36

J. H. NASH.

HEEL.

APPLICATION FILED NOV. 13, 1909.

953,099.

Patented Mar. 29, 1910.

Fig. 1.

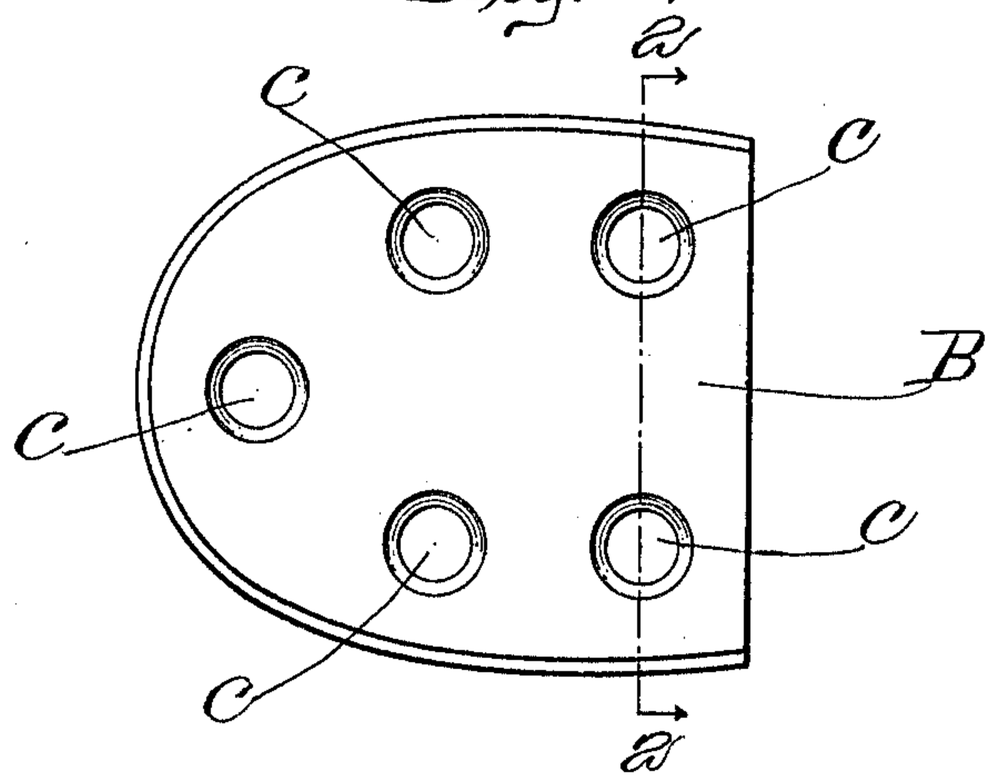


Fig. 2.

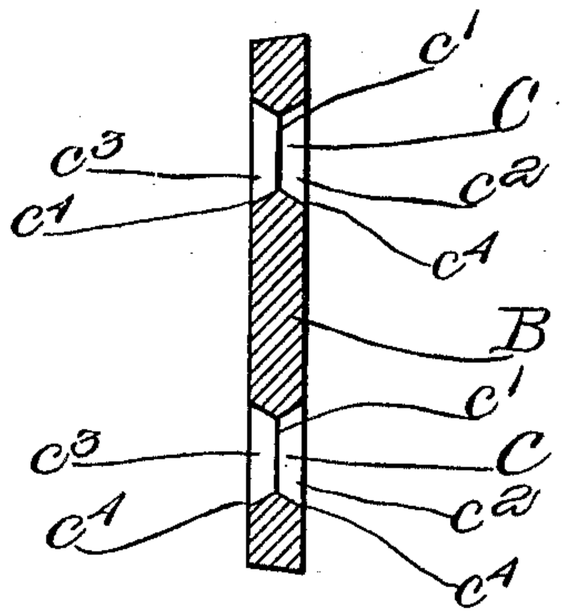


Fig. 3.

