

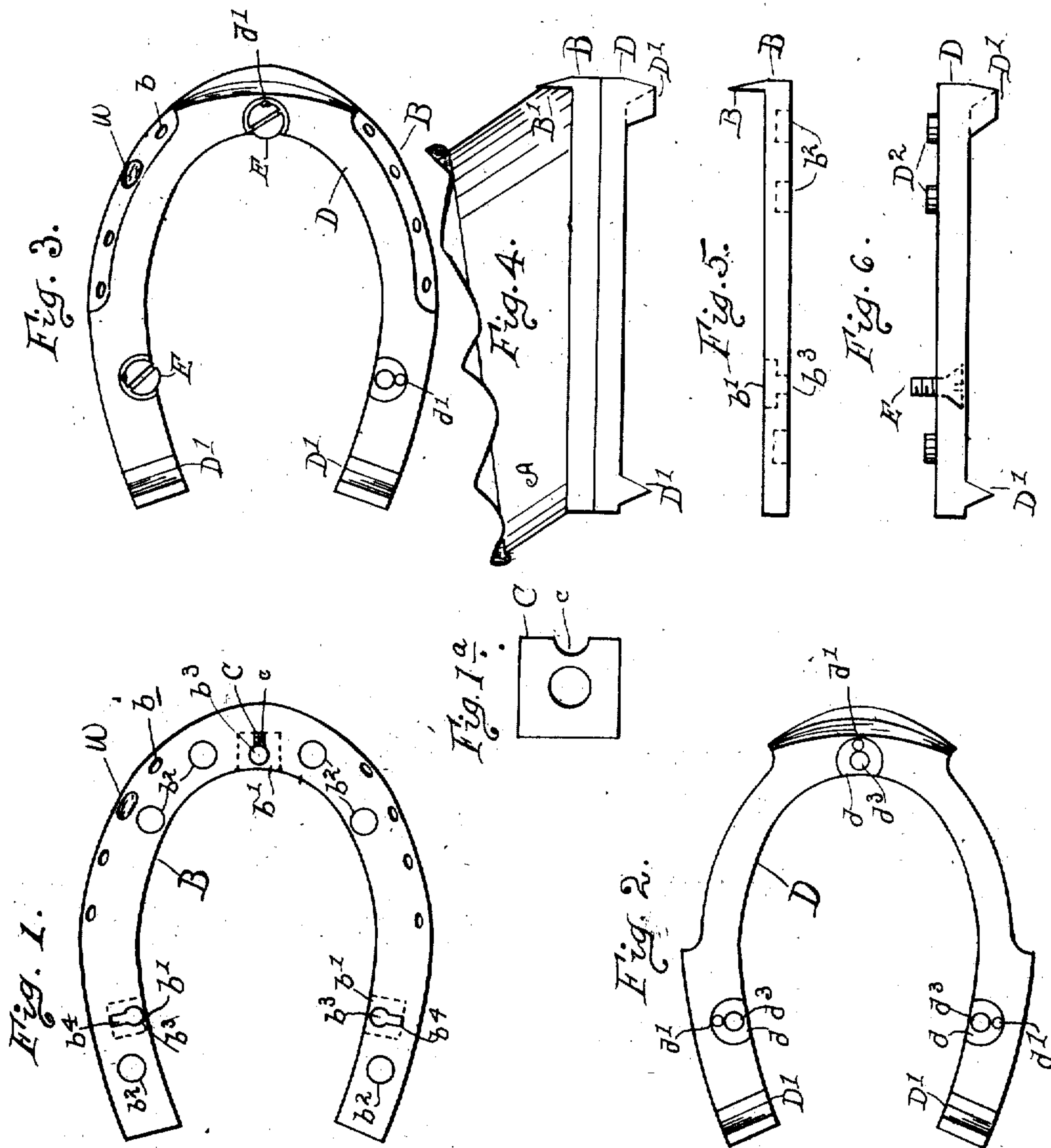
A. F. PAULSEN.

HORSESHOE.

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914,971.

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WITNESSES:

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HORSESHOE.

No. 914,971.

Specification of Letters Patent.

Patented March 9, 1909.

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To all whom it may concern:

Be it known that I, AUGUSTUS F. PAULSEN, a citizen of the United States, residing in the borough of Manhattan, in the city and State of New York, have invented a certain new and useful Improvement in Horseshoes, of which the following is a specification.

The improvement applies to that class in which the shoe can be provided temporarily with sharp corks or allowed to serve smooth according to the time of year or according to the temperature on special occasions.

I make two shoes adapted to match to each other and to the foot of the horse, and apply them one below the other, allowing the one which lies next to the hoof to remain and only be changed when the growth of the hoof requires it, while the other is changed as often as required. There have been many attempts to improve horse-shoes in this direction. I have devised important improvements in the means for attaining these conditions. I employ bolts in the provisions for attachment, and provide a specially adapted and peculiarly mounted nut for receiving each.

One quality of my improved horse shoe to which I attach importance is that there are no parts which cannot be readily renewed.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

I will use the term "upper" and "lower" as they apply to the shoe when the foot is inverted in the act of being shod.

