No. 630,204. Patented Aug. 1, 1899.

E. B. EVANS.

SOFT TREAD HORSESHOE.

(Application filed Mar. 18, 1899.)

(No Model.)

Fig. I.

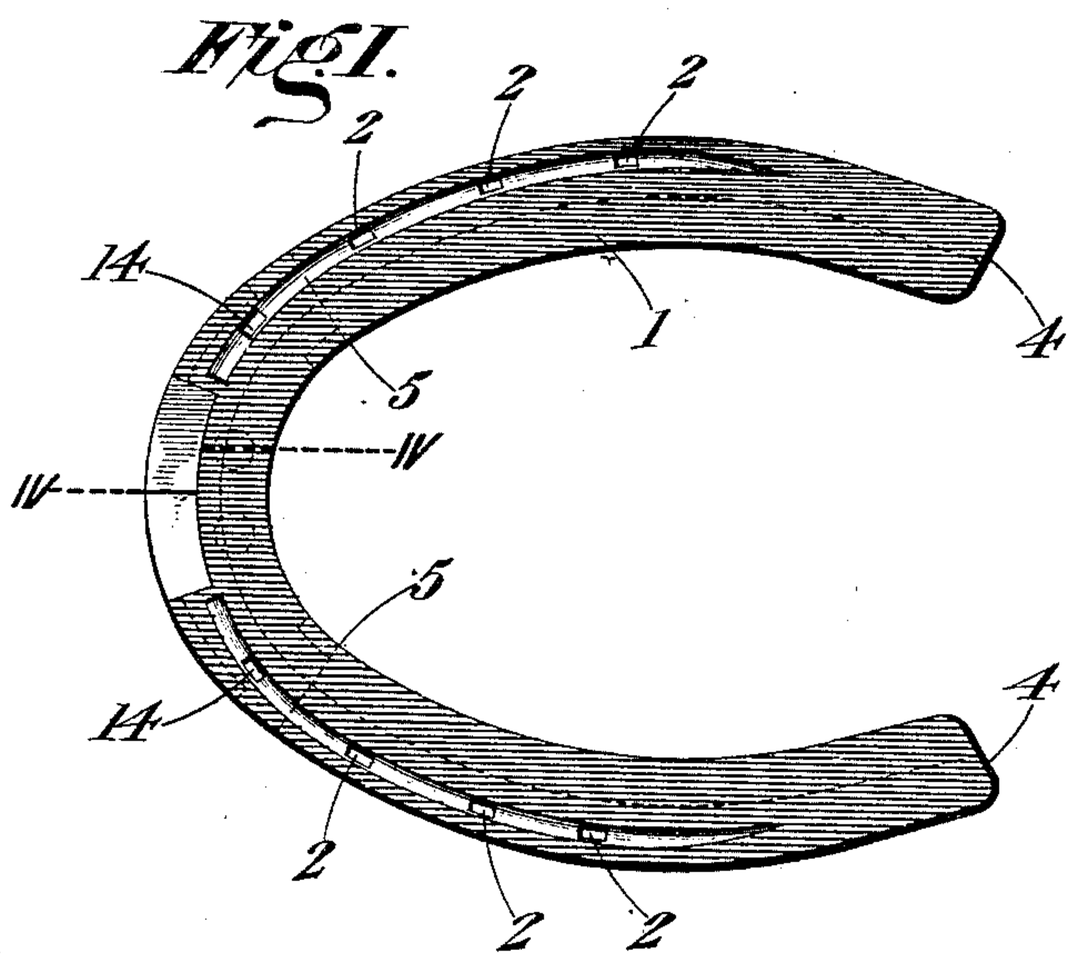

Fig. II.

