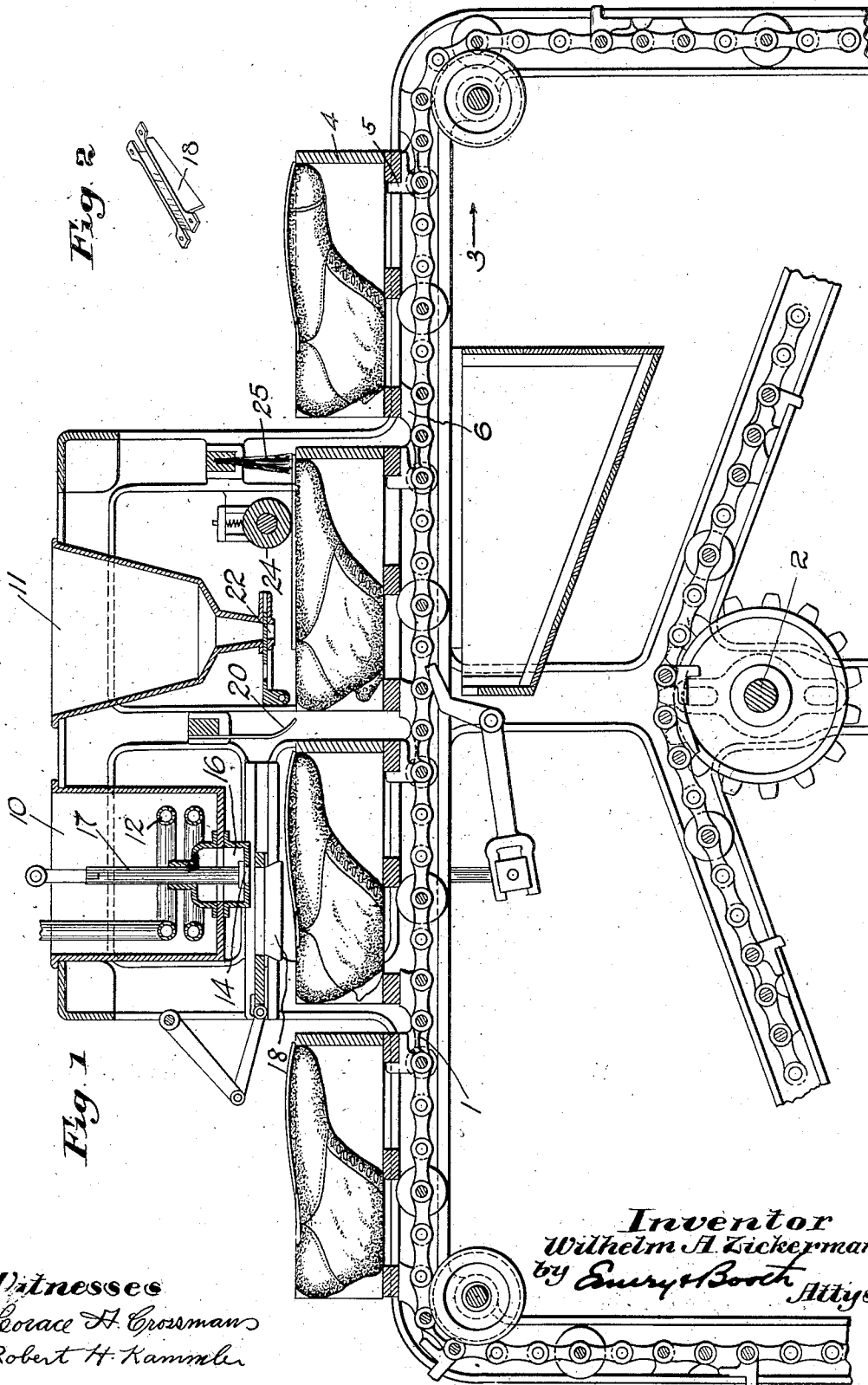


No. 896,677.

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W. A. ZICKERMAN.
METHOD OF FILLING INSOLES.

APPLICATION FILED NOV. 19, 1907.



Witnesses
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UNITED STATES PATENT OFFICE.

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METHOD OF FILLING INSOLES.

No. 896,677.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed November 19, 1907. Serial No. 402,840.

To all whom it may concern:

Be it known that I, WILHELM A. ZICKERMAN, a citizen of the United States, residing at 8 Berwick Park, Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Methods of Filling Insoles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention pertains to a method of applying cementitious filling material to boot and shoe soles, especially insoles; and comprises various features of procedure explained in the course of the following description and defined in the annexed claims.

The character of the invention may be best understood by reference to the accompanying drawings, which show an illustrative insole filling machine whereby an exemplary method embodying this invention may be conveniently practiced.

Figure 1 is a side elevation of a machine intended more particularly for applying filling material to insoles of shoes; and Fig. 2 is a detail perspective of a part of said machine.

While the invention may be described conveniently in connection with the machine in the drawings, it is by no means essentially limited to the specific details of operation, nor to the specific functions involved in said machine.

The illustrative machine has insole presenting means supplied by a traveling chain conveyer 1, appropriately mounted on sprocket wheels and driven from a master shaft 2. In the preferred operation of the illustrative machine, the conveyer travels in the direction of an arrow 3.

