

W. J. KENT.
HORSESHOE.

Patented Dec. 11, 1894.

FIG. 3.

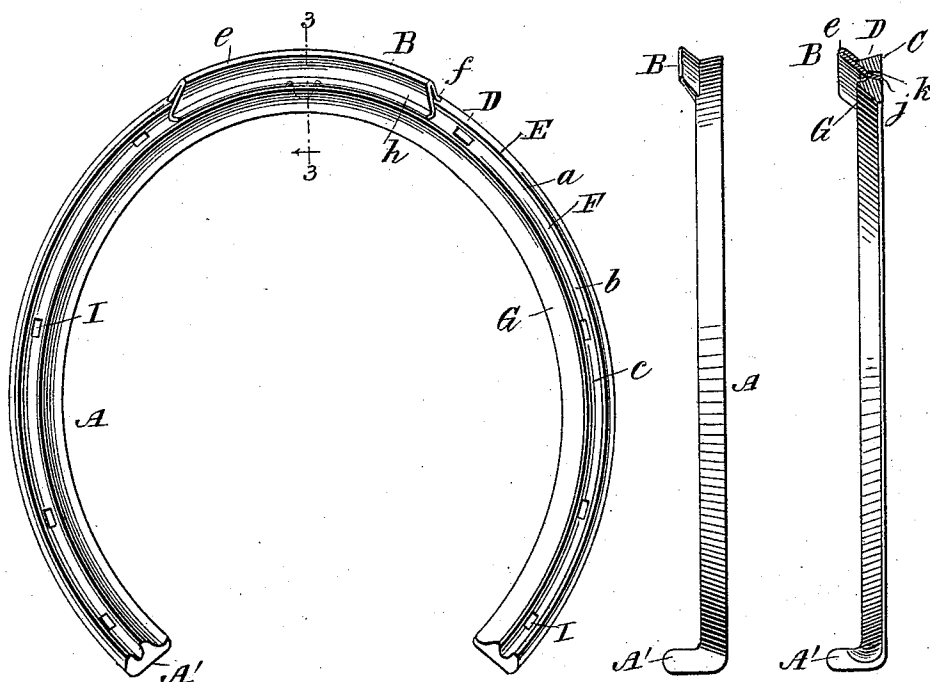


FIG. 7. FIG. 8.

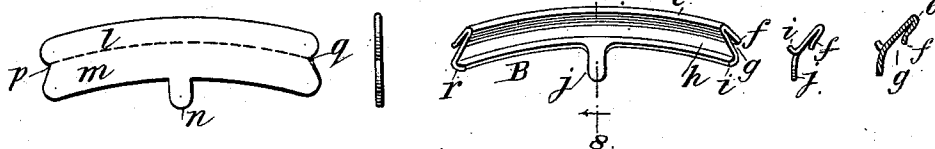
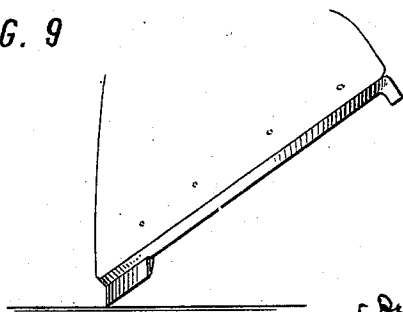


FIG. 9



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UNITED STATES PATENT OFFICE.

WILLIAM J. KENT, OF BROOKLYN, NEW YORK.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 530,644, dated December 11, 1894.

Application filed August 9, 1894. Serial No. 519,807. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. KENT, a citizen of the United States, residing in Brooklyn, in the county of Kings, State of New York, have invented certain new and useful Improvements in Toe-Calks for Horseshoes, of which the following is a specification.

This invention relates to horse shoes, and particularly to the class of horse shoes known as racing plates.

Racing plates are constructed of extreme lightness and usually with irregular grooved or pointed bottom faces to give the plate the necessary gripping qualities when the horse is running. One example of such a plate is shown in my application for a patent, filed March 3, 1894, Serial No. 502,167. Such plates are usually employed without toe or heel calks when the horse is to run in dry weather or on a good track, but when the race is run on a muddy or soft track it is advantageous to employ plates having toe and heel calks. Toe calks have been applied to such plates by dressing off a flat face at the bottom of the toe of the plate and brazing on an edged calk of solid steel having a triangular cross section, which calk has extended downwardly at substantially an angle of ninety degrees to the horizontal of the plate. The heel calks have been formed by bending up the heel ends of the plate. Such toe calks have necessitated dressing and consequently weakening the plate to permit their application to it, and have soon dulled and become correspondingly less efficient in use. They have also added undesirably to the weight of the plate.

My present invention aims to provide an improved toe calk particularly applicable to racing plates, which shall be extremely light, strong, which will not dull in use, and which will be more effective than those heretofore employed.

