E. J. EMERY.

RUBBER HEEL.

APPLICATION FILED DEC. 22, 1916.

1,232,518. Patented July 10, 1917.

Fig. 1.

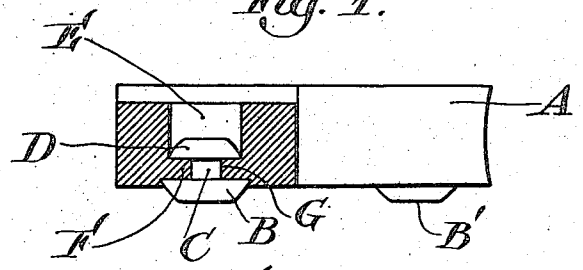


Fig. 2.

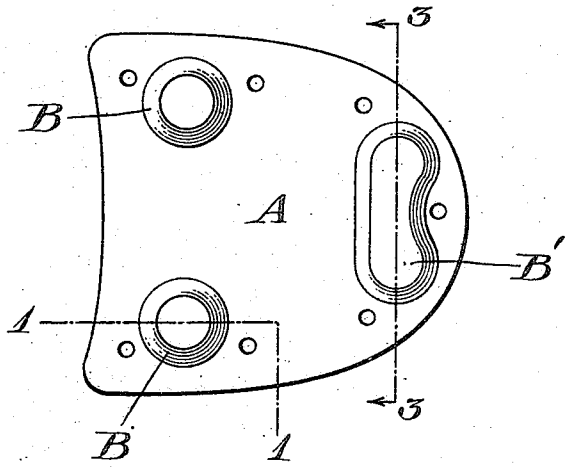
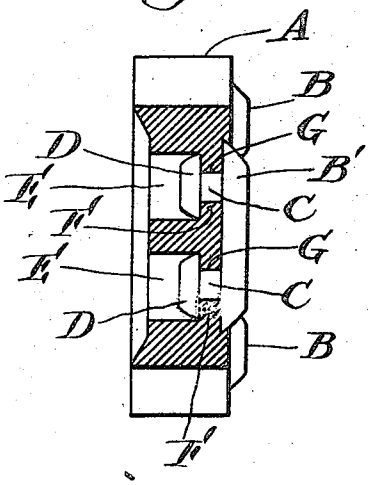


Fig. 3.



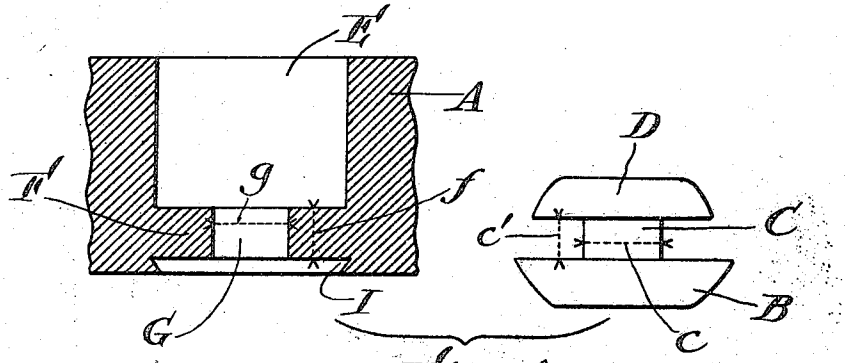


Fig. 4.

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UNITED STATES PATENT OFFICE.

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RUBBER HEEL.

1,232,518. Specification of Letters Patent. Patented July 10, 1917.

Application filed December 22, 1916. Serial No. 138,363.

To all whom it may concern:

Be it known that I, ELIAS J. EMERY, a citizen of the United States, and resident of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented new and useful Improvements in Rubber Heels, of which the following is a specification.

My invention relates to shoe heels of a type, exemplified by my United States Patent No. 1,165,235, dated December 21, 1915, which is characterized by attachable and renewable elastic treads secured in the body of the shoe heel. The objects of the improvements herein described are to provide secure and intimate attachment of the treads to the body of the heel, to prolong the life of the treads themselves, and to render the shoe heel thus equipped agreeable to the wearer and free from liability to slip.

