Patented Aug. 11, 1953

2,648,616

UNITED STATES PATENT OFFICE

2,648,616

MATERIAL FOR SHOE STIFFENERS

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No Drawing. Application October 20, 1950, Serial No. 191,333

2 Claims. (Cl. 117—140)

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The present invention relates to shoe stiffeners for boots and shoes, such as box toes, counters and the like, and to sheet material from which such articles may be made. Heretofore box toes and counters of the type which are rigid at ordinary room temperatures and considerably above, and are limp and soft at relatively high temperatures and remain so long enough to permit lasting, have been made from a great variety of materials. However, such materials for box toes are not altogether satisfactory for a variety of reasons, for instance, they may have too low a softening point so that a shoe placed under a radiator may become deformed or they may stain the upper or lining or difficulty may be experienced in lasting either because the box toes or counters are not limp and flexible enough or because they become rigid too rapidly or are not sufficiently rigid when cold. Also cost is an important factor.

The present invention is based on the discovery that certain types of sheet material made from unwoven and unfelted cotton, rayon or other textile fibers, exclusive of wool, can be used if the fibers are held together by polyvinyl alcohol and the sheet so produced is subsequently saturated with hot-melt stiffening solutions of certain types. The material embodying the present invention has been found to have the requisite qualities for a shoe stiffener and to be the equal, if not the superior, of the materials now on the market. Shoe stiffeners made from this material can be made at prices which are at least competitive with those made from materials now on the market.

In practice a sheet of unfelted and unwoven textile fibers, such as cotton, rayon or the like, and with the fibers bound together with polyvinyl alcohol but not woven or felted is used as a base for my material.

This material is then saturated with one of a variety of compounds whose composition is dependent on the use to which the impregnated material is to be put, for instance, for black shoe stiffeners:

60% oxidized asphalt
30% limed rosin
10% montan wax

For brown shoe stiffeners: 45% Vinsol resin (oxidized rosin made by Hercules Powder Company)

30% limed rosin
10% montan wax or equivalent
15% paraffin wax (about 150 F. M. P.)

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For white shoe stiffeners:

50% plasticized styrene
35% polystyrene
15% 153 degree F. M. P. paraffin wax

The sheets of stock are saturated by the ordinary methods now employed in the manufacture of similar goods and on cooling and hardening are found to be flexible but become limp when heated to about 180° F. and retain their limp characteristics sufficiently long to permit lasting after being heated. On cooling, the stiffeners become hard and rigid but have a certain springiness. Such stiffeners do not soften unless heated to about 120° for a considerable length of time.

I find that the polyvinyl alcohol binder in the unwoven and unfelted sheet, when combined with the impregnating compound, has the effect of giving additional hardness and stability to the final product, which is not attained if the sheet is merely impregnated with an impregnating compound, but not bound by polyvinyl alcohol. This effect makes it possible to make a thinner and lighter gauge box toe which will have the same strength, stiffness and hardness as heavier guage and more costly material.

I claim:

1. The material for shoe stiffeners which comprises a sheet of unfelted and unwoven textile fibers bound together by polyvinyl alcohol and containing a composition of which a major proportion is a resinous material selected from the group consisting of oxidized asphalt, oxidized rosin and plasticized styrene, said material being stiff but somewhat flexible at temperatures below 120° and limp at 180° F.

2. The black material for shoe stiffeners which comprises a sheet of unfelted and unwoven textile fibers held together by polyvinyl alcohol and saturated with a thermoplastic composition consisting of 60% oxidized asphalt; 30% limed rosin and 10% montan wax and which is stiff but somewhat flexible at temperatures below 120° and limp at 180° F.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,063,649	Woodruff	Dec. 8, 1936
2,330,314	Schwartz	Sept. 28, 1943
2,346,947	Schlaanstine	Apr. 18, 1944
2,390,347	Beckwith et al.	Dec. 4, 1945
2,444,931	Heaton et al.	July 13, 1948
2,528,793	Secrist	Nov. 7, 1950