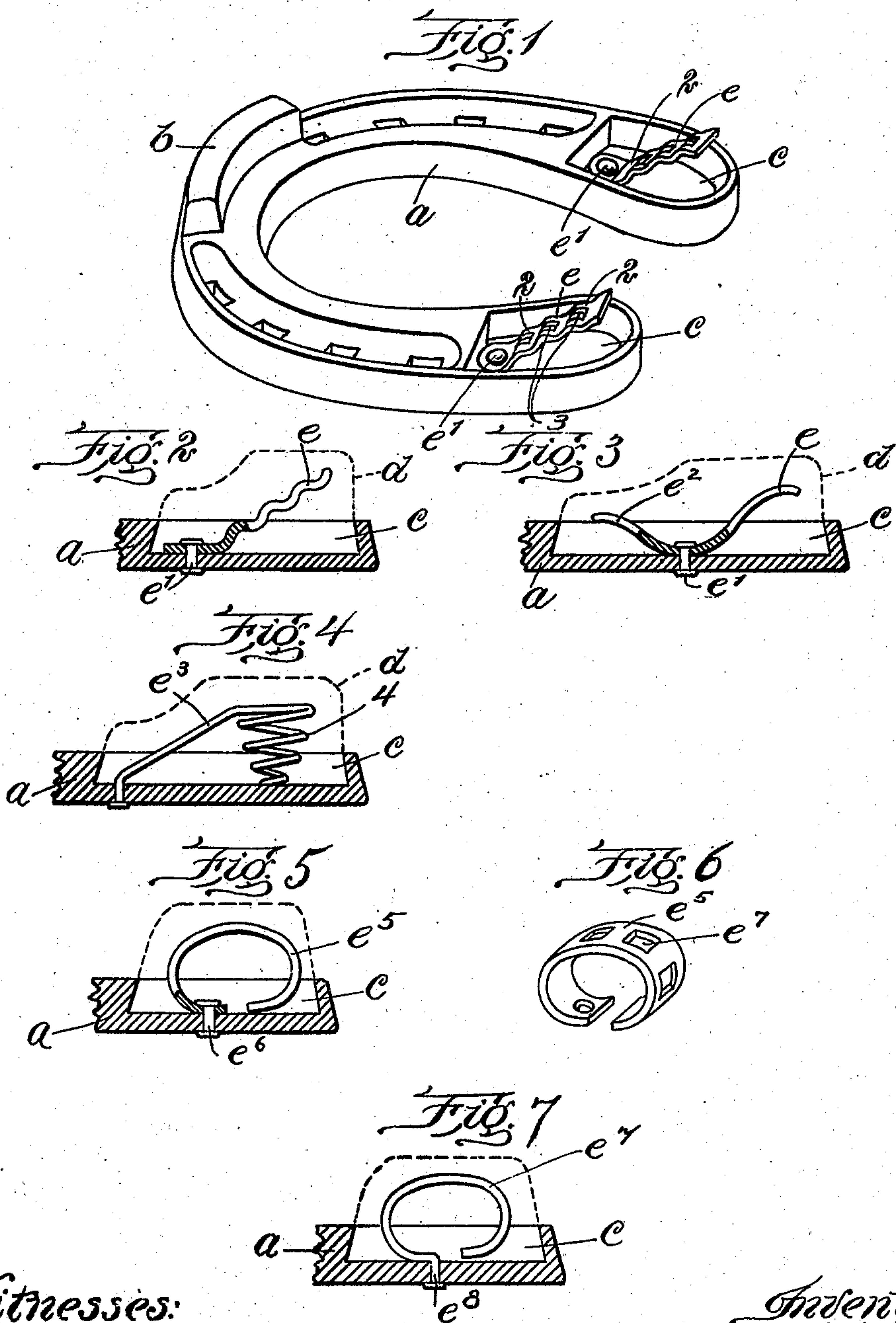


No. 854,852.

PATENTED MAY 28, 1907.

W. R. SMITH.
CUSHIONED HORSESHOE.
APPLICATION FILED MAY 5, 1906.



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UNITED STATES PATENT OFFICE.

WILLIAM R. SMITH, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
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CUSHIONED HORSESHOE.

No. 854,852.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed May 5, 1906. Serial No. 315,342.

To all whom it may concern:

Be it known that I, WILLIAM R. SMITH, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Cushioned Horse-shoes, of which the following is a specification.

This invention relates to horse-shoes having, at the heel portions, elastic treads adapted to give the heel of the shoe an elastic or resilient quality and diminish the shocks or jars resulting from contact with hard pavements.

