No. 738,639. PATENTED SEPT. 8, 1903.

A. A. SPADONE.

CUSHION TREAD HORSESHOE.

APPLICATION FILED APR. 14, 1903.

NO MODEL.

Fig. 1.

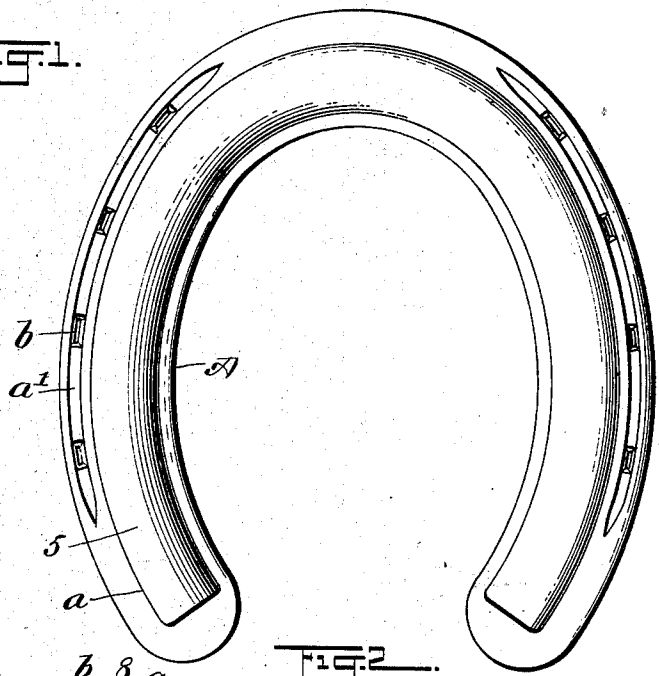


Fig. 2.

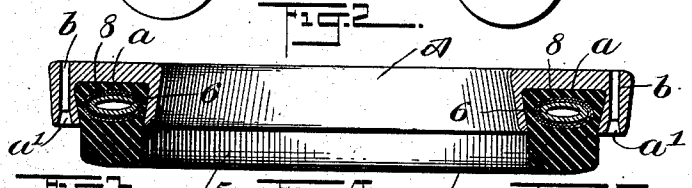


Fig. 3.

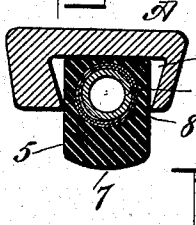


Fig. 4.

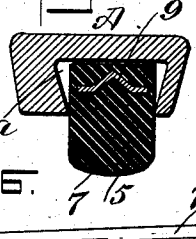


Fig. 5.

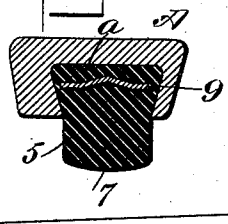


Fig. 6.

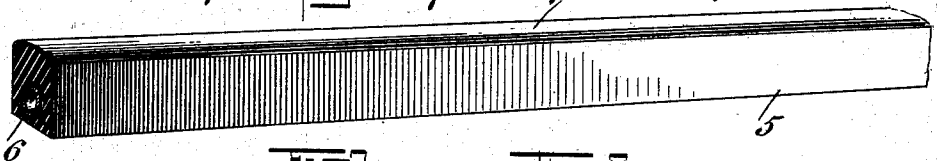


Fig. 7.

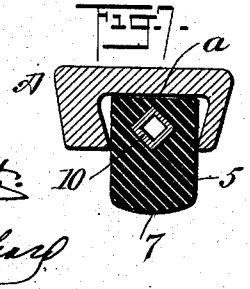
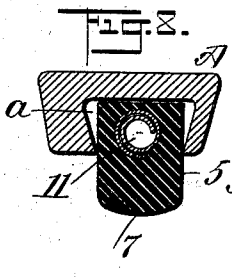


Fig. 8.



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No. 738,639. Patented September 8, 1903.

UNITED STATES PATENT OFFICE.

ALFRED A. SPADONE, OF NEW YORK, N. Y.

CUSHION-TREAD HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 738,639, dated September 8, 1903.

Application filed April 14, 1903. Serial No. 152,543. (No model.)

To all whom it may concern:

Be it known that I, ALFRED A. SPADONE, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Cushion-Tread Horseshoe, of which the following is a full, clear, and exact description.