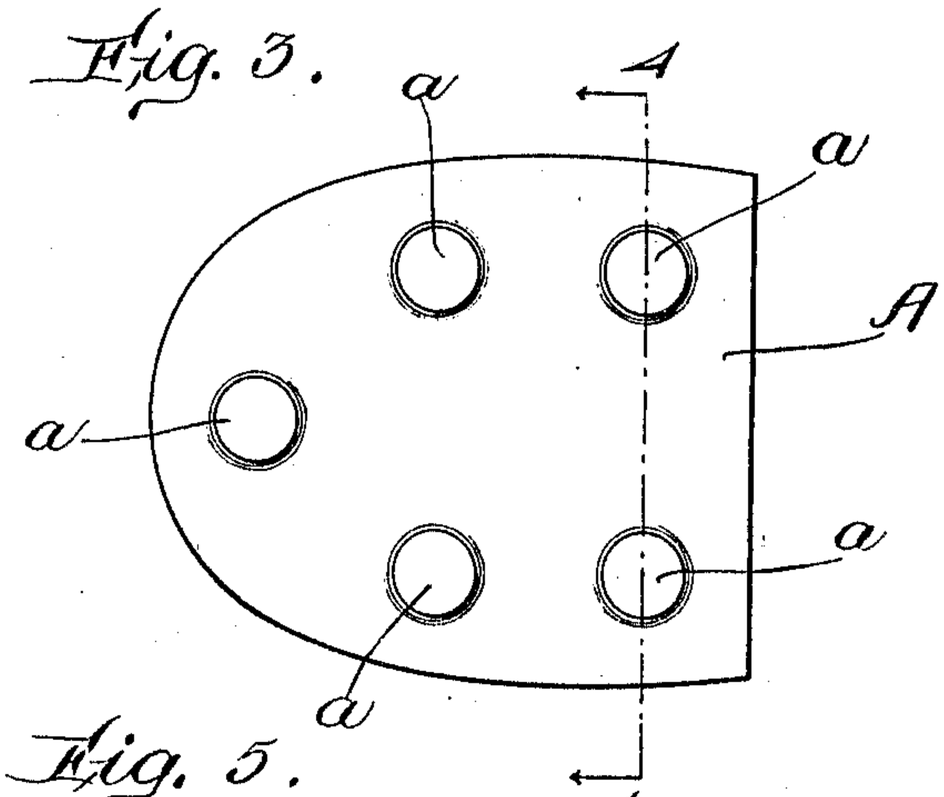


Fig. 4.

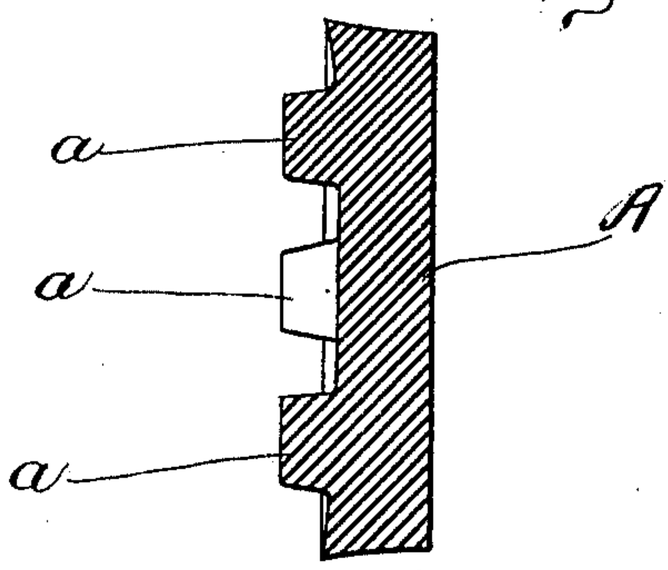


Fig. 5.

