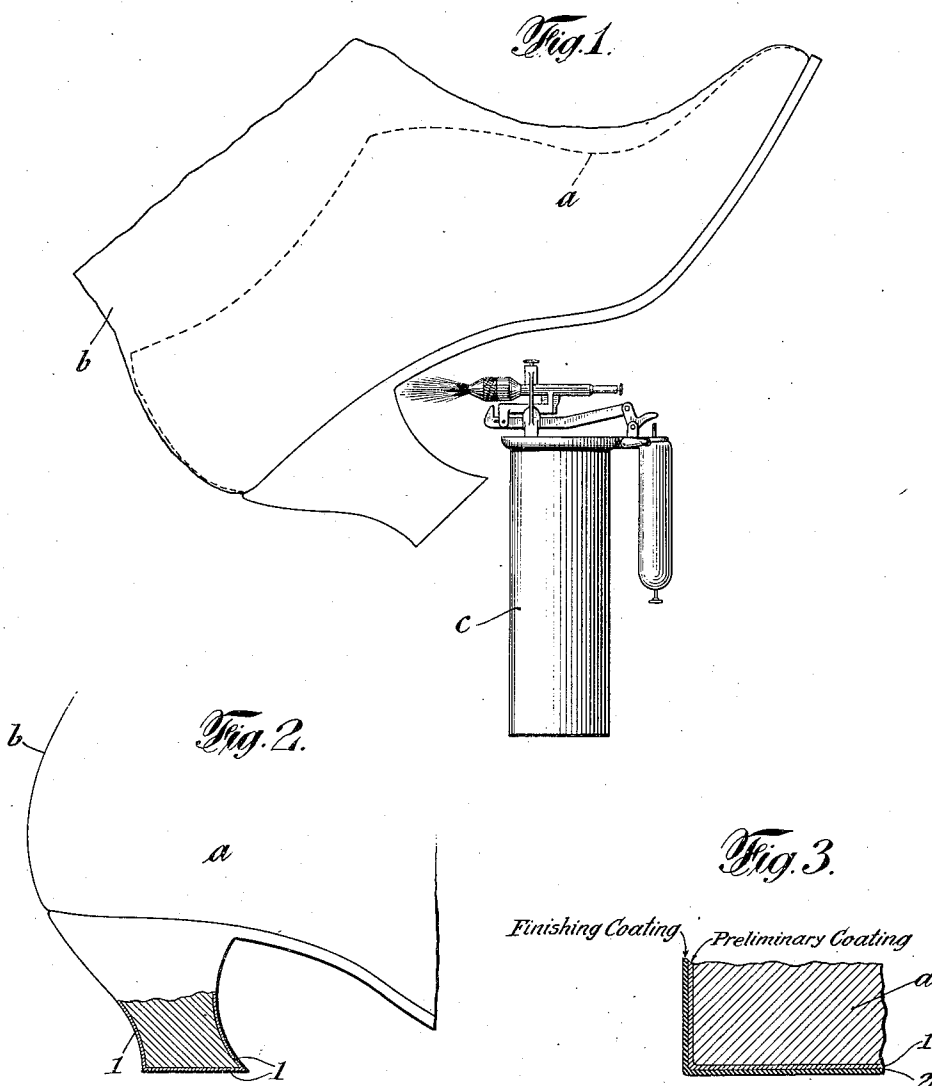


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K. B. MATHES.
PROCESS FOR FINISHING FOOTWEAR.
ORIGINAL FILED APR. 29, 1916.



Inventor
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UNITED STATES PATENT OFFICE.

KIRKE B. MATHES, OF BATAVIA, NEW YORK, ASSIGNOR TO E. I. DU PONT DE NEMOURS AND COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

PROCESS FOR FINISHING FOOTWEAR.

Original application filed April 29, 1916, Serial No. 94,422. Divided and this application filed December 11, 1918. Serial No. 266,213.