My invention relates to a cushion-tread for horseshoes; and the object that I have in view is to produce a cushion or elastic tread adapted to hold itself securely in place within the channel of a horseshoe without the employment of external fasteners, whereby a worn tread may be easily replaced by a new fresh tread while the shoe remains attached to the hoof.

Broadly speaking, the invention consists of a cushion-tread having a body or length of rubber or other cushion material and a key or anchor embedded in the body or length, said key or anchor being of any desired cross-sectional shape and made of suitable material, which allows the key or anchor under the application of pressure to expand, spread, or flatten in a way to make the body or length of cushion material hold itself frictionally within the channel of a shoe.

The invention further consists in the novel construction and combination of parts to be hereinafter described, and the actual scope of the invention will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an inverted or bottom plan view of an ordinary channeled horseshoe with my improved cushion-tread applied thereto. Fig. 2 is a cross-section illustrating the means for fastening the cushion-tread frictionally within the channel of a shoe. Fig. 3 is a cross-section through a portion of the shoe, showing my improved tread fitted in the channel thereof before the key or anchor member is flattened or expanded for holding said tread in the shoe-channel. Fig. 4 is a cross-section similar to Fig. 3, showing another form of a spreadable key or anchor. Fig. 5 is a transverse section showing the key or anchor of Fig. 4 in a spread or flattened condition to fasten the tread in the shoe. Fig. 6 is a detail perspective view of a length or strip of cushion-tread constructed in accordance with this invention. Figs. 7 and 8 are cross-sections through other forms of cushion-treads fitted to an ordinary channeled shoe.

In order that others skilled in the art may understand my invention, I have shown the improved cushion-tread applied to an ordinary horseshoe A, the latter being provided in its under side with a tread-receiving channel a in addition to usual nail-channels a' and the nail-holes b. The channels a of the shoe may have inclined sides to make the channel dovetailed in cross-section, as represented by Figs. 2, 3, 4, 5, 7, and 8; but the particular shape of the channel is not material, because my improved tread is held so firmly in the shoe that it is possible to employ a shoe the walls of the channel of which are parallel, although any desired cross-sectional shape of the channel may be embodied in the construction of the shoe.

The invention consists of a cushion or elastic tread 5, having a spreadable key or anchor 6 embedded therein. The tread 5 is preferably made of rubber, although any other equivalent material may be employed. This tread is shown as having parallel sides and a flat bottom; but I prefer to curve the outer exposed wearing-face of the tread, as indicated at 7, said wearing-face being convex in cross-section, the special utility of which will hereinafter appear.

The key or anchor may be embodied in many different shapes, some of which are shown by Figs. 3, 4, 7, and 8. In the construction shown by Fig. 3 this key or anchor is in the form of a tube which is circular in cross-section, said tube being made of soft metal, although any other material or combination of materials may be used. As an example of one kind of material which I employ the anchor or key 6 is made of soft lead; but it will be understood that any other substance which will spread or flatten under pressure may be embedded in the cushion-tread. The key or anchor 6 in the tubular form shown by Fig. 3 is arranged in the tread at one side of the longitudinal axis thereof, thus bringing the key nearer to the flat face of the tread than

to the convex face 7 thereof. The key may extend continuously throughout the length of the tread, and by making this key of soft metal it is adapted to bend with the tread and conform to the curvature thereof in fitting said tread in the channel of the shoe. The tread, with the key embedded therein, may be made in lengths corresponding to the length of the shoe throughout the channel thereof; but this is an immaterial feature, because the tread and the key may be made in a long strip or length, substantially as shown by Fig. 6, said cushion-tread being adapted to be cut into shorter lengths to fit different sizes of shoes.

In the practical manufacture of the improved tread it is found that soft metal will not adhere readily to rubber, and when the tread is forced into the channel of the shoe the rubber or equivalent material is adapted to spread and separate itself from the surface of the metallic key or anchor. To overcome this objection, I prefer to employ a layer of fabric or equivalent material between the metallic anchor or key and the rubber tread. This layer of fabric is represented at 8 in Fig. 3, and it is shown as being coiled or wrapped around the metallic key or anchor.