The invention relates particularly to horse-shoes of this class in which the elastic cushions are composed in part of rubber or other compressible, as well as elastic, material, and in part of an incompressible resilient metal in the form of a spring embedded in the compressible portion and serving to reinforce the latter and increase its durability and life.

The invention has for its object to provide certain improvements relating to the construction application and removal of the reinforcing metal springs, and it consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—Figure 1 represents a perspective view of a horse-shoe embodying my invention, the compressible rubber cushions being removed. Fig. 2 represents a longitudinal section through one of the end portions of the shoe, the compressible portion of one of the cushions being shown by dotted lines. Figs. 3, 4, 5, 6, and 7 represent views of modifications.

The same letters of reference indicate the same parts in all the figures.

In the drawings *a* represents the body portion of a horse-shoe, the same having a suitable toe calk *b*, which is or may be integral with the body of the shoe. The end portions of the shoe are provided with cavities *c c*, the walls of which are preferably dove-tailed to interlock the base portion of a compressible rubber cushion or cushion member *d*, indicated by dotted lines in Fig. 2. To the bottom of the cavity *c* is affixed a metallic spring *e*. The spring is inclined outwardly from the attaching member which secures it to the cavity, the arrangement being such that while the spring is securely held in position in the cavity, its outer portion is free to

move toward and from the bottom of the cavity and conform to the movements of compression and expansion of the rubber cushion *d*.

In the construction, shown in Figs. 1, 2 and 3, the attaching member is a rivet *e'*, the spring being a strip of tempered steel, which is provided with transverse corrugations 2 2 and with perforations 3 3. The said corrugations and perforations provide an extended area of contacting surface between the rubber and the metal portions, while the perforations permit a union between the rubber at the outer and inner sides of the spring. After the spring has been applied to the shoe, the rubber cushion *d* is applied in an unvulcanized condition, the rubber completely enveloping the spring. The rubber is then vulcanized and the cushion thus made permanent.

In Fig. 3 I show the spring *e* provided with an extension *e''*, which is also embedded in the rubber portion of the cushion.

In Fig. 4 I show the spring as composed of a piece of resilient wire *e'''*, one end of which is inserted in an orifice *f* in the body of the shoe. The body of the spring is inclined outwardly from the orifice *f* and constitutes an equivalent of the spring *e*, shown in Figs. 1 and 2, the said spring being extended in the form of a helical coil 4, resting on the bottom of the shoe.

In Figs. 5 and 6 I show the spring as composed of a C-shaped metal strip *e⁵*, one end of which is attached by a rivet *e⁶* to the shoe, the other end resting loosely upon the bottom of the cavity *c*, so that it may slip or move toward and from the rivet *e⁶* as required by the movements of compression and expansion of the rubber cushion. The spring *e⁵* is provided with perforations *e⁷* to permit the secure anchorage of the spring in the rubber.

In Fig. 8 I show a spring *e⁷* of substantially the same form as that shown in Figs. 6 and 7, one end portion of the spring being bent to form a shank *e⁸*, which is inserted in an orifice formed for its reception in the body of the shoe.

It will be seen that in all cases the metal spring is provided with an inclined portion extending outwardly from the attaching member, and so arranged as to be free to move toward and from the bottom of the

recess containing the rubber portion of the cushion. This arrangement of the metallic spring insures the maximum utilization of its resilience as an adjunct to the rubber portion of the cushion.

I have found that in practice the metal spring, arranged as shown in the several figures of the drawing, increases both the resilience and the durability of the cushion.

It will be seen that in each embodiment of my invention above described, an attaching device is employed which extends through the bottom of the cavity, and has a head bearing on the hoof-bearing face of the shoe.

The said head is, therefore, adapted to be removed by a cold chisel, and when removed the spring and cushion may be readily removed from the shoe and new parts substituted therefor.

I claim:—

1. The combination with a horseshoe having a cavity in its under side, of an elastic

calk, a metallic spring core for said calk, and means for rigidly attaching said spring core to the bottom wall of said cavity, said spring being inclined, the inclination thereof starting immediately at the point of attachment and extending upwardly and away from said point of attachment, said spring being free to move with relation to said bottom wall except at such point of attachment.

2. A horse-shoe having a cavity in its under side, a metal spring attached to the bottom of said cavity and inclined outwardly therefrom, said spring having orifices, and a compressible cushion engaged with the walls of the cavity and enveloping the spring, the said spring being corrugated.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM R. SMITH.

Witnesses:

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