To all whom it may concern:

Be it known that I, KIRKE B. MATHES, a citizen of the United States, of Batavia, in the county of Genesee and in the State of New York, have invented a certain new and useful Process for Finishing Footwear, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to a new and useful process for finishing footwear and has for its object to lessen the cost and labor of finishing footwear and at the same time produce an article of footwear of superior appearance and wearing qualities.

This application is a division of and is to be considered as a part or continuation of my copending application for footwear as an article, Serial No. 94,422, filed April 29, 1916.

In the embodiment of my invention chosen for purposes of illustration, the invention is described as applied to the finishing of the parts of shoes adjacent the upper. These parts, particularly in white and in light colored shoes, should be finished to correspond in color with the upper. This has been done heretofore by slow and expensive hand methods. In some types of white shoes, for example, the leather first is bleached, a coating of white applied by hand, the coating dried, and then the coating rubbed down by hand. In other types of shoes, the rubbing down is omitted and the shoe finished merely by applying the coating with an ordinary paint brush. This prior art coating can be applied only to heels and to the edges of soles, for if applied to the bottom of soles, it will crack and peel when the sole is flexed. The appearance of shoes finished in this manner, moreover, is far from satisfactory. The brush marks and the grain of the leather show, and the coating often looks rough and crude. This detracts from the appearance of the shoe, particularly in high grade shoes and in shoes having an upper of fine kid. It has been the practice of some manufacturers to cover a wooden heel with cloth, leather, or celluloid. Although this gives the desired finish, the heels are very expensive to manufacture, and as the covering material soon wears through or becomes torn, shoes finished in this manner are not satisfactory.

The object of my invention as described in

the present embodiment is to provide a new process for finishing a shoe in which the parts adjacent the upper are finished with a minimum number of rapid, inexpensive operations to correspond in color with the upper.

A further object of my invention is to provide a shoe which has the parts adjacent the upper finished with a coating of a tenacious nature which is forced into the pores and crevices of the parts by impact and forms a tough, flexible sheet when dry, practically integral with the parts.

A further object of my invention is to provide a shoe which has the parts adjacent the upper finished with a coating which will not crack and peel and which can be extended to cover the bottom of soles.

A further object of my invention is to provide a shoe which has the parts adjacent the upper finished with a waterproof coating which enters all the pores and crevices of the part to which it is applied, thus protecting the part and rendering it waterproof.

A further object of my invention is to provide a shoe which has the parts adjacent the upper finished with a smooth, even coating enhancing the appearance of the shoe, even of the finest and most expensive grades.

A further object of my invention is to provide a shoe which has the parts adjacent the upper finished with a coating which can be washed when soiled.

Other and further objects of my invention will be apparent from the following description of one embodiment thereof.

In the drawings,

Figure 1 is a side view of a shoe indicating one manner of applying the coating or coatings to a part of the shoe adjacent the upper;

Figure 2 a similar view of the rear part of a shoe with a portion of the heel proper in cross section to show, in exaggerated form, the coating applied thereto; and

Figure 3 an enlarged sectional view of a part to which the coatings are applied, all the proportions being merely illustrative.

Similar reference characters refer to similar parts throughout the drawings.

In the embodiment of my invention chosen for purposes of illustration, the shoe a