In making the improved tread an anchor or key of proper size is first selected and wrapped or inclosed within the fabric covering or jacket 8, after which the rubber or other composition is applied to the key and its jacket, the tread is shaped in a suitable mold, die, or other apparatus, and the product is vulcanized, thus securing the adherence of the rubber to the fabric and preventing the parts from separating when sufficient pressure is applied to the tread for expanding or flattening the key or anchor in a way to make the tread engage frictionally with the walls of the channeled shoe.

Assuming that it is desired to fit a tread of the form shown by Fig. 3 in a shoe, a proper length of the tread is selected, or this length may be cut from a continuous piece of the tread. The flat face of the tread is now introduced into the channel of the shoe, substantially as shown by Fig. 3, and pressure is applied to the convex face 7 of the tread for the purpose of expanding or flattening the soft-metal key or anchor. This pressure may be applied to the shoe in any suitable way—as, for example, by striking the convex face of the tread with a hammer—and the pressure is sufficient to flatten the key and make it assume the expanded position shown by Fig. 2, whereby the inner portion of the tread is expanded into close frictional engagement with the walls of the channel *a* in the shoe A.

The key or anchor extends, preferably, throughout the length of the cushion-tread; but this is not material, because said key or anchor may be made in sections which are embedded in the tread, so as to leave intervening portions of the rubber tread between the terminals of the soft-metal anchor.

In Fig. 4 of the drawings I have shown another form of the key or anchor at 9. This anchor consists of a metallic plate having an offset portion in the form of an inverted V. Said key or anchor is embedded in the rubber tread at one side of the center thereof, may extend continuously throughout the length of the tread, and it may be inclosed within a fabric jacket similar to the jacket 8 in Fig. 3. The method of applying the tread shown by Fig. 4 to the channel of the shoe is similar to that described in connection with the anchor 6 of the construction in Fig. 3—that is to say, the portion of the tread having the anchor is fitted in the shoe-channel and pressure is applied to the tread in a direction to flatten or spread the anchor, whereby the inner portion of the tread is expanded to have frictional engagement with the walls of the channel, as shown by Fig. 5.

As before stated, the cross-sectional shape of the key or anchor is not material, and in Fig. 7 the key is shown in the form of a hollow strip which is square in cross-section, as at 10, while in Fig. 8 the key is formed by coiling a length of metal upon itself in the form of a spiral 11. It will be understood that the key shown by Figs. 7 and 8 may extend continuously throughout the length of the tread and that these keys may be enveloped by a fabric jacket similar to the jacket 8 in Fig. 3. When pressure is applied to the outer face of the elastic tread and the inner portion of said tread is expanded, the body of the tread is drawn inwardly. If the tread before its application to the shoe is provided with a flat outer face, the pressure and expansion will cause this outer face to sink; but this objection is overcome by making the exposed face convex in cross-section at 7, said convex face of the tread assuming a flattened condition when the inner portion of the tread is expanded and the outer face thereof is exposed to pressure.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A cushion-tread having an embedded key or anchor of a cross-sectional shape adapted to spread or expand under the application of pressure.

2. A cushion-tread having a spreadable key or anchor embedded therein and adapted to expand said tread into frictional engagement with a channeled shoe.

3. A cushion-tread for horseshoes, having an expansible key or anchor embedded therein at one side of the axis of said tread.

4. A cushion-tread comprising a body of yieldable material and an embedded key or anchor of a cross-sectional shape adapted to spread or expand under pressure, said key or anchor being made of a material having greater resistance than the body of yieldable material.

5. The combination with a channeled shoe, of a cushion-tread, and a key or anchor em-

bedded in said tread and expanded or spread to force the surfaces of the tread into frictional engagement with the walls of the channeled shoe.

6. The combination with a channeled shoe, of a cushion-tread having a spreadable key embedded therein, said key being expanded by the application of pressure to force the tread into frictional engagement with the shoe.

7. A cushion-tread having an embedded spreadable anchor or key, said key or anchor being enveloped by a jacket to which adheres the material of said tread.

8. A cushion-tread having a soft-metal anchor or key embedded therein, said anchor or key being enveloped by a jacket which is adapted to spread with said anchor.

9. A cushion-tread consisting of a body of yieldable material having a curved wearing-face, and a spreadable anchor or key embedded in said body.

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

ALFRED A. SPADONE.

Witnesses:
FRANK O'MALLEY,
FLORENCE A. SULLIVAN.