C. E. PEARL.

HORSESHOE PAD.

APPLICATION FILED AUG. 2, 1910.

997,323. Patented July 11, 1911.

Fig. 1.

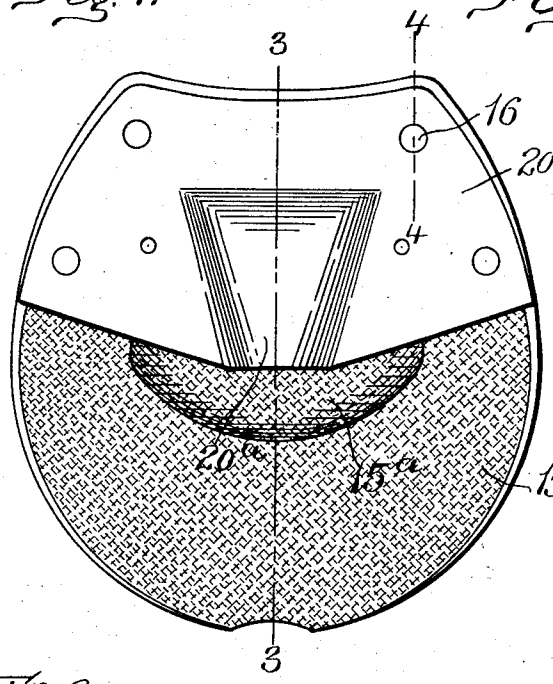


Fig. 3.

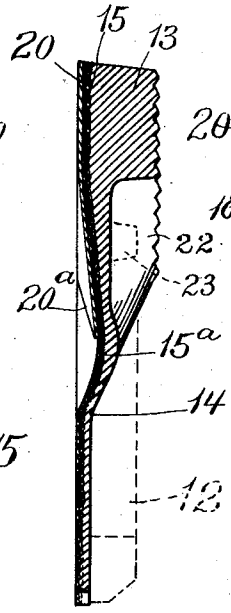


Fig. 4.

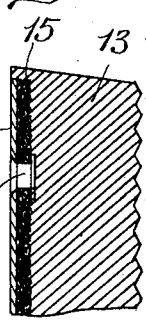


Fig. 2.

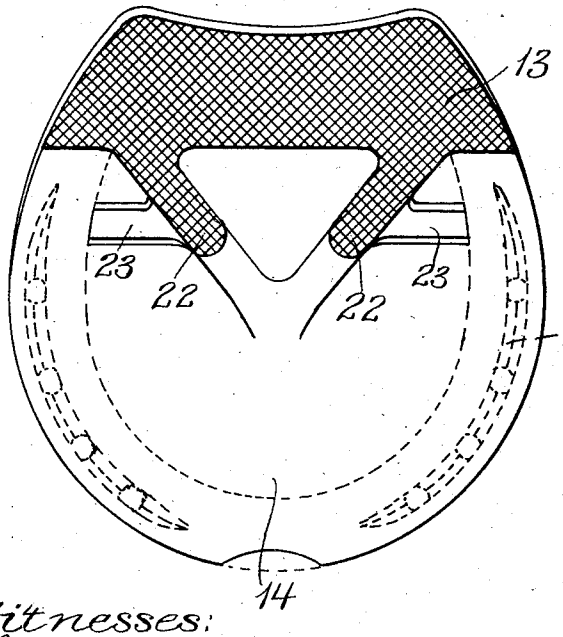
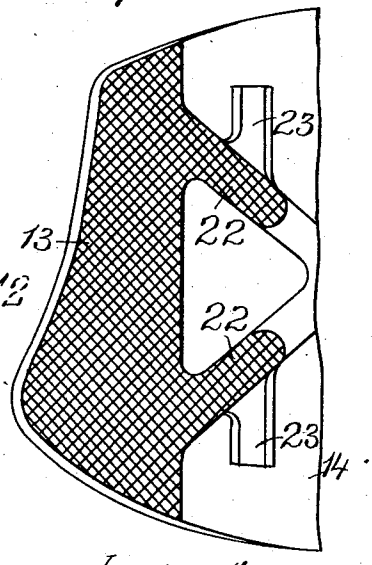


Fig. 5.