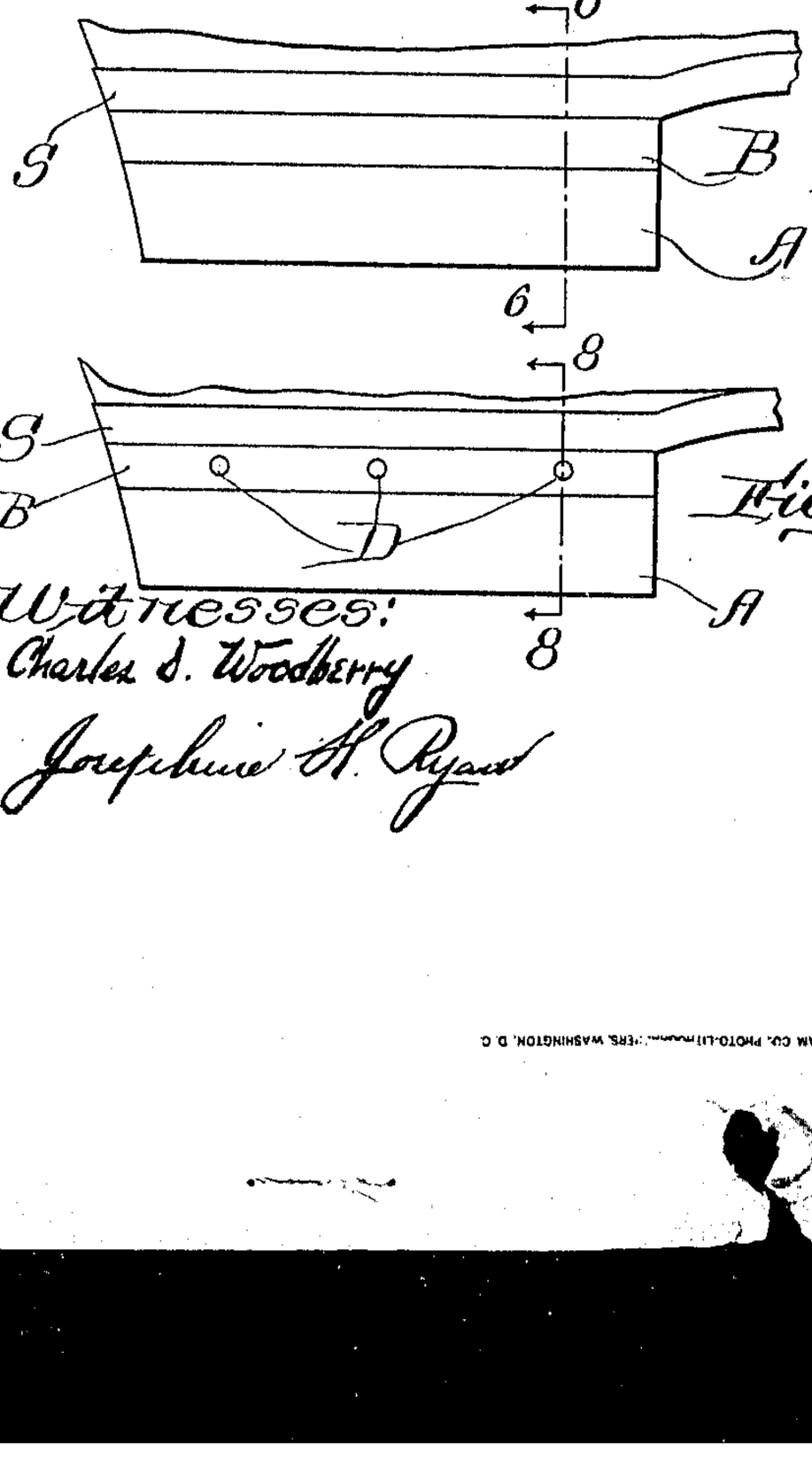


Fig. 6.