The insole presenting means is exemplified by shoes carrying trays 4—4, removably mounted on steps 5 and 6. Any practicable number of trays 4 may be used, and each tray may be arranged to accommodate any practicable number of shoes. The racks 4—4 may travel with the conveyer 1, and during this travel, in the operation of this specific machine, each shoe is first provided with an application of cement from a cement reservoir 10; and thereafter with an application of dry filling material, such, for example, as ground cork, sawdust or the like delivered from a hopper 11.

In the cement tank 10, a steam coil 12 maintains the cement in proper fluid condi-

tion. The cement escapes from the tank through one or more outlets 14 in the bottom of a chest 16. Vertically movable plungers 17 are reciprocated to open and close the outlets 14. While the specific machine provides for automatic operation of the plungers 17, the latter may be manually operated, wherefore it is unnecessary to describe them further.

The cement issuing from an outlet 14 is received upon a cement distributor 18 (see Fig. 2), and being separated into three streams, one traversing the slot in the distributor 18 and the other two flowing along the diverging faces thereof, is distributed to different parts of the insole. As the shoe with the cement on the insole continues to move (see arrow 3), a spreader or scraper 20 smooths the cement and applies it to all parts of the insole. Proceeding further, the insole arrives beneath the filling material hopper 11. The latter has an outlet 22 closed by a sliding gate, which may be manipulated in any convenient manner. Preferably, the gate 22 is opened as the advance end of the cemented insole takes position beneath it; and the gate remains open during continued travel of the shoe until the filling material has been delivered along the desired length. In this manner, a dry filling material may be delivered progressively along the insole to its freshly cemented surface; and the filling material so delivered may completely cover all cemented parts of the insole. Progressing further, the advance end of the insole engages with a spring pressed roller 24, which presses down or lays the filler firmly against the cemented insole. This pressing action of the roller 24 may take place during continued movement of the shoe, so that the filling material may be progressively pressed into place. Also, any superfluous dry material may be pushed rearwardly on the shoe by the roller 24. After departing from the roller 24, the insole passes beneath a discarding device, such as a brush 25, by which superfluous filling material is removed from the insole. The above described cycle of operations is preferably repeated for each shoe or each tray of shoes; and various operations in the cycle may take place simultaneously on different shoes.

The illustrative method described as practiced by the machine in the drawings may be conveniently summarized as follows:—Ce-

ment is suitably applied to the insole or other work; the dry filling material or the like is applied thereto progressively, is laid there-against progressively so as to cover the cemented parts; and finally superfluous, non-adhering material is discarded.

Describing the illustrative method more in detail, the specific apparatus shown in the drawings may perform several characteristic operations. For example, the ground cork, sawdust or the like, hereinbefore suggested as a suitable filling material, is inherently elastic when in its dry, granular state; and this, upon being deposited on the sole and passed beneath the roller 24, is firmly pressed against the sole face, thereby compacting it and, it may be, actually compressing it, so as to force the particles of filler closely together and to express air from the mass of filler. When the filler thus compressed departs from beneath the roller 24 and is released from the pressure thereof the body of filler, by its elasticity, expands slightly and thereby, through a species of suction, the cement is drawn from the sole face into the interstices of the filler. This may have the effect of a sponge-like action, attributable to the elasticity of the filler, which may be effective to draw the cement to a higher point in the body of the filler than would be obtained by mere capillarity of inflexible or inelastic particles. At the same time, the compacting of the surface of a comparatively thick mass of filler causes the particles at the surface to cohere firmly without permitting or requiring the presence of cement at the surface or near enough thereto to prevent the same from being substantially dry and free from adhesive, which is desirable. Thus a method embodying this invention may produce a filled insole having a closely packed mass of filler, permeated at least in part by adhesive and presenting a surface substantially dry and free from cement. The advantages of such a method will appear to those familiar with the art. It is to be understood, of course, that the invention is not limited to the specific method just summarized, nor is it to be limited to the particular functions performed by

the illustrative method. It is not essential that all of the features of the invention be used conjointly, since they may be used to advantage separately.

Claims.

1. A method of filling insoles which consists in supplying cement to the sole-face; supplying elastic dry filler to the cemented area; and compacting the mass of elastic filler to cause parts thereof to be directly incorporated with the cement and other parts to cohere, the whole presenting a surface substantially dry and free from cement.

2. A method of filling insoles which consists in applying cement to the sole-face within its lip; introducing dry elastic filler to the cemented area; compacting and compressing the dry elastic filler against the cement, leveling it to substantially the depth of the lip; and removing superfluous filler.

3. A method of filling insoles which consists in supplying cement to the sole-face; covering the sole-face with an excess of elastic filler; compacting the same to cause it to cohere and adhere to the cement; and discarding any filler which remains free.

4. A method of filling insoles which consists in supplying cement to the sole-face; supplying elastic dry filler to the cemented area; compressing the elastic dry filler against the cement to express air therefrom; and then releasing the elastic filler from compression, permitting it to expand and draw cement by suction into interstices of the filler.

5. A method of filling insoles which consists in supplying cement to the sole-face; supplying dry elastic filler to the cemented area; compressing the elastic filler against the cemented area; and releasing it from compression, permitting it to expand and admit cement into interstices.

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

WILHELM A. ZICKERMAN.

Witnesses:

R. S. BARROWS,
I. M. KENT.