

C. E. PEARL.
HORSESHOE PAD.
APPLICATION FILED APR. 19, 1909.

951,772.

Patented Mar. 8, 1910.

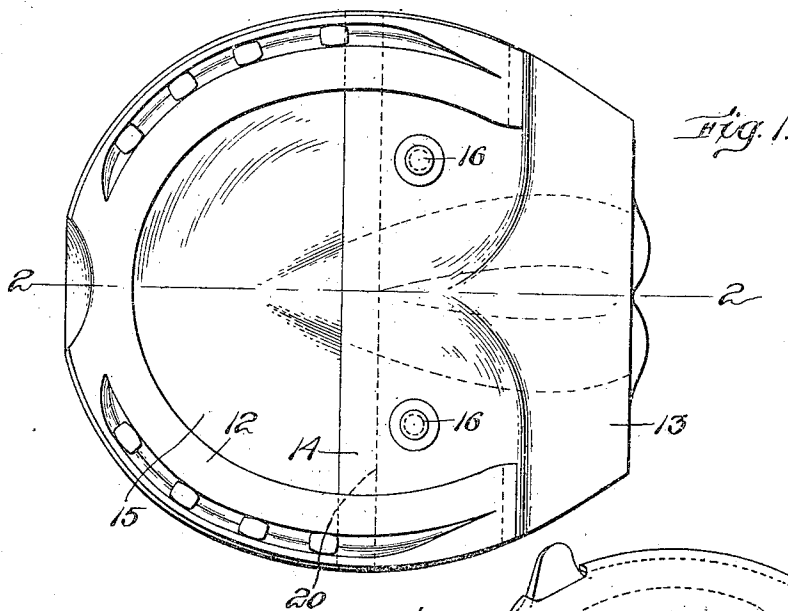


Fig. 1.

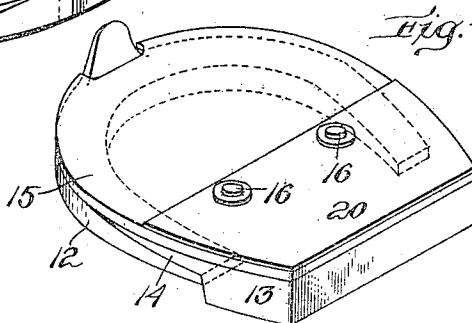


Fig. 4.

Fig. 2.

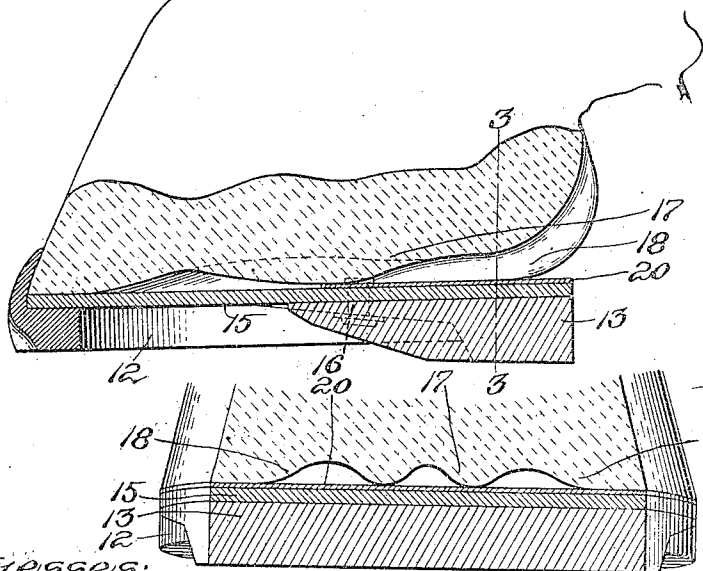


Fig. 3.

Witnesses:
F. R. Ronlstone
P. W. Pezzetti

Inventor:
Carlos E. Pearl,
by Knight Bros. & Co. May
Atlys.

UNITED STATES PATENT OFFICE.

CARLOS E. PEARL, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO PEARL ECONOMY PAD COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

HORSESHOE-PAD.

951,772.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed April 19, 1909. Serial No. 490,706.

To all whom it may concern:

Be it known that I, CARLOS E. PEARL, of Boston, 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 to a horse-shoe pad which is used in connection with a relatively short horse-shoe, 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. In shoes of this character it is customary to interpose a diaphragm of leather between the shoe and the bottom of the hoof, the diaphragm covering all parts of the bottom of the hoof including the frog and its branches, and serving to prevent small stones, gravel, etc., from being wedged between the shoe and the bottom of the wall of the hoof, the diaphragm being engaged and secured by the nails which secure the shoe to the hoof. The rubber cushion which extends rearwardly from the heel end of the shoe and takes the place of the usual heel calks in a full length shoe, is secured by rivets or otherwise to the rear portion of the diaphragm, namely, the portion which is directly under the rear portion of the frog and its branches. For convenience, I will hereinafter refer to this portion of the diaphragm as the heel portion. Heretofore, the heel portion of the diaphragm has had a direct bearing on the frog and on its branches, these parts presenting alternating ridges and hollows against which the heel portion of the diaphragm is forcibly pressed every time the weight of the animal is sustained by the hoof, the result being a rapid wearing or grinding action of the ridges formed by the frog and its branches on the heel portion of the diaphragm, this wearing action being so great that the life of the diaphragm is relatively short. The diaphragm has to be made of a good quality of leather, so that its expense is a very considerable item in the general cost of keeping a horse properly shod.