In the drawings hereto annexed, which illustrate my invention,—

Figure 1 is a side elevation of a shoe heel, partly in section, at the line 1—1 of Fig. 2;

Fig. 2 is a view in plan of the bottom of a shoe heel;

Fig. 3 is a vertical section of the heel, at line 3—3 of Fig. 2; and

Fig. 4 is a diagram showing the dimensional relationship of the attachable tread stud and the part of the heel to which it is attached.

In these figures, A represents the shoe heel, which by preference is made of rubber, of the degree of stiffness and resiliency usual in the commercial rubber shoe-heel. B and B′ are attachable treads, projecting below the bottom of the heel body A, and are made of elastic, yielding material, which practically means rubber. To obtain the best results, the treads B or B′ should be of softer material than that of which the heel body A is composed, so as to be more readily distorted, more yielding under pressure, but nevertheless resilient so as to restore itself to normal shape when pressure is removed. It is important, also, to have the heel-body A also yielding and resilient, but not so soft and yielding as the tread B or B′.

The treads, B and B′ are integrally united, by means of shanks C, with heads D, so that the head, shank and tread form a relatively soft rubber stud or button. The body A of the shoe heel is molded so as to provide apertures and anchorages for the tread B, shank C and head D. These are, respectively, the shallow recess I in the bottom or tread side of the heel, the aperture G and the cavity E. The aperture G is formed in the web F.

Since the tread-studs are to be renewable, securement thereof to the heel-body by means of cement is undesirable. But in order to adapt such tread-studs to the exigencies of normal use, they should be held tightly in place.

In order to fasten the tread-studs, which comprise the treads B, securely, the several members which enter into fastening relation are proportioned as indicated in Fig. 4. The height c' of the shank C when the shank is not stretched, is less than the thickness f of the web F. Preferably also, the diameter c of the shank C when the shank is not stretched, should be greater than the diameter g of the aperture G, so that, when the shank C is stretched so that its length equals the dimension f, its diameter will be about equal to the dimension g.

The treads B and B′ are put in place by forcing the heads D through the apertures G, so that the shanks C, being stretched, will hold the treads B close to the body A of the heel. The treads B and B′ which fit into the undercut recesses I will not become loose under the conditions of wear. The superior softness of the treads, as contrasted with the body of the heel, make a very agreeable tread to walk on, the yielding of the treads under pressure prevents them from tearing either at the wearing surface or elsewhere, the tension of the stretched shanks keeps the tread close to the heel, excluding water and dirt and preventing undue distortion of the tread-studs, the yielding character of the heel body A, though inferior in degree to that of the treads B, shanks C and heads D, nevertheless, by yielding proportionately, saves the softer rubber and prolongs its life.

The tread B′, which bridges across between two studs and heads, and the apertures provided for them, is a desirable modification of the tread-structure, particularly for use at the rear of a shoe heel. Taken together, the tread, shank and head constitute what I term a tread-stud.

What I claim and desire to secure by Letters Patent is:—

1. In a shoe heel, the combination of a tread-stud comprising a tread, shank and head of elastic material, and a heel-body of elastic material, said body provided with an

aperture for the shank of the tread-stud and a cavity to receive the head of the stud the length of the aperture being such that when the tread-stud is in place the shank thereof is stretched to strain the tread against the surface of the heel-body.

2. In a shoe heel, the combination of a tread-stud comprising a tread, shank and head of elastic material, and a heel-body of elastic material less yielding to distortive forces than the material of the tread-stud, said body provided with an aperture for the shank of the tread-stud and a cavity to receive the head of the stud, the length of the aperture being such that when the tread-stud is in place the shank thereof is stretched to strain the tread against the surface of the heel body.

Signed by me at Portsmouth, New Hampshire, this 14th day of December, 1916.

ELIAS J. EMERY.

Witnesses:

ALBERT R. HATCH,

NELLIE A. FALVEY.