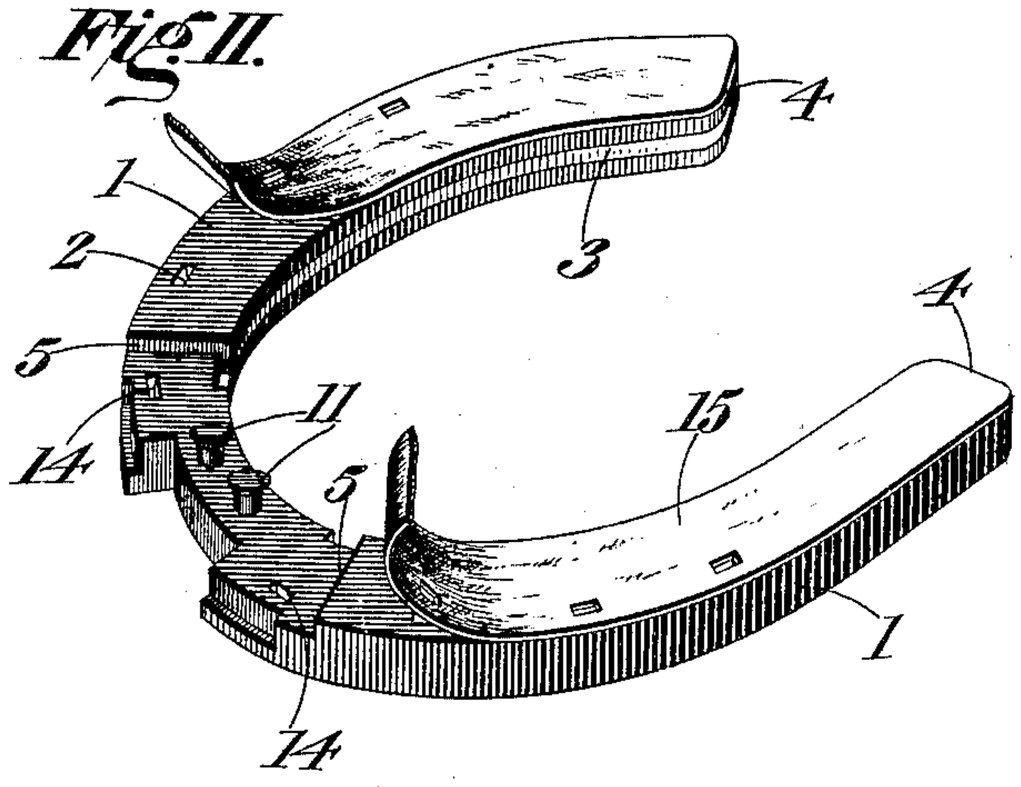

Fig. III.

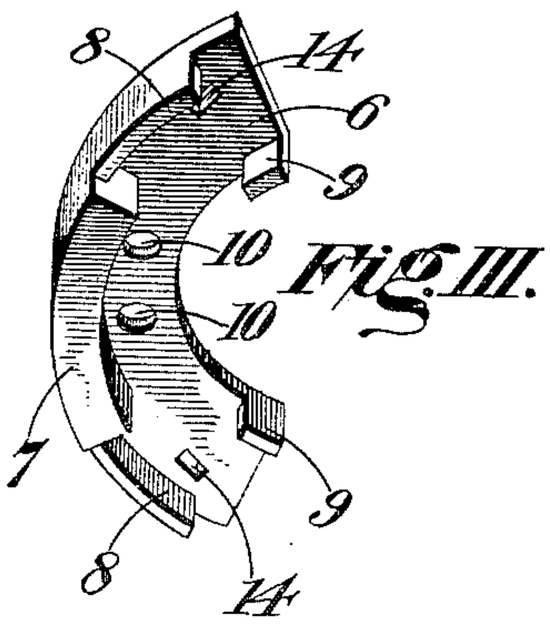

Fig. IV.

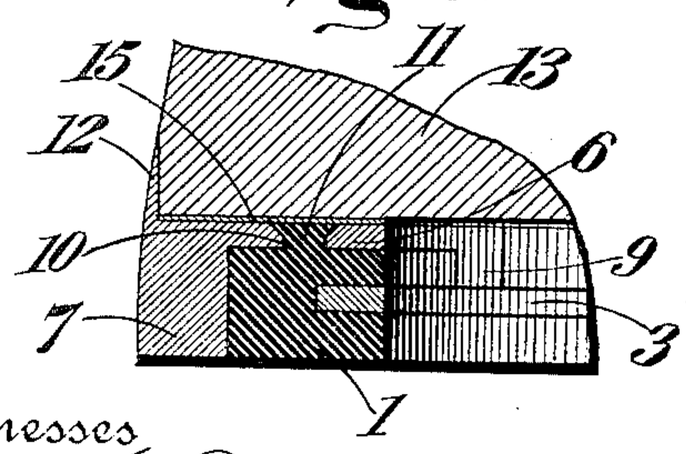

Fig. V.

Witnesses
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UNITED STATES PATENT OFFICE.

ENOCH B. EVANS, OF WASHINGTON, DISTRICT OF COLUMBIA.

SOFT-TREAD HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 630,204, dated August 1, 1899.

Application filed March 18, 1899. Serial No. 709,644. (No model.)

To all whom it may concern:

Be it known that I, ENOCH B. EVANS, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Horseshoes, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce a composite horseshoe—that is, one composed of metal and a softer material, preferably india-rubber—which, on account of its peculiar structure, combines the elasticity of a rubber shoe with the durability of a metal shoe.

In the accompanying drawings, Figure I is a bottom plan view of my shoe complete. Fig. II is a perspective view of the same, looking at it from the upper side, the toe-piece being removed and the pad severed and partially bent back from the surface, which in use it is designed to cover. Fig. III is a perspective view of the toe-piece detached. Fig. IV is a fragmentary view of the shoe, illustrating a section taken on the line IV IV of Fig. I and showing the shoe as applied to a hoof. Fig. V is a detail sectional view through a series of nail-holes, illustrating, incidentally, a preferred form of nail for securing the shoe to the hoof.

Referring to the numerals on the drawings, 1 indicates the main body part of my shoe. It is made of india-rubber or similar suitable material and is in general contour conformable to the shape of the bottom of a horse's hoof. It is pierced at required intervals with nail-holes 2 and is preferably strengthened and supported by a spring-metal plate 3, embedded within it. The plate is preferably embedded into the body part 1 from the inner face thereof and does not extend to the series of nail-holes near the outer edge thereof. By this arrangement while the plate 3 serves to hold the heels 4 in proper alinement it does not deprive the shoe of the elasticity afforded by the use of rubber in its construction.

