No. 765,392. PATENTED JULY 19, 1904.

B. F. MAYO.

SPRING HEEL SHOE.

APPLICATION FILED AUG. 18, 1899.

NO MODEL.

Fig. 1.

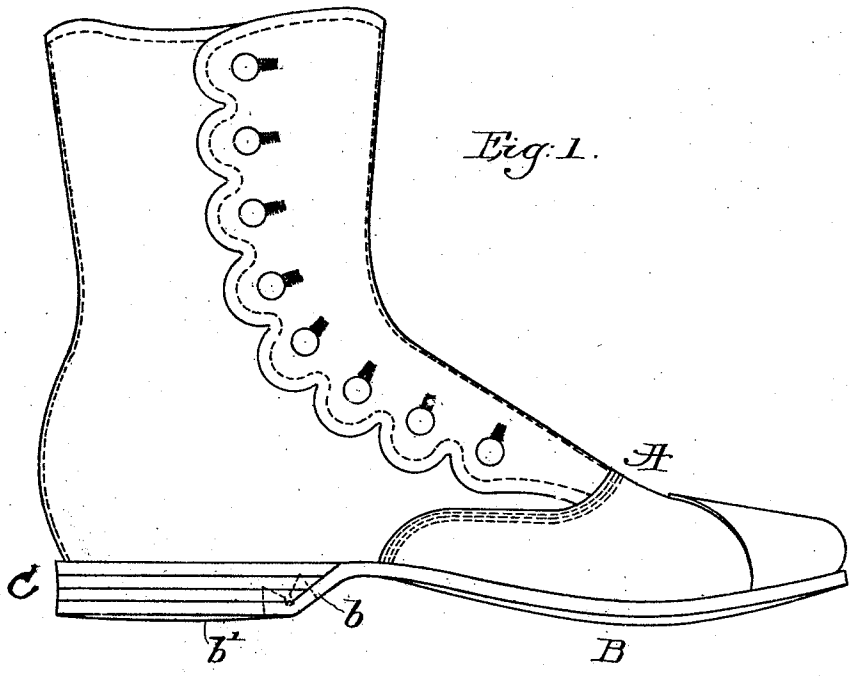


Fig. 2.

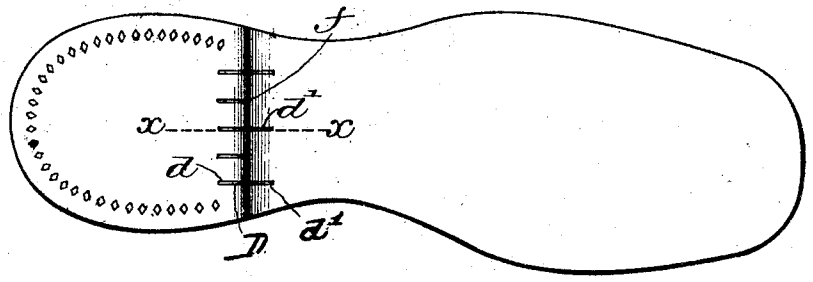


Fig. 3.

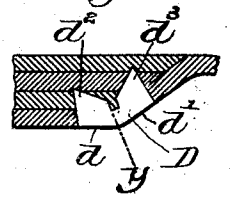
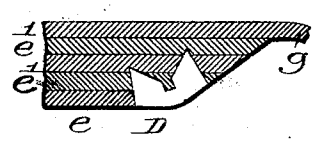


Fig. 4.



Witnesses.
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No. 765,392. Patented July 19, 1904.

UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE UNITED SHOE MACHINERY COMPANY, A CORPORATION OF NEW JERSEY.

SPRING-HEEL SHOE.

SPECIFICATION forming part of Letters Patent No. 765,392, dated July 19, 1904.

