

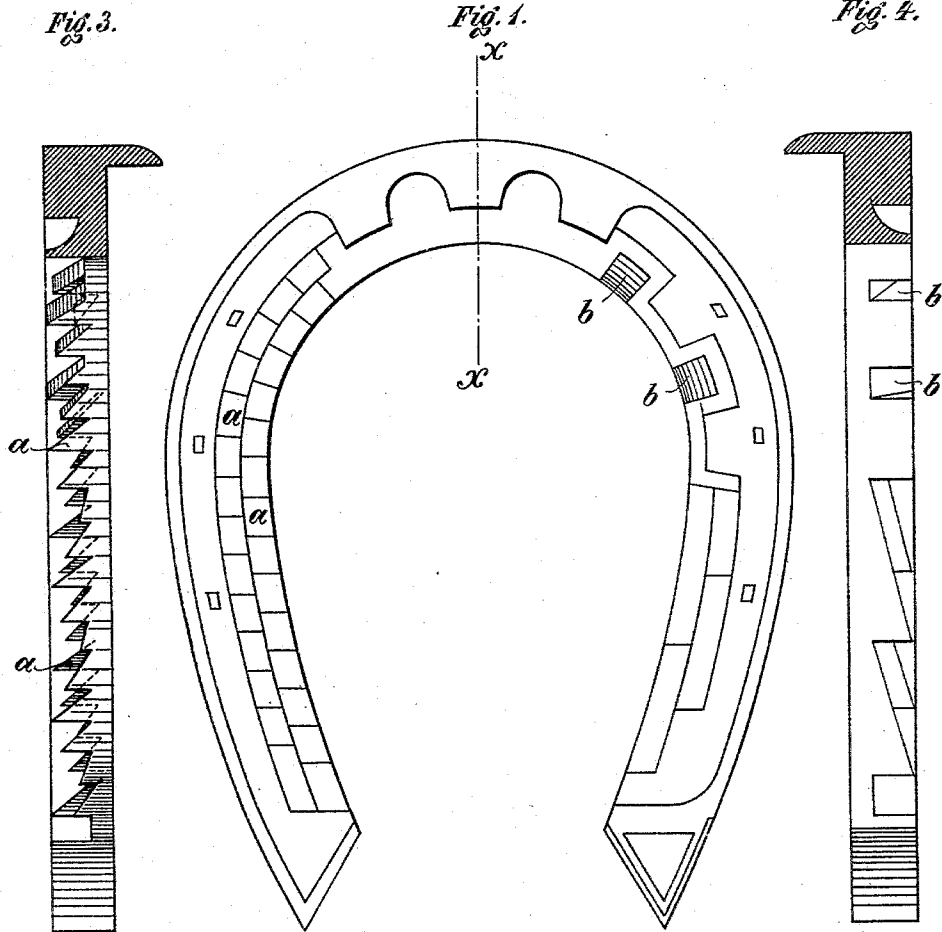
(No Model.)

3 Sheets—Sheet 1.

J. ECKART.
HORSESHOE.

No. 511,010.

Patented Dec. 19, 1893.



Witnesses

C. H. Bolton

E. H. Sturtevant

Inventor:

Josef Eckart

By

Richardson

his Attorneys.

(No Model.)

3 Sheets—Sheet 2.

J. ECKART
HORSESHOE.

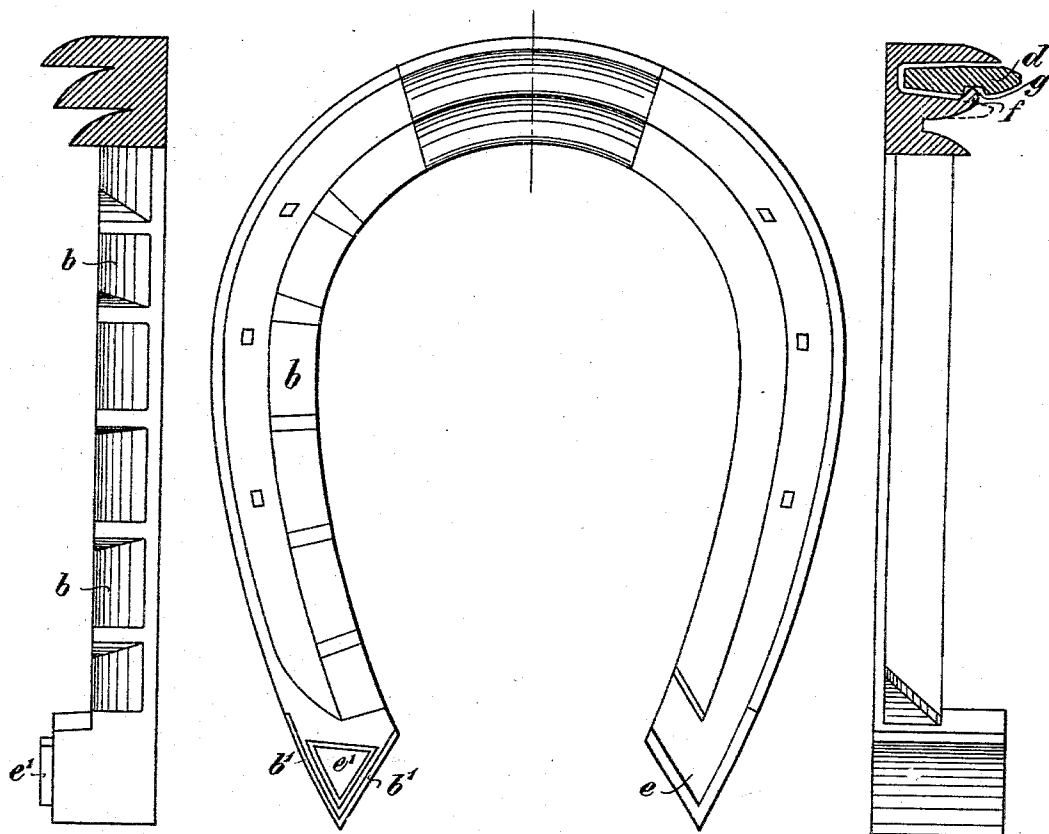
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Fig. 5.