The toe portion of the shoe or that portion lying between the planes 5 5 is occupied by a metallic toe-piece. That member, which is clearly illustrated in Fig. III, consists, essentially, of a segmental base-plate 6, provided with a segmental flange or calk 7.

The term "calk" as applied to the member 7 appears to be appropriate; but it should be observed in this connection that the calk 7 preferably does not extend beyond the surface of the body part 1 of the shoe, but terminates flush therewith, as clearly illustrated in Fig. IV.

In addition to the essential elements of the toe-piece—to wit, the base 6 and flange 7—I prefer to provide extension-flanges 8 upon the front of the base, constituting, in effect, wings extending from the flange 7. The extensions 8 are designed to afford support to the body part 1, but being narrower than the flange 7 are covered by the material of which the body part is composed. I also prefer to provide upon the inner side of the base 6, and preferably at opposite ends thereof, lugs 9, the same being, essentially, flanges of limited dimensions, by which means the toe-piece is securely incorporated with and firmly secured to the body part 1. This is an important feature, inasmuch as it is well understood in the art that the severest strain on a shoe occurs against the toe. Consequently in a shoe of the class to which mine belongs, unless suitable provision be made for the support of the toe-piece and the incorporation of it with the body part of the shoe, the toe-piece will under strain either tilt and disengage itself to a greater or less degree from the body part or will crush the hoof or outer shell thereof against which it is applied. It is with these considerations in view that the special form of my toe-piece is adopted. The segmental base 6 affords a firm foundation for the toe-piece against the hoof, thereby obviating the tendency which would otherwise be presented to crush the hoof, while the employment of flanges 7 and 8, in conjunction with the lugs 9, affords a firm grip of the toe-piece upon the body part 1.

In addition to the means already described for securing the toe-piece to the body part I provide one or more apertures 10 in the base 6, into which the material of the body part 1 is molded, thereby producing, in effect, headed dowel-pins 11, (see Fig. II,) that are formed integrally with the material of the body part 1. Moreover, the upper outer wall of the flange 7 may be extended in the form of a thin plate or shield 12 in front of the hoof 13. (See Fig. IV.) The plate 12, however, may or may not be used, as preferred.

The plate 3 is preferably not united to the toe-piece except through the mediation of the body part 1, but overlies the base 6 and confines it underneath the intermediate portion of the body part 1, which, as was specified, is provided with nail-holes 2, piercing the body part 1 beyond the edge of the plate 3. The toe-piece and the underlying portion of the body part 1 are provided, preferably, with nail-holes 14, which are preferably located, respectively, near the opposite extremities of the base 6.

It has been discovered in practice that the employment of a rubber shoe in contact with a hoof tends to heat the latter. I therefore prefer to provide upon the upper surface of the shoe and entirely covering that portion of it which in use makes contact with the hoof with a non-conductive pad 15. Said pad may consist of felt or heavy fabric. It may be secured to the finished shoe by the use of suitable adhesive material or may be applied to the rubber during the molding operation and before it is hardened, and thereby be effectually incorporated with it.

I prefer to employ T-headed nails 16 for securing the shoe to the hoof 13, as illustrated in Fig. V; but that is merely a practical detail that forms no part of my invention proper.

I am aware that a composite shoe consisting of an india-rubber body part combined with metallic calks is not new, the same being shown, for example, in United States Letters Patent No. 314,583, issued March 31, 1885, to one John Johnson. I do not therefore claim to have produced an invention within the scope above defined; but

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

1. A composite horseshoe, consisting of a body part of india-rubber or the like, and a toe-piece comprising an underlying segmental base, a calk projecting from the forward edge thereof, and flange extensions on the base extending from opposite ends of the calk, substantially as set forth.

2. A composite horseshoe, consisting of a body part of india-rubber or the like, and a toe-piece comprising an underlying segmental base, a calk projecting from the forward edge thereof, and flanged extensions on the base narrower than the calk and extending from opposite extremities thereof, substantially as set forth.

3. A composite horseshoe, consisting of a body part of india-rubber or the like, and a toe-piece comprising an underlying segmental base extending across the body part, a front flange projecting from the base, and independent lugs projecting from the base near its inner extremities and extending partially across the vertical wall of the body part, substantially as set forth.

4. A composite horseshoe, consisting of a body part of india-rubber or the like, and a toe-piece comprising an underlying base, a front flange projecting therefrom, a spring-plate embedded in the body part from its inner side, and lugs projecting from the rear side of the base and extending to the plate, substantially as set forth.

5. A composite horseshoe consisting of a body part of india-rubber or the like, provided with series of nail-holes, of a spring-metal plate embedded within the body part and extending from the inner surface partially across the same, whereby the nail-holes are formed exclusively in the soft material of the body part, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

ENOCH B. EVANS.

Witnesses:
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