To all whom it may concern:

Be it known that I, Orion E. Dyson, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Horseshoes, of which the following is a specification.

This invention relates to horseshoes, and has for its object to provide a construction whereby slipping will be prevented, while at the same time the evils resulting from the jar-ring contact of the shoe with the roadway may be avoided.

To these ends my invention consists in certain novel features which I will now proceed to describe and which will then particularly point out in the claims.

In the accompanying drawings, I have illustrated and preferred embodiment of the invention, Figure 1 is a plan view of the under side of a horseshoe embodying my invention. Fig. 2 is a detail sectional view taken on the line 22 of Fig. 1, and Fig. 3 is a detail sectional view taken on the line 33 of Fig. 1.

In the said drawings, 1 indicates the body of the shoe, which is constructed of metal in the usual manner and which is thickened on the under side at each heel portion and recessed at the thickened portion, as indicated at 2, thus forming a socket surrounded by the downwardly-extending flange 3. The front portion of the flange, which extends transversely of the shoe, is preferably straight. The lateral portions, which follow the margins of the shoe, are curved to correspond to the curvature of the shoe, while the rear portion of the flange is preferably rounded, as shown. This rear portion is undercut, as indicated at 4, and the extreme end of the heel of the shoe is beveled in a corresponding manner, as indicated at 5. The front wall of the recess 2 is inclined in the same direction as the undercut rear wall 4, this inclination being shown at 6 in Fig. 2 of the drawings.

Within each of the recesses or sockets 2 there are located two pins or studs 7, which extend! some little distance downward from the horizontal wall of the recess, as indicated in Fig. 2. These studs may be either separate pieces secured in position in any suitable manner or they may be formed integral with the shoe, as desired. In conjunction with these studs I employ tread portions in the form of rubber pads or cushions 8, which are provided with coils 9, of spring-wire, adapted to fit and grip the studs 7. In my preferred construction the two coils are made of a single piece of wire connected by an intermediate portion 10, and the winding of the two coils is reverse. I prefer to embed these coils in the rubber cushion previous to the vulcanization of this latter, so that said coils become firmly connected with the rubber cushion and are practically integral therewith. The distance between the coils is of course such as to cause them to properly fit over the studs 7. The heel-cushions 8 are shaped to conform to the shape of the recesses or sockets 2 in which they fit, the rear end of each cushion being beveled or inclined, as shown at 11, to fit underneath the undercut portion 4 of the retaining-flange, while the front portion of the cushion is undercut, as indicated at 12, to fit the beveled or inclined portion 6 of the wall of the recess or socket. The front end of each rear cushion below the beveled portion 12 is rounded off, as indicated at 13. I also may provide the shoe with a toe-cushion 14, also constructed of rubber and held in a channel 15, between the ordinary metallic toecalk 16 of the shoe and a rear flange 17, the inner face of the flange and the upper portion of the calk being beveled, as shown, and the cushion 14 being correspondingly beveled to fit in the channel 15 thus formed. This channel is provided with two studs 7 in the manner already described, while the cushion-tread portion 14 is provided with coils 9, connected by a cross-piece 10, identical with those employed in the heel-cushion.