Figure 1 is a top view of the under shoe that which lies against the hoof. Fig. 1^a is a face view of a part detached. It corresponds to Fig. 1 but is on a larger scale. Fig. 2 is a top view of the removable shoe ready to be placed upon the other shoe shown in Fig. 1. Fig. 3 is a top view of the double shoe with most of the fastenings in place. Fig. 4 is an edge view of the double shoe,—corresponding to Fig. 3. Fig. 5 is an edge view corresponding to Fig. 1 and Fig. 6 an edge view corresponding to Fig. 2.

Similar characters of reference indicate like parts in all the figures where they appear.

A is the hoof of the horse.

B is the body of the lower shoe. B' the ordinary clips performing the usual functions and b are the holes for receiving the nails W

which reliably engage this important part with the hoof in the ordinary and long approved manner.

I provide three rectangular recesses b' on the lower side of this lower shoe located one at the toe and the others at the heels. In the center of each, a circular hole b² of sufficient size extends downward through the remaining thickness of the shoe. In use the recesses b' each receives a nut of steel.

D is the upper shoe, the removable shoe, that which rests on the ground when in use. I provide two of these, one having sharp corks D' as shown, the other is similar except that the corks are smooth or omitted altogether. A description of the sharp-corked shoe will serve for both.

The proper face of this shoe is provided with integral dowels D² arranged to match the recesses b² in the adjacent shoe. These provide for the lateral strains. The holding firmly together is attained by peculiarly fitted bolts. Holes d² in this upper removable shoe coincide with the holes b² in the lower shoe, that is, the shoe B next the hoof. The upper end of each of said holes d², that is, the end which rests on the ground when the animal stands on the shoe is conical except as hereafter described.

I provide a liberal stock of bolts E having correspondingly conical heads which perform important functions. In attaching the shoes together these bolts are turned by a screw-driver, and the screw-threaded end engages in the corresponding nut C.

My special construction and fitting insures against the loosening of the screws while in use. They can only be removed by the proper application of a strong screw-driver when a change is desired of the upper, the removable shoe. To attain this the several screws E after being tightly screwed down in the ordinary manner are deformed by the use of a suitable set and hammer or other convenient means for forcing a small portion of the screw head into a recess d' previously produced in one side of the conical seat d.

My experiments indicate that it is practicable to lock the metal by thus deforming it sufficiently to forbid accidental unscrewing and yet to have the locking so weak that it can be overcome by force when it is required to release the shoe. Care must be taken in proportioning the parts to have the metal displaced by this treatment sufficient in

quantity and in hardness to properly hold and yet not such to offer an insurmountable difficulty when it is desired to remove the bolt. The heads of the bolts should be soft, 5 as it may be found that the screw threaded portions should be hard. I will describe the bolts as made by case-hardening the screw-threads and shank and leaving the head soft. This mode of manufacture is attained by a 10 practice long used to a limited extent in other arts making the bolt head at first too large and after carbonizing the surface of the whole, mechanically removing the surface of the head and afterwards heating the whole 15 and immersing in oil. As only the body with the screw-threads retains the carbonized surface only that portion is hardened.

It may sometimes be required to remove the nut C without removing the shoe. I provide 20 for this by the slot *c* in the nut and also by the groove *b*⁴ in the bottom of the recess *b*¹. A suitable pointed instrument as an awl can be inserted through the groove *b*⁴ and into the slot *c* of the nut C when a slight 25 movement of the awl lever-wise, will displace the nut by forcing it inward toward the center of the foot. This motion being repeated the resistance of friction is overcome and the nut removed.

30 The first shoe B, that next the hoof may be of the ordinary breadth. It may be grooved to favor the confining by nails and thicker at the heel than at the toe all in the ordinary fashion. The working shoe D, the upper 35 shoe plate as they lie in being examined or repaired, is narrowed sufficiently on its outer side along a considerable portion of its length, to allow the nail-heads to lie exterior thereto.

40 Modifications may be made without departing from the principle or sacrificing the advantages of the invention. There may be

more of the dowel-like projections D². Such may be specially useful, formed one on each side of the center line at the front. Of course exactly corresponding recesses *b*² 45 must be provided to match. Parts can be used without others. I propose in the cheaper forms to omit much of the peculiarities of the nuts and their recesses and to remove the shoe B when the nuts require atten- 50 tion. There may be more holes *b*³, recesses *b*¹ and bolts E to hold the shoes together.

I claim as my invention:

1. In a double horse-shoe, an upper shoe plate provided with a rectangular locking re- 55 cess on the face to apply against the hoof, a nut locked therein, a securing bolt engaging such nut and a working shoe held and released by such bolt the two shoes having also dowels and holes for resisting lateral strains, 60 all combined as herein specified.

2. In a double horse-shoe, an upper shoe plate provided with a rectangular locking re- 65 cess on the face to apply against the hoof, a nut locked therein, having a slot *c*, a working shoe having a recess in the face farthest from the hoof adapted to receive a bolt head and a further recess in one side of such recess in combination with a bolt having a thin head 70 of malleable material adapted to be easily distorted to engage in such recess after the bolt has been tightened and with provisions for engaging such bolt with the upper shoe plate and for engaging the whole with the 75 hoof as herein specified.

Signed at New York city aforesaid this 23rd day of March 1908.

AUGUSTUS F. PAULSEN. [L. s.]

Witnesses:

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MARTIN A. PAULSEN.