preferably is completed with the exception of finishing the parts adjacent the upper. These parts then are finished by the application of a coating corresponding in color to the upper, applied in such a manner that it will adhere to the parts without peeling, that it will fill all pores and crevices in the material, and that it will give a smooth, finished appearance when dry. These results have been obtained by applying the coating by impact, utilizing sufficient pressure to cause the coating to penetrate the material of the parts to which it is applied. The penetration of the material by the coating makes them practically integral; all pores, crevices, and inequalities of the surface are filled; and the coating is spread so evenly that it is smooth and uniform when dry. A quick and efficient manner of forcing the coating into the material is to utilize an air brush *c* operated under sufficient pressure to produce the desired results. In the embodiment of my invention described herein, the coating is applied not only to the heel, shank, and edges of the sole, but is extended to the bottom of the sole, thereby forming a continuous and unbroken surface over all parts adjacent the upper. The coating should be tough and flexible so that the sole can be flexed without breaking or cracking the coating, and waterproof so that it is not affected by moisture and, as a consequence, will remain on the heels even after the shoes have been used in wet weather. It also tends to close up any crevices in the bottom of the shoe, thus rendering them impervious to moisture. The coating may be colored by any suitable coloring material which will mix therewith, thus enabling the manufacturer to color the parts adjacent the upper to correspond with the color of the upper. The coating does not require any burnishing or rubbing operations but is complete immediately it is dry. The time required for applying the coating is very short and, as the number of operations have been reduced, the cost of manufacture of the shoe is materially less than that of the present methods, while at the same time the appearance of the completed shoe is much better. In order to protect the upper during the manufacturing operations and when coating the parts adjacent thereto, an inexpensive cloth cover *b* may be utilized, which is removed after the coating has been applied.

In more expensive grades of shoes a plurality of coatings may be used. The first coating 1 may be adapted to neutralize any oils or oily substances present on the surfaces to which it is applied, or serve merely as an anchoring coating, or both. If the first coating is thinner or of less body than the finishing or subsequent coating or coatings 2, it will penetrate the part or parts to

which it is applied more deeply, and serve as a secure anchoring means for the finishing coating or coatings. The first coating also may be more adhesive than the subsequent coating or coatings or otherwise modified to obtain the desired results under different conditions of use. In one embodiment of my invention, spirit copal has been applied as a first coating with satisfactory results. The first coating preferably is permitted to dry or harden either entirely or partially before applying the second coating. It is preferably adapted for quick work so that after the first coating has been applied to a few pairs of shoes, the first pair will be ready for the application of the next coating. It is desirable that the subsequent coating or coatings partially dissolve or otherwise unite with the previous coating or coatings and that the subsequent coatings be applied by impact, as by an air brush, so that they not only unite with the first coating but may, under some conditions, be forced into the material and particularly into any pores or crevices thereof not filled completely by the previous coating. As the first coating, particularly if thinner or of less body than the finishing coating, penetrates more deeply than the subsequent coating or coatings, the uniting of the coatings anchors securely the subsequent coatings and prevents peeling or other separation. A cellulose compound commonly known as colored lacquer which unites with spirit copal has been applied as a second coating in one embodiment of my invention with satisfactory results. This coating, as well as the single coating when only one coating is used, preferably should be tough, flexible, and waterproof when dry.

The plurality of coatings are applied to the same parts as the single coating and with similar results. The finish obtained by a plurality of coatings, however, obviously is characterized by deeper anchorage and smoother finish than that obtained by a single coating. The plurality of coatings cost a little more than the single coating, but are less expensive than the prior art methods, and provide an exceptionally fine finish for the more expensive shoes which it has not been possible heretofore to obtain by any means known or used in the art.

Many modifications of my invention will be apparent to those skilled in the art, my invention not being limited to any particular number of coatings or to any particular kind of material or materials but consisting of a new and useful method of finishing a shoe adapted to save expense and labor and provide a superior article.

Having described one embodiment of my invention, what I claim and desire to protect by Letters Patent is:

1. The process of finishing footwear which

consists in penetrating a part adjacent the upper by applying a plurality of coatings thereto by impact comprising a preliminary coating more penetrative than the finishing 5 coating. coating thinner or of less body than the finishing coating. 10

In testimony that I claim the foregoing I have hereunto set my hand.

KIRKE B. MATHES.

Witnesses:

EMILY A. MINER,
NEWELL R. CONE.

2. The process of finishing footwear which consists in penetrating a part adjacent the upper by applying a plurality of coatings thereto by impact comprising a preliminary