

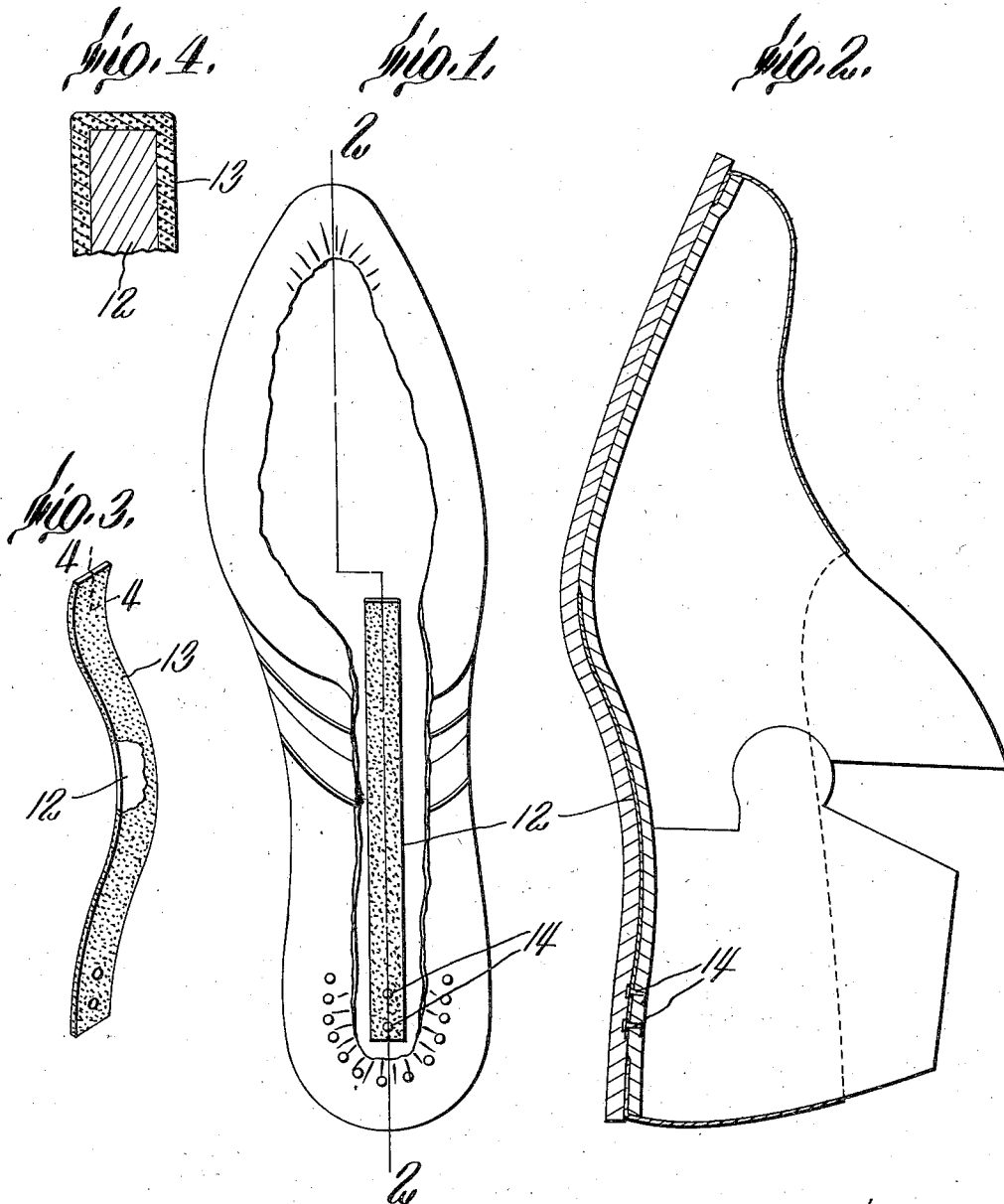
Sept. 3, 1935.

W. H. NICKERSON

2,013,168

SHANK STIFFENER FOR SHOES

Filed Oct. 4, 1932



Inventor
William H. Nickerson
by Wright Brown Kimbly & May

Attys

UNITED STATES PATENT OFFICE

2,013,168

SHANK STIFFENER FOR SHOES

William H. Nickerson, Newton, Mass.

Application October 4, 1932, Serial No. 636,149

2 Claims. (Cl. 36-76)

This invention relates to a shank stiffener composed of resilient metal, usually steel, and employed to impart resilience and a suitable degree of stiffness to the shank portion of the inner and outer soles of a shoe, the stiffener being interposed between the soles, and, in a compo shoe, contacting with the cement now generally employed to unite one sole to the other.

The chief object of the invention is to provide a resilient metal shank stiffener adapted to be interposed between the inner and the outer sole of a compo shoe, or in any shoe in which the stiffener is interposed between two soles, and to have a non-squeaking contact with said soles.

Another object is to provide the stiffener with frictional surfaces adapted to so cling to shoe parts between which it is interposed, as to oppose displacement of the stiffener from its intended position.

Of the accompanying drawing forming a part of this specification,—

Figure 1 is a bottom view showing portions of the inner sole and upper of a compo shoe without the outer sole, and a shank stiffener, conditioned in accordance with my invention, in its operative position on the inner sole.

Figure 2 is a longitudinal section of the shoe including the outer sole.

Figure 3 is a perspective view of the conditioned stiffener.

Figure 4 is a magnified section on line 4-4 of Figure 3.

The same reference characters indicate the same parts in all of the figures.

