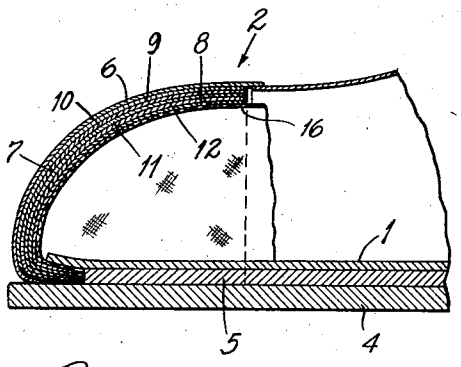
May 30, 1939. J. C. GUHMAN 2,160,590

SHOE STIFFENER

Filed Sept. 11, 1937

Fig. 1.



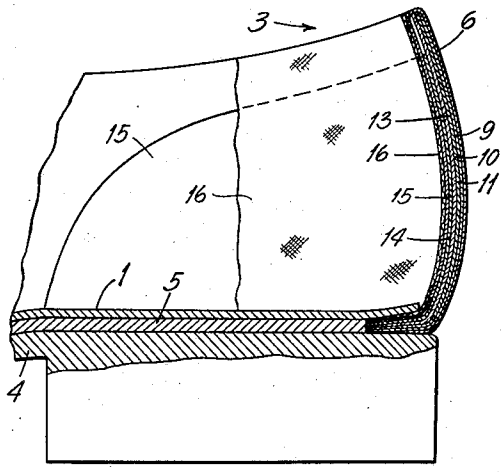


Fig. 2.

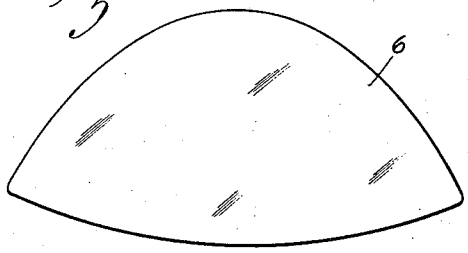


Fig. 3.

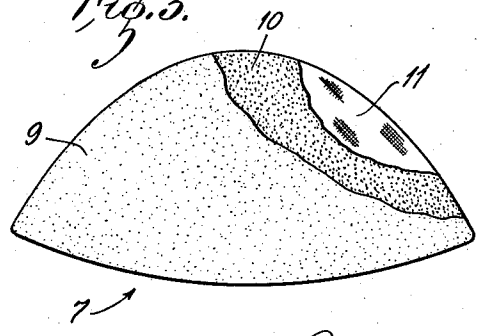


Fig. 5.

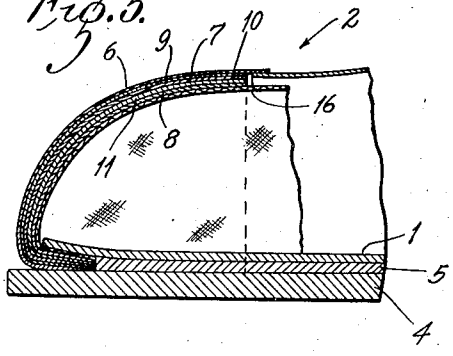
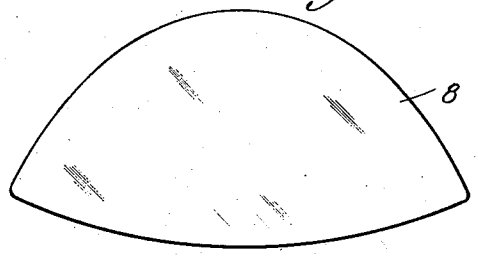


Fig. 4.



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Patented May 30, 1939 2,160,590

UNITED STATES PATENT OFFICE

2,160,590

SHOE STIFFENER

John C. Guhman, University City, Mo., assignor to Wright-Guhman Company, St. Louis, Mo., a corporation of Missouri

Application September 11, 1937, Serial No. 163,339

5 Claims. (Cl. 36—68)

My invention relates to the stiffening of shoes, particularly to the mounting of toe boxes or counters of Celluloid or the like in shoes. The invention has as its principal object the mounting of such stiffening members in such a way as to prevent the solvent or softener which must be applied to the stiffening member before mounting it in the shoe from injuring the lustrous surface of the leather, especially the enamel or lacquered surface of patent leather.

The invention consists principally in a multi-ply material to be interposed between the upper leather of a shoe and the Celluloid stiffener, said material comprising a layer of gutta-percha or other adhesive disposed next to the upper leather, and an intermediate layer of rubber, rubber coated or other material impervious to Celluloid solvents and softeners, said rubber adhering firmly to the gutta-percha, and a layer of fabric or other suitable material adhering firmly to the rubber and adapted to be penetrated by the softened Celluloid and solvent, so that the stiffener and the fabric layer firmly adhere together. The invention further consists in the shoe stiffener and in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawing,

Fig. 1 is a diagrammatic longitudinal sectional view of a shoe sole and a portion of the upper, showing toe and counter constructions embodying my invention;

Fig. 2 is a plan view of a typical leather tip;

Fig. 3 is a similar view of the multi-ply material, with portions of the upper and intermediate layers broken away;

Fig. 4 is a similar view of a typical Celluloid toe stiffener blank; and

Fig. 5 is a sectional view of a modified toe construction.

In Fig. 1 is diagrammatically illustrated a well-known shoe construction comprising an insole 1, the toe portion of the upper, indicated generally by 2, the heel portion of the upper, indicated generally by 3, said toe and heel portions being turned under said insole 1, an outsole 4 and a filler member 5 between the insole and outsole. The construction as so far described is not part of my invention, which may be embodied in other types of shoe construction.