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UNITED STATES PATENT OFFICE.

CARLOS E. PEARL, OF BEACHMONT, MASSACHUSETTS.

HORSESHOE-PAD.

997,323. Specification of Letters Patent. **Patented July 11, 1911.**

Application filed August 2, 1910. Serial No. 575,080.

To all whom it may concern:

Be it known that I, CARLOS E. PEARL, of Beachmont, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Horseshoe-Pads, of which the following is a specification.

This invention relates generally to a horseshoe pad which is used in connection with a relatively short horseshoe, the ends of which are cut away so that they do not extend backwardly to the rear portion of the branches of the frog of the hoof, the shoe being adapted and intended for use in connection with a heel cushion which extends across the heel end of the hoof and supports the rear portion of the frog and its branches.

The invention relates particularly to a pad comprising a diaphragm and a cushion attached thereto, the diaphragm having a reinforcing plate of sheet metal applied to the upper side of its heel portion in such position as to bear upon the wearing or grinding portion of the frog and its branches, and thus sustain the wear and prevent the same from being exerted on the diaphragm, the reinforcing member being resilient so that it yields slightly to the irregularities presented by the frog and its branches, and does not constitute an objectionably rigid support therefor, but permits such flexure of the bottom of the hoof as may be caused by uneven surfaces on which the shoe and pad bear.

The invention is embodied in certain improvements relating to the form of the pad and reinforcing plate whereby the frog is accommodated, and to the general construction of the pad as a whole whereby other desirable results are attained, all as hereinafter more fully described.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a top view of a pad embodying my invention. Fig. 2 represents a bottom view of the pad showing by dotted lines a short shoe operatively related to the pad. Fig. 3 represents a section on line 3—3 of Fig. 1. Fig. 4 represents a section on line 4—4 of Fig. 1. Fig. 5 represents a partial bottom view of the pad showing the cushion made of greater width at one end than at the other.

The same reference characters indicate the same parts in all the figures.

In the drawings,—12 is a dotted line representation of a horse-shoe which is of the short variety, the ends of the shoe terminating forward of the points where the heel calks of an ordinary non-resilient shoe are located, and the place of the heel calks being occupied by an elastic cushion 13 which extends across the ends of the shoe, and has a thin forward portion or extension 14, which bears on the under side of the diaphragm hereinafter described.

15 represents a diaphragm which is formed to cover the upper surface of the cushion and its extension 14 and is firmly secured to the cushion by vulcanization as hereinafter described, the form and area of the diaphragm being such that its edge portions are interposed between the shoe and the hoof, and are engaged and secured by the usual nails which secure the shoe to the hoof. 20 represents a thin resilient plate of tempered steel which is interposed between the said heel portion of the diaphragm and the portions of the frog and its branches immediately above it, and is secured to the diaphragm by rivets 16, the lower heads of which are covered by the cushion. The diaphragm and cushion are united by vulcanization, the diaphragm being composed of textile fabric which is frictioned, or treated with vulcanized rubber, and the unvulcanized cushion molded to shape and applied to the frictioned surface of the diphragm. The parts thus assembled are confined in a suitable vulcanizing mold and subjected to heat until the rubber is vulcanized and the parts firmly united.

The cushion 13 is thicker than the shoe and its tread surface which is preferably corrugated, normally projects below the tread surface of the shoe. The cushion has tread extensions 22 which project forward under the frog of the hoof and between the arms of the shoe. On these extensions are formed outwardly projecting braces or shoulders 23 which are formed to bear on the inner edges

of the arms of the shoe, and thus prevent both forward and lateral horizontal creeping or displacement of the pad as a whole between the shoe and hoof. The braces 23 are located in a direction crosswise of the hoof and are relatively narrow so that their outer ends are adapted to be easily trimmed to fit the inner edges of the arms of the shoe. Said braces act as struts to resist edgewise displacement of the pad. I have found that without this provision the pad is liable to work edgewise toward one side of the hoof. This displacement of the pad is objectionable for various reasons obvious to those skilled in the art, and is prevented by the braces 23.