Application filed August 18, 1899. Serial No. 727,625. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, a citizen of the United States, residing at Salem, county of Essex, State of Massachusetts, have invented an Improvement in Spring-Heel Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Spring-heel shoes present between the outer sole in the shank and the tread-face of the heel an inclined surface that is commonly designated by the term "scarf." This scarf may be either a part of the outer sole between the shank and the tread of the heel or it may be formed by the inclined ends of a series of superimposed heel-lifts. Where the scarf is a part of the outer sole, the inner side of the scarf is supported by the beveled ends of the heel-lifts interposed between the outer sole and the inner sole, and the end of the outer sole overlaps the heel-lifts and constitutes a a tread-surface for the heel.

Spring-heel shoes are very desirable for many reasons, among which are the following: The scarf, owing to its inclination, will not catch in meeting an obstruction when walking, and the tread of the heel presents a broad surface in walking. Also with that class of shoe the weight of the body is thrown on the heel rather than on the toe, as when a high heel is used, and, further, because of the scarf in the sole that portion of the sole in the shank at the upper end of the scarf acts to keep the shank pressed upwardly to sustain the under side of the foot and obviate the use of a steel shank. The extensive introduction of spring-heel shoes to the extent that their merits demand has, however, been handicapped, owing to the lack of durability of the shoe as at present constructed. The ordinary spring-heel shoe wherein the scarf is in the outer sole is liable to wear through at the lower edge of the scarf, enabling the scarf to fall away from the beveled ends of the heel-lifts, leaving a gap or space in which water and mud may enter and get into the shoe, thus destroying its usefulness. When the heel is what is called an "outside spring"—*i. e.*, when the lifts applied outside the sole are beveled in the line of the shank—the outer lift is usually of better material than the intermediate lifts, so that when the outside lift is worn through the heel soon goes to pieces because of the poor quality of material in the intermediate lifts.

The invention herein to be described has been devised for the express purpose of making strong and durable spring-heel shoes.

My improved shoe is strengthened in the scarf by the insertion of metallic reinforces that besides greatly increasing the durability of the shoe also keeps the sole seated on the interposed lifts and prevents any gap between the sole and lifts. The reinforce or stay in the best form now known to me presents an exposed edge and it is driven to aline with the tread-face of the heel end of the sole and with the inclination of the scarf, the said edge presenting, it may be, an obtuse angle, the reinforce presenting a suitable prong or prongs to enter the stock, the insertion of said reinforces acting also to stay and stiffen the sole in a line transverse thereto in the line of the scarf.

Figure 1, in side elevation, represents one form of spring-heel shoe, the dotted lines showing one form of reinforce or stay in the scarf. Fig. 2 is an under side view of the shoe-sole with one form of my improved stay inserted therein. Fig. 3 is a sectional detail showing a stay in the scarf and heel-lifts. Fig. 4 shows a modified form of my invention wherein the scarf is in the lifts alone.

In the drawings, A represents an upper having a suitable top, B the sole, and C the heel-lifts, making a spring-heel shoe of usual form, the inner ends of the lifts being beveled, as shown at the right in Fig. 1, to support the inner side of the scarf *b* of the sole, the tread-face *b'* of the heel part of the sole lying at and covering the pile of lifts. The parts so far described are and may be all as usual. This

form of shoe is liable to be quickly worn through across the sole in the line of junction of the tread-face of the heel with the incline or scarf, and when this part of the shoe is worn through the lower end of the scarf and the inner or breast end of the heel is exposed and the shoe will soon go to pieces, and so, also, in wear the scarf *b* sometimes breaks down or retires from contact with the beveled ends of the lifts, leaving an open space or gap, which is objectionable, not only because it is unsightly, but also as it offers space for the entrance of water, mud, and dirt.

In the form of heel represented in Fig. 4 the outer or tread lift *e* is usually of better material than the intermediate lifts *e'* laid on the sole *g*, and if the outer lift is removed by wear the remaining part of the heel soon wears away.