My invention has for its object to prolong

the durability of the leather diaphragm, and correspondingly decrease the expense of keeping the horse properly shod, and it is embodied in a diaphragm having a reinforcing plate of sheet metal applied to the upper side of the heel portion of the diaphragm in such position as to bear upon the pad-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.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a bottom view of a hoof provided with a short shoe, an elastic cushion, and a leather diaphragm, the reinforcing plate being concealed in this view by the diaphragm and cushion. Fig. 2 represents a section on line 2—2 of Fig. 1, showing the reinforcing member. Fig. 3 represents a section on line 3—3 of Fig. 2. Fig. 4 represents a perspective view showing the shoe, diaphragm, cushion, and reinforcing member in their relative positions ready for application to a hoof.

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

In the drawings,—12 represents 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 14 adapted to bear on the inclined upper sides of the end portions of the shoe.

15 represents a leather diaphragm which is formed to bear on the upper surfaces of the shoe and cushion and is secured to the cushion by suitable means, such as rivets 16, 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. When the shoe is in place on the hoof, the diaphragm serves not only to prevent access of stones, gravel, etc., to the bottom of the hoof, but also forms a secure connection between the

cushion 13 and the hoof, the diaphragm being secured to the hoof, as above stated, by the shoe and its nails.

The construction thus far described is in common use, and is not claimed by me.

It will be observed that the heel portion of the diaphragm projects rearwardly from the rigid ends of the shoe, and is subjected to flexure by pressure of the cushion against the pavement, this portion, as already stated, being under the rear portion of the frog 17 and its branches 18 (Fig. 3), so that at every step of the horse, there is a heavy pressure of the rough-surfaced parts 17 and 18 against the heel portion of the diaphragm. The parts 17 and 18 therefore act to grind and rapidly wear away the flexibly supported heel portion of the diaphragm. To prevent this rapid wear and correspondingly prolong the life and durability of the diaphragm, I provide a reinforcing or wear-resisting member 20, which is a very thin, tempered steel, flexible plate which allows the heel of the horse's hoof to spring naturally and yet retain the pad in place. This plate is interposed between said heel portion and the portions of the frog and its branches immediately above it, the member 20 being secured to the diaphragm by any suitable means, preferably by rivets 16 which secure the cushion 13 to the diaphragm. The resilience of plate 20 causes it to act as a spring in conjunction with the rubber cushion 13, the plate being flexed to a limited extent by pressure exerted on it through the cushion and the inert intermediate pad 15, so that the spring action is due in part to the cushion and in part to the plate. At the same time, the inert leather pad is held in close contact with the cushion and plate so that it can not move edgewise relatively to either and is simply flexed with the cushion and plate without being in rubbing contact with the surfaces thereof. The wear due to the rough surfaces of the frog and its branches is sustained wholly by the plate which prevents the rough surfaces from chafing and wearing the leather pad.

I have found in practice that the wear-resisting member 20 greatly prolongs the durability of the diaphragm, so that the cost of the reinforcing member is much more than made up by the economy effected by the prolongation of the life of the diaphragm. The reinforcing member is subjected to comparatively little wear, so that it will outwear a large number of diaphragms, the diaphragm protected by the member 20 being adapted to outwear a considerable number of cushions 13. When a new cushion is to be substituted for one worn out, the heads or burs of the rivets 16 are cut away by a suitable tool provided for that purpose, new rivets being employed after the substitution has been made. The same operation is employed when a new diaphragm is substituted for one that has been worn out. The upper surface of the cushion is confined against injurious flexure by the member 20, hence the life of the cushion is prolonged.

I claim:

A horse-shoe pad comprising a leather diaphragm formed to be interposed between the shoe and hoof, and to cover the bottom of the hoof including the frog and its branches, the margin of the diaphragm being engaged by the horse-shoe nails when in use, an elastic cushion secured to the heel portion of the diaphragm, and bearing on its under side, and a resilient reinforcing member of thin tempered steel substantially conforming to the frog and heel portion of the hoof also secured to the heel portion of the diaphragm and bearing on its upper side, said member being formed to bear on the frog and its branches and prevent the same from grinding or injuriously wearing the heel portion of the diaphragm while permitting free flexing thereof in all directions.

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

CARLOS E. PEARL.

Witnesses:

JAS. H. CHURCHILL,
C. F. BROWN.