Fig. 2.

Fig. 6.



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Fig. 8.

Fig. 7.

Fig. 9.

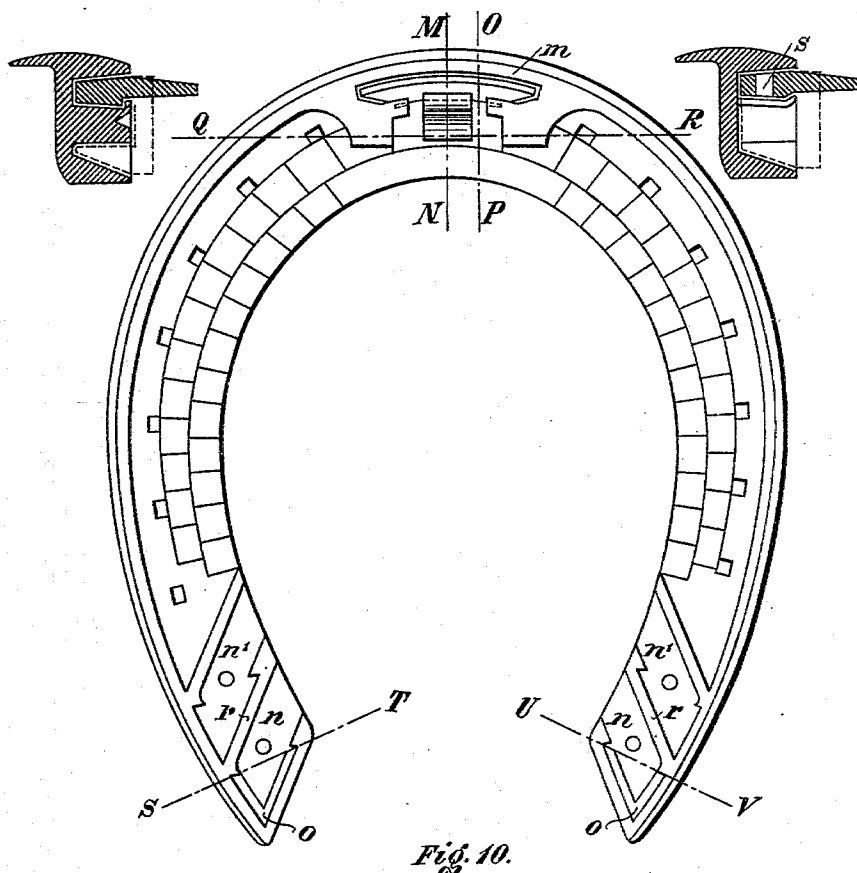


Fig. 10.

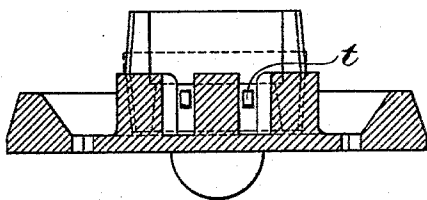
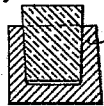
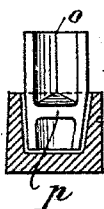


Fig. 11.

Fig. 12.

Witnesses:

E. B. Bolton
E. T. Stuntvant



Inventor:
J. Eckart

By

Richardson

his Attorneys.

UNITED STATES PATENT OFFICE.

JOSEF ECKART, OF MUNICH, GERMANY.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 511,010, dated December 19, 1893.

Application filed April 15, 1893. Serial No. 470,486. (No model.) Patented in France September 25, 1891, No. 213,922; in Germany May 10, 1892, No. 61,612; in England May 20, 1892, No. 9,610, and in Austria-Hungary September 20, 1892, No. 20,484 and No. 44,382.