The pad member, diaphragm, and plate 20 are offset as indicated at 15^a, and 20^a, respectively to form a forwardly tapering flattened depression or pocket to accommodate the frog of the hoof, a portion of the forward edge of said plate terminating within said depression. By this arrangement a forwardly yielding pressure is exerted on the frog and the animal is enabled to place its foot on the ground in a natural position, thereby avoiding undue and unnatural strains on the bones, tendons and muscles of the foot and leg. The resilience of the plate 20 and the offset portion 20^a formed thereon enables the plate while constituting a resilient bearing for the frog, to also conform to the shape thereof. The offset portion 20^a of the plate constitutes a durable, resilient wear-resisting wall for the depression or pocket. The inclination of the pocket toward the hoof end of the shoe, shown by Fig. 3, enables it to fit the under side of the forward portion of the frog. The portion of the upper surface of the plate 20 between the offset 20^a and the heel end of the plate is preferably flat and bears on the rear portions of the branches of the frog. Said flat portion is flush with the portions of the upper surface of the plate 20 between the sides of the offset 20^a and the edges of the plate which coincide with the sides of the shoe. The offset portion 20^a forms a depression that is deepest at the part that receives the forward portion of the frog, the surface of the plate included in said offset portion being inclined upwardly from the forward edge of the plate and the deepest part of the depression toward the rear portion of the plate. The described formation of the plate enables the frog to sustain its proper proportion of the weight of the horse, without being subjected to excessive or injurious pressure, the pressure diminishing from the rear portion of the frog toward the forward portion. This condition is considered desirable by veterinary surgeons. By making the diaphragm of frictioned fabric and vulcanizing it to the cushion I am enabled not only to secure a firm and intimate union between the diaphragm and cushion, but also to permanently form the offset portion 15^a by a correspondingly formed mold during the vulcanizing process.

In Fig. 5 I show the tread face of the cushion 13 made wider at one end than at the other, the wider end being at one side of the median line of the pad and the narrower end at the opposite side of said line. The object of this variation of width of the tread face is to prevent the tendency which exists with some horses to wear the cushion more rapidly at one side of the median line of the hoof than at the other side, the wider end of the tread face being located at the side on which the wear is greatest and affording greater resistance to wear than the narrower end of the tread face. The tread face is therefore caused to wear uniformly at both sides of the median line of the hoof so that the bottom of the hoof is not forced out of its proper plane when the pad comes to a bearing on the ground, or, in other words, is not caused to assume a different angle relatively to the joint of the hoof when the hoof is at rest, from that it assumes when the hoof is in motion.

I claim:

1. A horse shoe pad comprising a pad member provided with an elastic cushion, a diaphragm of textile material secured to said pad, and a resilient metal plate interposed between the rear portion of said diaphragm and portions of the frog of the hoof immediately thereabove and terminating at the forward end thereof, said pad, diaphragm and plate being offset to form a forwardly tapering flattened frog-receiving depression, a portion of the forward edge of said plate terminating within said depression.

2. A horseshoe pad comprising a pad member provided with a diaphragm to cover the bottom of the hoof including the frog and its branches, and an elastic cushion secured to the heel portion of said diaphragm, said cushion being provided with tread extension projecting forwardly between the heel ends of a shoe and having narrow elongated lateral extensions formed to bear on the inner sides of the arms of the shoe and serving as struts to prevent forward and lateral horizontal displacement of the pad.

3. A horse shoe pad comprising a pad member provided with an elastic cushion, a diaphragm of textile material secured to said pad, and a resilient metal plate interposed between the rear portion of said diaphragm and portions of the frog of the hoof immediately thereabove, said pad, diaphragm and plate being offset to form a for-

wardly tapering flattened frog-receiving depression, a portion of the forward edge of said plate terminating within said depression, said cushion being provided with tread extensions projecting forwardly between the heel ends of a shoe and having narrow elongated lateral extensions formed to bear on the inner sides of the arms of the shoe and serving as struts to prevent forward and lateral horizontal displacement of the pad.

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

C. E. PEARL.

Witnesses:
C. F. BROWN,
P. W. PEZZETTI.