterproofing and cementing substances and drawing and compressing devices, as will be hereinafter more fully stated.

Another feature of the invention is a material for use in the manufacture of insoles for boots and shoes, consisting of a bottom layer of linen impregnated with water-proof substances and a top layer of wool cemented to the bottom layer, and forming the exterior or wearing-surface of the insole.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of an apparatus constructed according to my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top view, and Fig. 4 is a longitudinal section, of the apparatus.

The letter A designates a tank or receiving-vessel for the waterproofing and cementing substances. A casing, B, of wood, surrounds the receiving-tank, and the two parts mentioned are relatively arranged so as to form a steam-chamber between the same. The steam is admitted at *a*, and the condensed water and waste-steam pass out through the bottom pipe *b*. A vertical frame surrounding the tank receives a roller, C, upon which the linen fabric is wound. The sheet of linen, as it comes from the roller, is pressed into the tank A by means of a vertically rising and falling pressure-frame. By this means the linen fabric becomes impregnated or saturated with the substances contained in the tank.

The waterproofing-bath consists, preferably, of resin, sixty parts; tallow, thirty parts; wax, five parts, and turpentine, five parts. These substances are properly heated and held in a liquid state by means of the steam-bath already mentioned.

The pressure-frame moves in guide-posts E, and is suspended from a rope passing over a pulley on the ceiling of the room. The frame is raised by means of said rope. The linen fabric, before leaving the tank, is passed around transverse strips *d*, which act as scrapers, and serve to remove any surplus material.

The adhesion of the impregnated linen fabric to a sheet of woolen fabric coming from the roller F is effected by the pressure-roller G, which presses lightly on the fabrics, so as not to impair the softness of the woolen fabric. The two fabrics so united are held by a clamp-frame, H, which consists of two wooden strips, *f f'*, having a tongue and groove for properly retaining the compound fabric. The strips forming the clamp are held together by end caps *g*, having hooks *h*, which receive rings *i* applied to a cross-bar, *k*. The latter is fastened to a cloth apron or belt, L, which is wound around a roller, U, so that the prepared fabric is drawn out of the tank as said apron is wound up. When a sufficient length has been removed, it is cut off and removed from the clamp-frame, and subsequently cut into smaller strips to facilitate handling and cooling.

The various rollers are provided with hand-cranks N for turning the same. The cloth-rollers C and F are also provided with brake devices, consisting of a weighted rope, *m*, passing once around the pulley *n* on the shaft of each roller.

The material prepared in the manner above described is eminently suitable for insoles for boots and shoes, because it is perfectly water-proof, pliable, and soft. The woolen surface is the one exposed, or next to the foot, and thus the latter is kept perfectly warm.

The manufacture of the insoles may be performed by hand or special cutting-out machinery after the fabrics have become cool.

In order to prevent the insole from sticking to the outer sole, the foundation layer of linen

is coated with a thin solution of glue, which tends to harden the surface in contact with the leather sole.

I desire it to be distinctly understood that the woolen fabric is not impregnated with any substance, but retains its natural softness. The pressure which causes its adherence to the linen fabric is not sufficient to impair its softness.

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

1. The apparatus herein described for preparing a material for insoles for boots and shoes, consisting of a receiver for a water-proofing-bath, a surrounding steam-jacket, suitable means for immersing the material, drawing-off rollers, a pressure-roller, and a drawing-on roller, and apron having a clamp, as and for the purpose set forth.

2. The material, herein described, for use in the manufacture of insoles for boots and shoes, consisting of a bottom layer of linen impregnated with water-proof substances, and a top layer of wool cemented to the bottom layer, as and for the purpose set forth.

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

CARL RIEWE.

Witnesses:
GERARD V. NAWROCKI,
HERMANN KREISMANN.