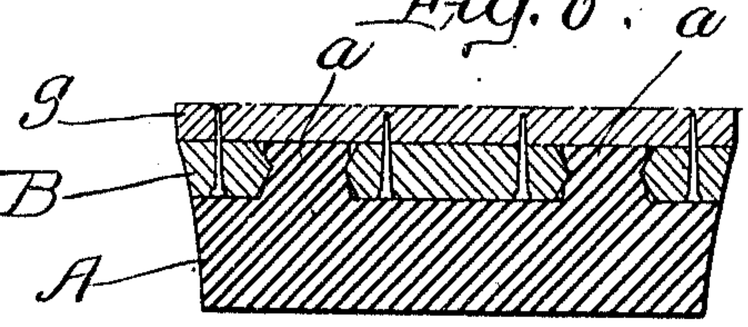
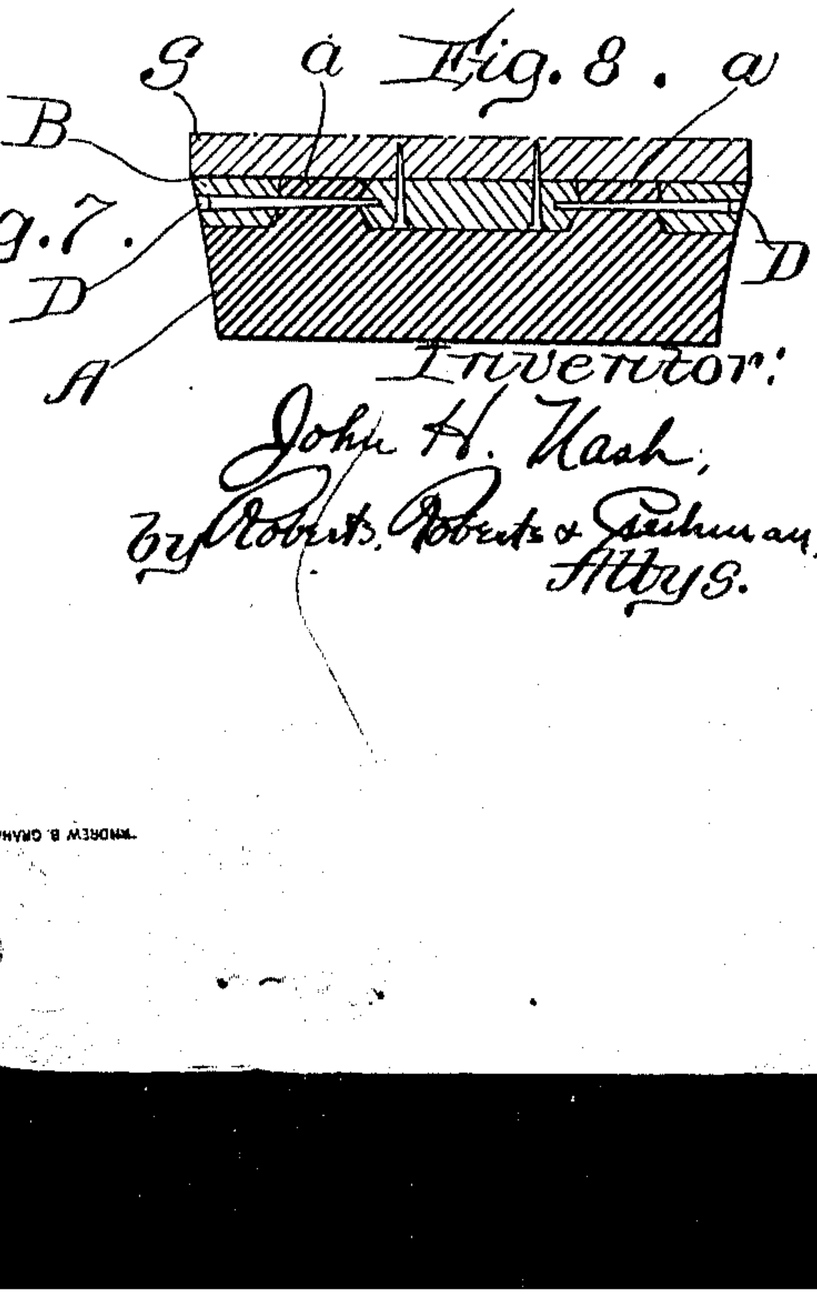


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN H. NASH, OF BEVERLY, MASSACHUSETTS.

HEEL.

953,099. Specification of Letters Patent. **Patented Mar. 29, 1910.**

Application filed November 13, 1909. Serial No. 527,781.

To all whom it may concern:

Be it known that I, JOHN H. NASH, a citizen of the United States, and resident of Beverly, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Heels, of which the following is a specification.

My invention relates to heels and more particularly to rubber heels adapted for use on boots or shoes of leather or similar material.

The rubber heels of this class heretofore used are commonly secured to the boot or shoe by nails driven in at the bottom of the heel and countersunk more or less therein. This method of fastening has proved a considerable source of danger to users for the reason that as the rubber wears away in use, the heads of the fastening nails are brought flush with the under surface of the heel, and even in many cases project therefrom, causing their wearers to slip on hard surfaces such as pavements or wooden floors, and to trip on rugs and carpets. Moreover, the under surface or tread of such partly worn out heels seriously scars and defaces hard wood floors and for this reason has proved a source of damage, expense and annoyance not only in private residences, but also in institutions such as hospitals and sanitariums where rubber heeled shoes are almost universally worn by doctors and nurses.

It is the object of my invention to provide a composite heel which, for ordinary wear, may be readily and securely attached to a boot or shoe without the use of metal fastenings in the body of the rubber portion, and wherein, in cases where the heel is to be subjected to extraordinary conditions of wear, metal fastenings may be employed in such manner that they cannot project from the bottom of the heel as the rubber wears away.

Referring to the drawings, which illustrate an embodiment of my invention,—Figures 1 and 3 are plan views of the lifts of my improved heel; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 4 is a section on the line 4—4 of Fig. 3; Fig. 5 is an elevation of my improved heel secured to a shoe; Fig. 6 is a section on the line 6—6 of Fig. 5; Fig. 7 is an elevation of my improved heel secured to a shoe and fasteners driven therein; and Fig. 8 is a section on the line 8—8 of Fig. 7.