It will be seen that the elastic pads form a cushion for the foot of the horse, which avoids to a great extent the evils arising from the jar-ring and concussion of the ordinary metal shoe on the roadway. It will also be observed that the frictional adhesion of the rubber will almost entirely prevent any slipping of the animal upon the surface of the roadway. The pads or cushions may be readily applied by forcing the studs or pins 7 into the hollow interiors of the coils 9, which latter will yield to receive the studs and will grip them so tightly as to prevent accidental withdrawal or displacement of the cushions. The free ends of the studs are preferably somewhat reduced or tapered in order to facilitate their introduction into the interior of the coils. Owing to the fact that the coils are connected by the intermediate piece 10, they are certain
to be located at the proper distance apart, while the said intermediate portion strengthens the structure and removes a portion of the strain upon the rubber of the pad or cushion. The coiling of the two coils in opposite directions and the connecting of them by the intermediate piece serve to more firmly retain the pad in place on the pins, for the reason that any lifting or lifting of one end of the pad will serve to tighten the coil at the other end around its pin through the medium of the connecting-piece. The pads are further held in place by the surrounding flanges, which tend to prevent lateral displacement of the pads, and in the case of the heel-pads longitudinal displacement, which is liable to arise from the nature of the strains to which these pads are subjected, is also prevented by the flanges. These heel-pads are additionally held in place by means of the undercut flanges, while the beveling or slanting of the rear portion of the pad and shoe at these points serves to prevent excessive wear of the pad and brings the metal of the shoe into contact with the metal of the shoe where each end of the shoe is tilted upward much earlier than would be the case if the rear ends of the shoe and pad were vertical. The rounding of the front portions of the heel-pads permits them to engage the ground with less longitudinal strain upon the pads than if these front ends were vertical or angular. While the pads are firmly held in position by the grip of the coils upon the pins under the conditions of use, said pads may be readily removed by inserting under them a suitable implement and prying them outward from their sockets. This arises from the fact that pressure applied to the coils at the end nearest the shoe tends to release their grip upon the pins, while any pulling strain, such as arises from contact with the ground, tends to tighten their grip.

The construction set forth may obviously be modified without departing from the principles of my invention. For example, the toe-pad may be omitted if such omission is deemed desirable. The number of pins or studs and of cooperating coils may obviously be increased or diminished and the connecting-pieces may be omitted. I have herein specified rubber as being the preferred material of which the cushions are formed; but other material may be used without departing from the spirit of the invention. While the beveling of the heel of the shoe and the particular shape given to the projecting portions of the heel-pads are preferred by me for the reasons already given, they form no part of my present invention and may therefore be modified or dispensed with. Other modifications will readily suggest themselves, and I therefore do not wish to be understood as limiting myself to the precise details of construction hereinbefore set forth, and shown in the accompanying drawings.

I claim—

1. The combination, with a horseshoe having a projecting stud, of a pad or cushion of rubber or other elastic material, and a coil of spring-wire embedded in the pad or cushion and adapted to receive and grip the stud, substantially as described.

2. The combination, with a horseshoe having a seat or recess and a stud or pin projecting into the same, of a pad or cushion of rubber or other elastic material adapted to fit said recess, and a coil of wire embedded in said pad and adapted to receive and grip said stud, substantially as described.

3. The combination, with a horseshoe having a pair of studs projecting therefrom, of a pad or cushion of rubber or the like, and a wire bent to form two coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

4. The combination, with a horseshoe having two projecting studs, of a pad of rubber or the like, and a wire bent to form two oppositely twisted coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

5. The combination, with a horseshoe having a socket or recess and studs projecting into the same, of a pad or cushion of rubber or the like adapted to fit said socket or recess, and a wire bent to form two oppositely twisted coils and an intermediate connecting portion and embedded in the pad or cushion, said coils being adapted to receive and grip the studs, substantially as described.

6. The combination with a horseshoe, of a cushion-tread portion, and a coiled wire uniting the cushion-tread portion with the body of the shoe, substantially as described.

7. The combination with a horseshoe, of a cushion-tread portion and united coils of wire for joining the tread portion with the body of the shoe, substantially as described.

8. The combination with a horseshoe, of a cushion-tread portion thereon, and united coils of wire oppositely twisted for joining that portion with the body of the shoe, substantially as described.

9. The combination with a horseshoe, of studs 7, 7, extending from the body thereof, a tread-cushion having a connection 10 embedded therein and adapted for engagement with the said studs, the said studs being surrounded by the cushion, substantially as described.

10. The combination with a horseshoe, of a stud projecting from the body thereof, a tread-cushion surrounding the stud, and a fastening device 10 contained within the cushion and engaging the said stud to secure the cushion in place, substantially as described.

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Witnesses:
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