In the drawing, 12 (Figure 4) designates a resilient metal shank stiffener which may be of any suitable form. In this instance the stiffener has transversely flat sides and is longitudinally curved as shown by Figures 2 and 3.

In carrying out my invention I clean the surfaces of the stiffener and apply thereto an air-drying or siccative, viscous, fluid composition, as by dipping the stiffener in a bath of said composition, or by painting or spraying the composition on said surfaces, the result being a film 13 entirely enveloping the stiffener, and conforming closely to the surfaces thereof, the film being so thin, and its conformation to the surfaces of the stiffener being so close, that the bulk and original form of the stiffener are not materially altered by the film.

Generally speaking, the composition includes a liquid vehicle, and a solid, body-giving element soluble in the vehicle to lend the desired viscosity thereto. Thus, an advantageous composition is

one whose liquid vehicle is a drying oil, preferably China-wood oil, which may constitute 50% to 70% by weight of the composition; whose solid, body-giving element is a resin, preferably of artificial variety, e. g. a formaldehyde-phenol condensation product, which may constitute 30% to 50% by weight of the composition; and whose liquid vehicle is supplemented by a volatile thinner such as xylol, and, if desired, gasoline or other volatile hydrocarbon, which may constitute 10% to 25% by weight of the composition, and which serves to promote quick setting or hardening of the composition. The ingredients thus far mentioned give a homogeneous viscous fluid, as all its liquid constituents are miscible and the resin is soluble in the liquid mixture.

I prefer to include in the viscous composition an adhesive ingredient adapted to increase the strength of the union of the film with the stiffener.

A suitable adhesive ingredient is crude rubber rendered fluid by a solvent, such as gasoline or benzol, and constituting approximately ten per cent by weight of the viscous composition.

Other suitable adhesive ingredients in a suitably fluid or dissolved condition may be employed, such as fish glue, animal glue, powdered rubber, celluloid, shellac, a wax, or a natural or synthetic gum. The adhesive may, in fact, be the body-giving element of the composition, or supplement the body-giving element.

The coating thus formed is solidified on and caused to adhere to the metal surfaces of the stiffener by drying, and becomes a film 13 adapted to have a non-squeaking contact with shoe parts between which the stiffener is interposed, and, in a compo shoe, to so adhere to the cement employed to unite the soles thereof, as to oppose displacement of the stiffener from its intended position, the film coated stiffener being interposed between the cement coatings on said soles while the cement is fresh, said coatings being then pressed closely against the stiffener film 13 during the subsequent steps of the operation of making the shoe.

A powdered or comminuted material may be mixed with the viscous composition to increase the effectiveness of the film in opposing displacement of the stiffener from its intended position, the grains or particles of said material being insoluble in the composition. The film is shown much enlarged by Figure 4, and the grains or particles are indicated by stippling on Figures 1 and 3. Some of said grains are exposed on the external surfaces of the film. The powder is preferably comminuted metal such as aluminum,

bronze, or tin, aluminum being preferred. The powder may be comminuted abrasive material such as emery or carborundum. When aluminum powder is employed, the preferred proportions are two pounds of the powder to a gallon of the fluid.

The insoluble powder so roughens and frictions the surfaces of the film that the latter is better adapted to oppose displacement of the stiffener from its intended position, particularly at its forward portion, the rear portion of the stiffener being customarily engaged with one of the soles by tacks 14, or by sole indenting burrs formed on the stiffener.

I am aware that it has been proposed heretofore to enclose a resilient metal shank stiffener in an elastic cover of India rubber, said cover being elastically compressible, and serving in one instance as a cushion intended to yieldingly support certain bones of the foot, and in another instance as a resilient substitute for the leather-board shank piece, commonly associated with a resilient metal stiffener.

In each of said instances the elastic cover necessarily adds materially to the thickness and bulk of the metal stiffener, the cushioning effect depending on the thickness of the rubber layers, or cover portions, at opposite sides of the metal stiffener.

My stiffener cover 13 is a film conforming closely to the surfaces of the stiffener 12, without adding materially to the bulk thereof, so that the film coated stiffener which is adapted to be interposed between two soles as indicated by Figure 2, does not materially add to the bulk of the stiffener, and therefore does not materially increase the thickness of the portion of a shoe bottom of which it forms a part.

Furthermore, the film 13 is solidified by drying so that it does not constitute either an elastically compressible cushion, or a resilient substitute for a non-metallic shank piece, its nature being such that it is caused by drying to adhere tenaciously to the metal stiffener, and is adapted to have a non-squeaking contact with the soles between which the stiffener is interposed.

I claim:

1. As an article of manufacture, a resilient metal shank stiffener enveloped by a film adhering and conforming closely to its surfaces without adding materially to its bulk, said film being composed of an air drying fluid composition solidified on the stiffener and adapted to have a non-squeaking contact with shoe parts between which the stiffener is interposed, and comminuted frictioning material composed of rigid particles insoluble in said composition and mixed therewith, some of said particles being exposed on the surfaces of the film, and increasing the effectiveness thereof.

2. As an article of manufacture, a resilient metal shank stiffener enveloped by a film adhering and conforming closely to its surface without adding materially to its bulk, said film being composed of an air drying fluid composition solidified on the stiffener and adapted to have a non-squeaking contact with shoe parts between which the stiffener is interposed, and powdered aluminum mixed with said composition, some of the aluminum particles being exposed on the surfaces of the film and increasing the effectiveness thereof.

WILLIAM H. NICKERSON.