To all whom it may concern:

Be it known that I, JOSEF ECKART, a subject of the King of Bavaria, residing at Munich, Bavaria, Germany, have invented certain new and useful Improvements in Horse-shoes, (for which patents have been granted in Germany, No. 61,612, dated May 10, 1892; in France, No. 213,922, dated September 25, 1891; in Austria-Hungary, dated September 20, 1892, No. 20,484 and No. 44,382, and in Great Britain, dated May 20, 1892, No. 9,610,) of which the following is a specification.

The present invention is a horse shoe, and its object is to secure to the hoof of the horse a rough bottom surface and to protect it until the shoe becomes so thin and weak as to bend.

In the drawings:—Figure 1 is a plan view of my improved shoe; Fig. 2 a like view of a modification. Figs. 3 and 4 represent sectional views on line $x-x$ Fig. 1, looking respectively to the left and right. Fig. 5 is a sectional view of Fig. 2. Fig. 6 is a similar view of a modification. Fig. 7 is a plan of a modification, and Figs. 8 and 9 are sections on lines M—N and O—P respectively. Fig. 10 is a section on line Q—R of Fig. 7; and Figs. 11 and 12 are sections on lines S—T and U—V, of the same figure.

The shoes are preferably made of Bessemer steel.

In Fig. 1, on the left side is shown a horse shoe in which two rows of teeth a are disposed with edges falling vertically backward and sidewise, of which the teeth of the outer row are the highest and alternate in position with those of the inner row. The teeth a are evenly worn by the friction, and as they are alternately high and low the shoe keeps always rough at the bottom surface for as the high teeth wear down the sharp parts of the low teeth come into play. Of course the teeth can also be made larger as shown for instance on the right of Fig. 1 and in Fig. 4. The same result is obtained by indentations b as in Fig. 1 to the right and in Fig. 4.

For winter use the toe and heel calks are provided, (Figs. 2, 5 and 6) and in order to prevent the rapid wearing of the heel calks they extend toward the front in the direction of the branches of the shoes as at b' , Fig. 2.

The inside edge of the shoe runs obliquely inwardly. The toe calk may have three parts as in Figs. 2 and 5 of different height and may be cut so as to form teeth of a different height. The inner teeth or toes can be made very sharp and worked out to the bottom so that the shoe remains sharp up to its complete wearing out. However, the inside walls must always be vertical. The outside toe calks which are stronger, protect the inner against breaking off. The height of the calks is preferably moderate, even for winter horse shoes.

The shoe just described is a winter shoe and can be changed into a horse shoe for ordinary wear by the use of changeable toe and heel calks.

When a winter shoe the changeable toe and heel calks are sharpened and when the season changes it is protected against too quick wearing out by the introducing of a blunt toe d , Fig. 6, and of an equilateral triangle e' constituting the heel calks, as shown at the left of Fig. 5.

At half the height of the toe piece, Fig. 6, a locking piece f , is shown integral with the shoe with oblique evenly tapering edge, which is bent over into a groove g in the toe piece d in order to prevent displacement of the same. If now the shoe, supposed to be a winter shoe, is worn out up to the piece f , the toe and the angular calks e' are replaced by others which are sharp.

In Fig. 7, recesses n, m are provided in the lower surface of the shoe for the toe and heel calks. When the latter are not used simple projections are introduced into the recesses as shown in dotted line in Figs. 8, 9 and 10 and in full lines in Fig. 12 which wear out with the shoe and increase the roughness of the bottom surface. Those projections consist preferably of emery, but may be of an emery mass, wood pulp, wood, rubber or steel wire, either or each of these materials alone or a compound of the same. As can be seen from Figs. 7 and 11 at o , the calks have the shape of a sharp angle, which is provided with a partition p (Fig. 11). The walls of the calks run vertically and prismatically above the partition p and below the same a little conically. The cone shape allows a tight fit to be

made. Two calk recesses *n, n'* (Fig. 7) or where no recesses are used, two cross ribs, the one behind the other may be provided and makes it possible to shorten the shoe. The cross rib *p* of the calk serves for taking the same out, while it serves as a bearing for a convenient tool which is introduced below the cross rib. The toe calks may be removed in a similar manner, the holes *s* being provided for this purpose, Fig. 9, or ribs *t* are provided (Fig. 10) into which or below which the tool for the removing can be introduced.

The toe and heel calks are fixed in a way similar to that shown in Fig. 6 or as in Figs. 7, 8 and 9.

I claim—

1. A horse shoe having a double row of teeth on its under surface, the teeth of each row alternating and varying in height, substantially as described.

2. A horse shoe comprising a socketed portion and the prismatic calk fitted thereto, said calk having a cross bar *p*, extending across its hollow side, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEF ECKART.

Witnesses:

A. M. CÜKNEHR,
C. MAYER.