To reinforce or stay the shoe represented in Figs. 1 to 3 and prevent the scarf *b* from retiring from contact with the bevel-ended lifts in a line transverse to the shank, I have applied to said shoe reinforces or stays, one good form of which is represented by D, the exposed ends or faces of said stay presenting the portions *d d'*, one of which, *d*, alines substantially with the tread-face of the sole, while the other, *d'*, alines with the face of the scarf, said stay, as shown, having a plurality of prongs or points d^2 d^3, said prongs entering the sole and preferably also the stock of the shoe. The exterior face or edge of the stay (shown in Figs. 1 to 3) presents an obtuse angle the apex of which stands, preferably, at the junction of the tread-face of the heel end of the sole and the lower end of the scarf, as shown in Fig. 3. These reinforces or stays applied to the tread and scarf add greatly to the durability of the shoe and applied across the scarf afford additional stiffness at a part where stiffness is desirable.

The head of the stay herein illustrated presents two driving-faces each having a suitable prong.

Referring to Fig. 4, the reinforces or stays enter both the tread-face of the heel and the scarf of the heel, resisting wear at the scarf or breast and enabling the tread-face to withstand much greater wear.

I believe that I am the first to reinforce or stay the inclined breast or scarf of a spring-heel by stays presenting a wearing-surface to aline either with the tread-face of the heel across the same in the line of the inclined breast or scarf or to aline with and stay the inclined breast or scarf of a spring-heel. Reinforces or stays so applied will present wear-resisting surfaces at or near the angle of junction of the scarf with the tread-face of the heel, and consequently I do not herein limit my invention to the use only of a stay of the shape represented, as it will be understood that the shape of the stay might be variously modified and accomplish the results herein stated without the exercise of other than mechanical skill. The gist of my invention lies in reinforcing the tread-lift in the breast or scarf line and also reinforcing or staying the scarf across the shank of the shoe and at the junction of the scarf with the tread-surface of the heel.

I prefer to make the stay of sheet metal, yet it might be made of other material and effect the novel purposes herein set forth.

The stay shown is a very desirable one, yet I might use a stay presenting the form of one-half the stay represented—as, for instance, the stay might be made in two pieces by dividing it in the dotted line *y*, driving the same alternately, one in the tread-face and the other in the scarf or breast.

This invention is not limited to the exact form or character of the points or projections entering the stock to confine the stay in position.

The reinforce *f* may be supposed to be substantially of the shape shown by the left-hand part of the reinforce D, made by cutting the same in the line *y*.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A spring-heel shoe provided with a reinforce driven therein at the junction of the scarf with the tread-face of the heel.

2. A spring-heel shoe having the shank of its sole in the line of its scarf provided with a series of separate reinforces or stays.

3. A spring-heel shoe provided with a series of separate driven reinforces located at the line of junction of the scarf with the tread-face of the heel, said reinforces protecting both the scarf and the junction of the scarf with the tread-face of the heel.

4. A spring-heel shoe having a series of stays driven through the scarf and entering the heel-lifts, said stays preventing the retirement of the scarf from the inclined portions of the heel-lifts.

5. A spring-heel shoe having stays driven into it at the junction of the tread-face of the heel with the scarf, said stays being shaped to conform substantially to and being exposed at the angle of junction of the said scarf and tread-face.

6. A spring-heel shoe having a row of stays extending transversely of the sole and presenting wearing-faces at opposite sides of the angle of junction of the scarf with that end of the sole constituting the tread-face of the heel.

7. A spring-heel shoe having a series of stays applied to its scarf or part uniting the shank of the sole with the tread of the heel, said stays presenting elongated wearing-surfaces extended for a considerable distance along said scarf lengthwise of the shoe.

8. A spring-heel shoe having a driven stay applied to its scarf, said stay presenting a

wearing portion shaped to correspond substantially with the angle of junction of the scarf with the tread-face of the heel.

9. A spring-heel shoe having a line of fastenings to unite the tread end of the outer sole and the heel-lifts, and a series of stays driven into the scarf at its junction with the beveled ends of the heel-lifts.

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

BENJAMIN F. MAYO.

Witnesses:
GEO. W. GREGORY,
L. ROTHSTEIN.