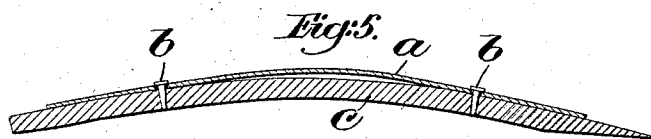
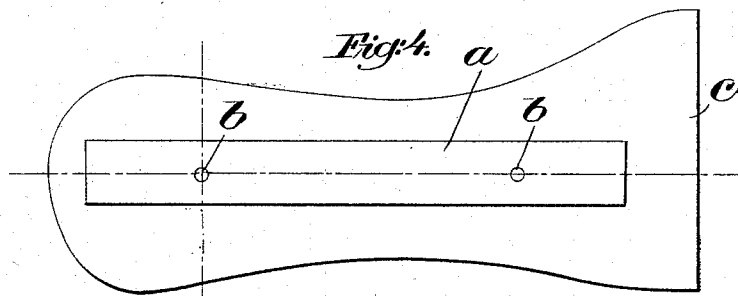
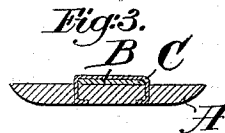
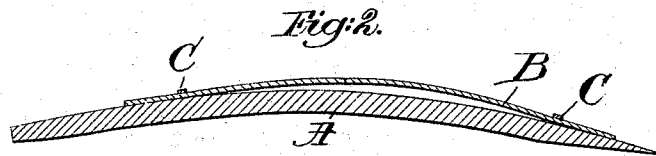
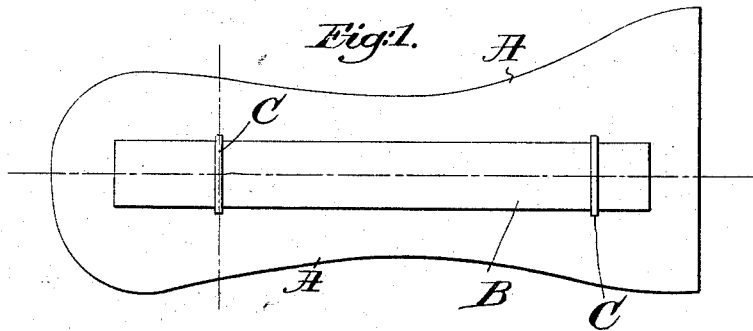


J. M. WATSON.
SHANK STIFFENER.

No. 542,070.

Patented July 2, 1895.



Witnesses.

Fred S. Gunkel.

Thomas J. Drummond.

Inventor

Jeremiah M. Watson
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UNITED STATES PATENT OFFICE.

JEREMIAH M. WATSON, OF BOSTON, MASSACHUSETTS.

SHANK-STIFFENER.

SPECIFICATION forming part of Letters Patent No. 542,070, dated July 2, 1895.

Application filed September 4, 1894. Serial No. 522,002. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH M. WATSON, of Boston, county of Middlesex, State of Massachusetts, have invented an Improvement in Shank-Stiffeners for Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The shanks of boots and shoes have to be stiffened, and for this purpose many kinds of shank-stiffeners have been devised to take the place of sole-leather, to thus not only save in cost of production, but also to make a stiffener of greater elasticity and lightness than can be gained by the use of leather alone. Some of the stiffeners have been composed in part of a strip of thin steel united to a body of paper-board or wood, the junction of the two parts being effected by driving tacks through holes made in the steel strip, the tacks entering and standing in the body of the stiffener. Such a compound stiffener has, however, many objections, some of which I will now enumerate. It is very desirable that the shank of the shoe should be as thin and light as possible, thus requiring a thin and light stiffener, and the stiffener must possess very considerable elasticity in order that it may bend as required, and yet it must possess the property of promptly and surely returning into its normal position, and it will be obvious that when a stiffener composed of two layers of material normally curved is bent one of said layers must move longitudinally with relation to the surface of the other layer against which it rests. To gain for a stiffener of this class the necessary elasticity a good quality of spring-steel should be used; but such steel is so hard that it is difficult to punch the necessary holes therein for the tacks and not break the narrow strip or without cracking or weakening the strip, so that in use it is liable soon to break transversely in line with the holes, thus greatly injuring the shoe. The steel strip is liable to be broken transversely by the strains resulting from the pressure of the steel strip against the bodies of the tacks driven through the holes therein as the stiffener is flexed in use, and if the strip does not break by this contact it frequently happens that the tacks break and destroy the connec-

tion between the strip and the body of the stiffener. The assembling of the punched steel strips and bodies referred to is also expensive, for the tacks have, by a hand operation, to be driven singly through the holes in the strip.

I have aimed to produce a shank-stiffener which shall be free from the defects and objections stated, and I have therefore devised and produced a compound stiffener composed of a metallic or steel strip and a non-metallic body, the strip being united to the body by means of a staple embracing said strip, so that the latter is left comparatively free to slide on or with relation to the body without pressure or strain against the fastenings, which tend to break the strip transversely, said strip being without usual weakening holes.

My invention therefore consists essentially in a combined shank-stiffener composed of a metallic strip and a non-metallic body, to which said strip is united by a staple spanning the strip and entering the body.

Figure 1 is an upper side view of a shank-stiffener embodying my invention; Fig. 2, a longitudinal and Fig. 3 a cross section thereof. Fig. 4 shows a shank-stiffener of common construction; Fig. 5, a longitudinal and Fig. 6 a cross section thereof.

Referring to Figs. 4 to 6, it will be noticed that the metallic strip *a* has punched through it, between its ends, holes a little larger than the bodies of the shanks of the tacks *b*, which are driven through said holes into the non-metallic body *c* of the stiffener, to thereby retain the two parts of the stiffener together. In this form of stiffener it will be obvious that the tacks have to be presented carefully in the holes and driven, that the metallic strip is weakened by the holes, that the extent of movement of the strip with relation to the body is limited, and that the pressure of the metal of the strip against the tacks driven through holes therein is liable to result in transverse strains, which break the strip, and also that the pressure of the strip against the tack tends to loosen it in the body.

Referring now to Figs. 1 to 3, A shows the non-metallic body of the stiffener, and B a plain metallic strip without holes, the strip being of any degree of hardness and elastic-

ity. The strip B is retained next the upper side of the non-metallic body A by means of a staple-like fastening C, two such fastenings being shown in the drawings, and it will be
5 obvious that the strip B is stronger than if it had holes punched in it and that the said strip is free to slide and move over and upon the body A when the stiffener is being bent
10 strip and without any tendency on the part of the staple to limit or restrict such sliding. By the employment of the staple-like fastening very much time is saved in assembling the parts, as the staples may be driven simul-
15 taneously by a machine and will work properly so long as they cross the strip somewhere near its ends, whereas if a tack is driven it has to be driven in an exact point in the holes, and it has been found difficult to make
20 the holes at uniform distances apart, so that they will register in a machine.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

The herein described shank stiffener for 25 boots and shoes, comprising the flexible non-metallic body A, the flat steel spring B applied to said body, and staples C, the distance between the points of which staples is slightly greater than the width of the spring, whereby 30 said staples may be applied by straddling the spring and without puncturing said spring, and having their points engaged in the body, and thus holding the spring in place and per-
35 mitting the flexure of the spring and body independently of each other at all points, substantially as set forth.

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

JEREMIAH M. WATSON.

Witnesses:

FREDERICK L. EMERY,
JOHN C. EDWARDS.