My improved heel consists of two lifts A and B. The lift A is made of rubber and provided with projections or tenons *a*, preferably formed integral with the main body of the lift and marginally disposed. It will be understood that by the use of the term "rubber" in my specification and claims, I do not intend to limit myself to pure rubber but include in that term not only pure rubber but all combinations and compositions of rubber and like material employed in the making of so-called "rubber" heels.

The lift B which is of approximately the same thickness as the tenons *a* is made of leather, leather-board or similar material, and is provided with sockets C adapted to receive the tenons *a*. The sockets C are made with double oppositely beveled walls forming an internal annular ridge or rib c', an upper chamber c^2 and a lower chamber c^3, best shown in Fig. 2. The diameter of the annular ridge or rib c' is smaller than the diameter of the top of the tenons *a* and the diameter of the mouths c^4 of the sockets C is greater than that of the top of said tenons.

In attaching and securing my improved heel, the lift B is first nailed or otherwise secured to the shoe S as shown in Figs. 6 and 7. The tenons *a* are then placed within the lower chambers c^3 of the sockets C and hammered or otherwise pressed in until the tenons *a* have passed entirely into the sockets, thus forming dovetail joints as shown in Figs. 6 and 8.

It will be clear that the purpose of the upper chambers c^2 is to provide for the expansion of the rubber above the contracted portion in the region of the internal annular ridges c'. The lower chambers c^3 serve a double purpose. First, as their mouths c^4 are of greater diameter than the ends of the tenons, the latter are readily inserted therein and the inwardly slanting walls serve to guide the tenons in their passage into the sockets. This is of importance for the reason that in the preferred form of my invention shown in Fig. 6, the rubber lift is secured to the leather lift solely by the expansive force of the rubber within the sockets. Consequently, the tenons *a* must be made of strong and tough rubber or like composition, and if the mouths of the sockets were of a smaller diameter than the tenons, such material could

be inserted in the sockets, if at all, only with great difficulty. The second purpose of the lower chambers c^3 is to bring about a gradual compression of the tenons a in their passage into the sockets and permit their greatest compression to take place at a point removed from their bases, preferably at or about their middles. This is of importance for the reason that an abrupt compression of the tenons at their junctions with the main body of the lift, tends to tear them from said body portion, whereas no such tendency to tear is present when the tenons are gradually compressed by the inwardly slanting walls of the chambers c^3 and their greatest compression takes place at a point removed from their junction with the main body of the lift.

Under ordinary conditions of wear, the expansive force of the rubber tenons in the sockets C is sufficient to secure the two lifts and no cement or metal fastenings are required. If, however, the heel is to be subjected to extraordinary conditions of wear, cement may be employed or metal fastenings D may be driven laterally through the lift B into or through the tenons a. It is not essential that the fastenings D should pass completely through the tenons a; but I prefer to pass them completely through as shown in Fig. 8, thus providing bolts which prevent any twisting or rotary movement of the tenons. It will be clear that the laterally driven fasteners D cannot by any possibility protrude from the bottom of the heel even though the entire body portion of the rubber lift be worn away in use.

I claim:

1. A composite heel consisting of a leather lift having sockets provided with double oppositely beveled walls and a rubber lift provided with tenons secured within said sockets by the expansive force of the rubber.

2. A composite heel consisting of a leather lift provided with sockets and a rubber lift provided with tenons secured within said sockets, said tenons being compressed by the walls of said sockets at points above their bases.

3. A composite heel consisting of a leather lift provided with sockets and a rubber lift provided with tenons secured within said sockets, said tenons being compressed by the walls of said sockets at or about their middles.

4. The combination with a leather lift having sockets provided with double oppositely beveled walls forming at their juncture an annular ridge, of a rubber lift having tenons adapted to be secured within said sockets, the diameter of said tenons being greater than that of said annular ridges.

5. The combination with a leather lift having sockets provided with internal annular ridges, of a rubber lift having tenons adapted to be secured within said sockets, the diameter of said tenons being greater than that of said annular ridges but less than that of the mouths of said sockets.

6. A composite heel, consisting of a leather lift provided with sockets having double oppositely beveled walls forming at their juncture an internal annular ridge, and a rubber lift having tenons secured within said sockets, said tenons being compressed by said annular ridges and fasteners passing laterally into said tenons.

7. A composite heel, consisting of a leather lift provided with sockets having double oppositely beveled walls forming at their juncture an internal annular ridge, and a rubber lift having tenons secured within said sockets, said tenons being compressed by said annular ridges and fasteners passing laterally through said tenons.

Signed by me at Beverly, Massachusetts this 10th day of November, 1909.

JOHN H. NASH.

Witnesses:

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