The toe construction is shown as including the usual leather upper 6, patent leather being contemplated. Next to the leather toe material 6 is a multi-ply member, indicated generally by 7, for securing a Celluloid stiffener 8 in position and also for protecting the outer surface of the patent leather 6 from the action of the solvent or softener which is applied to the Celluloid member to soften it for insertion in the toe structure.

Said securing and protecting member includes an outer layer 9 of gutta-percha or other adhesive material suitable for use with leather, an intermediate layer 10 of rubber, rubber coated or other material which is impervious to solvents and softeners for Celluloid and the like but to which the gutta-percha or other adhesive firmly adheres and an inner layer 11 of fabric or other material that is pervious to softened Celluloids and to Celluloid softeners. Next to the multi-ply member 7 may be placed the usual intermediate member 12 of fabric or the like, commonly designated as the doubler. The doubler 12 also is pervious to Celluloid softening materials and adheres firmly to softened Celluloid. Next to the doubler 12, is the Celluloid box toe or stiffener member 8 and the usual lining is inside said Celluloid member.

The heel construction likewise includes the upper material 6 (patent leather being contemplated), next to which is a layer 13 of the above described multi-ply material, next to that a doubler 14, then a Celluloid counter 15 and finally a suitable lining 16.

In Fig. 5 is shown a toe construction omitting the doubler and placing the Celluloid box toe 8 directly against the inner ply 11 of the multi-ply material 7.

In building up the toe construction, the adhesive layer 9 of the multi-ply protecting and securing member 7 is secured against the inner face of the leather. Heat or pressure, or both, may be needed, depending on the type of adhesive used. I contemplate the use of gutta-percha or other thermoplastic cement. The doubler 12, if one is used, is placed against the fabric inner ply 11 of said material. Any suitable softener or solvent is applied to the Celluloid box toe member which is then placed against the doubler, or against the fabric ply 11 if no doubler is used. The lining is then placed against the Celluloid stiffener. Before the Celluloid has a chance to harden, the shoe is lasted. The softened Celluloid permeates the doubler, if one is used, and the innermost layer of the multi-ply protecting material, thus causing the Celluloid box toe to be firmly secured in place, the box toe, the doubler and said innermost layer, becoming firmly and adhesively secured together by the action of the solvent or softener. Likewise, the lining firmly adheres to the underside of the box toe.

The heel construction and any other portion of the shoe using a Celluloid stiffener is built up in the same way.

The layer 10, which may be vulcanized or unvulcanized rubber, rubber coated fabric or other material impervious to Celluloid solvents and softeners, protects the upper leather from the action of the solvent, vapors from which would otherwise work through the leather and soften the outer surface thereof, so weakening the outer enamel or lacquer finish layer of patent leather that it might be quite easily scratched or even scraped off the leather entirely. At the same time, the multi-ply member is firmly secured to the leather by means of the gutta-percha or other adhesive and it is firmly secured to the Celluloid stiffener by the action of the Celluloid solvent on the innermost layer of the multi-ply member and on the doubler, if one is used.

My invention simplifies the process of mounting Celluloid stiffening members in shoes and it makes feasible the use of such Celluloid and similar plastic members in patent leather shoes, where their use has not heretofore been practicable because of the great expense resulting from the necessity for repairing damage to the patent leather by the solvent. The several layers of the shoe construction are firmly secured together throughout their entire areas.

Obviously the invention is applicable to other leathers than patent leathers, to shoe constructions of all sorts and to other constructions where it may be desired to embody a Celluloid stiffener in a leather construction, at the same time protecting the leather from the action of the Celluloid solvent or softener.

What I claim is:

1. A material for securing a member of Celluloid or like plastic to a leather member and protecting the leather from the action of solvents for said plastic, comprising an intermediate layer of material impervious to solvents for said plastics, an outer or leather engaging layer of adhesive that adheres both to leather and to said intermediate layer and an innermost layer of material that adheres to said impervious material and is pervious to softened plastic.

2. A material for securing a member of Celluloid or like plastic to a leather member and protecting the leather from the action of the solvent, comprising an intermediate layer of rubber, an outer or leather engaging layer of gutta-percha and an innermost layer of material that adheres to rubber and is pervious to Celluloid treated with solvent softener.

3. A leather shoe construction comprising a leather upper, a stiffener of Celluloid or like plastic therefor and an intermediate member for securing the leather and the Celluloid stiffener together while protecting the leather from the action of Celluloid solvents, said intermediate member comprising an intermediate layer of rubber, an outermost layer of gutta-percha adhering to said rubber and to said leather and an innermost layer of fabric adhering to said intermediate rubber layer and pervious to said Celluloid treated with solvent.

4. A patent leather shoe construction comprising a patent leather upper, a stiffener of Celluloid or like plastic therefor and an intermediate member for securing the leather and the Celluloid stiffener together while protecting the leather from the action of plastic solvents, said intermediate member comprising an intermediate layer of rubber impervious to solvents for said plastic, an outermost layer of adhesive adhering both to said impervious material and to said leather and an innermost layer of fabric adhering to said intermediate rubber layer and pervious to said plastic treated with solvent.

5. A patent leather shoe construction comprising a patent leather upper, a stiffener of Celluloid or like plastic therefor, an intermediate member for securing the leather and the Celluloid stiffener together while protecting the leather from the action of Celluloid solvents, said intermediate member comprising an intermediate layer of rubber, an outermost layer of gutta-percha adhering to said rubber and to said leather and an innermost layer of fabric adhering to said intermediate rubber layer and pervious to said Celluloid treated with solvent, and a doubler between said intermediate member and said stiffener.

JOHN C. GUHMAN.