To this end in carrying out the preferred form of the invention as applied to a shoe or plate having a pointed gripping edge flanked on its inner side by a groove, I construct the improved toe with a downwardly and outwardly inclined point or edge, extending downwardly relatively to the body of the plate in substantially the direction of the thrust of the plate when it strikes the ground

as the horse is running, of substantially uniform thickness from its point to the body of the plate, with a shoulder at its front side fitting against the outer front face of the plate, a groove or recess within this shoulder receiving the gripping edge of the plate, the body extending upwardly and inwardly from this shoulder and fitting against the inclined bottom of the plate, a tongue projecting through the plate at the extremity of this body and a shoulder or flange at the upper extremity of this body fitting within and seating against the top of the groove in the plate. Preferably the toe is constructed from a sheet steel blank folded on itself in arc shape form, the different flaps serving, the one as the front face of the toe, and the other as the rear face and body thereof, and the toe is brazed to the plate, during which operation the spelter employed brazes the flaps of the toe together as well as brazing the latter to the plate.

Referring to the drawings, which illustrate my improvement as applied to the well known racing plate now manufactured by me, Figure 1 is a bottom view of the racing plate. Fig. 2 is a side elevation thereof. Fig. 3 is a cross section thereof on the line 3—3 in Fig. 1. Fig. 4 is a plan view of the sheet steel blank from which the toe is formed. Fig. 5 is an edge view thereof. Fig. 6 is a bottom plan of the completed toe calk before its application to a plate. Fig. 7 is an edge view thereof. Fig. 8 is a cross section thereof on the line 8—8 in Fig. 6, and Fig. 9 is a diagrammatic view showing the manner in which the toe strikes the ground in use.

Referring to the drawings, let A indicate a horse shoe or racing plate and B the toe calk thereof. The plate A is made of any usual or suitable construction. That shown has a flat top bearing face C, a downwardly and inwardly inclined front face D, a bottom gripping edge E, an upwardly and inwardly inclined groove F, and a downwardly and outwardly inclined bottom G. The groove F has an upwardly and inwardly inclined outer wall *a*, extending from the edge E upwardly into the body of the shoe, a curved or otherwise suitably formed bottom *b*, and an inwardly and downwardly inclined inner wall *c*. The gripping edge E and the groove F trav-

erse longitudinally entirely around the bottom face of the plate. At its heels the plate is bent upwardly to form heel calks A'. Throughout its body the plate is traversed by nail holes I, which are punched through at the bottom of the groove F.

As thus far described the plate is of known construction.

According to my invention in its preferred form I construct the toe calk B as a separate piece from the plate A, adapted to be brazed or otherwise suitably connected thereto, composed of a single piece of folded sheet metal, having a downwardly and outwardly inclined point or edge and grooves and shoulders on its upper body fitting the contour of the gripping edge and bottom face of the plate or shoe and adapted for attachment to this face. As shown, the toe calk B has a point or edge *e* projecting from the gripping edge E of the plate outwardly and downwardly at an angle substantially forty-five degrees from the horizontal of the plate, a shoulder *f* at its upper front side, which shoulder bears on the front of the gripping edge E, a groove *g*, adjacent to this shoulder receiving and fitting the gripping edge, an inwardly and upwardly inclined body *h* which fits and bears against the wall *a* of the bottom face of the shoe or plate, a shoulder or bend *i* fitting the top of the groove F, and a tongue *j* passing through a hole *k* traversing the plate.

The toe calk may be constructed of any sufficiently hard material, and it may be constructed of the general form shown in any suitable manner, but I prefer to construct it of a single piece of sheet steel folded upon itself, and to form the necessary point, shoulders, grooves and bearing faces, by bending or using the edges of the steel sheet itself. In the construction shown this is accomplished by means of a punched steel blank J of the form shown in Fig. 4, which has a front flap *l*, a rear flap *m*, and a central or otherwise suitably located tongue *n*. This blank is of arc shape and is folded on itself on the line *p*, the fold forming the point or edge *e* of the calk, and the flaps *l* and *m* forming the body or reinforce for this edge down to the point *q*, where the front flap *l* terminates. Thus the point and its reinforcing body constitute an edge of double or folded metal of substantially uniform thickness throughout its length, whereby, as the point wears upwardly toward the plate it maintains the same degree of sharpness, since the thickness of its body is substantially equal, until the plate is reached. The upper edge of the flap *l* constitutes the shoulder *f*, and the space between this edge and the inner flap *m* constitutes the groove *g*, while the body of the flap *m* extends upwardly and inwardly and constitutes the face *h*, and its extreme edge, which is preferably turned downwardly as a bend *r*, constitutes the shoulder *i*, which fits within and bears against the top of the groove F. The tongue *n* of the blank is continued upwardly and inwardly at

an inclination substantially similar to that of the flap *m*, and passes through a corresponding hole *k*, traversing the plate, within which hole it serves as a tongue *j* for guiding and holding the toe in position on the plate until it is permanently fixed thereon.

In practice the improved toe calks are stamped out in quantities to fit the particular plates or shoes for which they are designed, and then they are applied to these plates as required. In applying the calk B, its tongue *j* is passed into the hole *k* in the plate, and the calk is moved against the plate until the gripping edge of the plate is well seated in the groove *g* of the calk, or until the reciprocal faces on the calk and plate properly correspond, and the parts are held in this position until the brazing operation is completed. Then the calk is properly tempered, whereupon it is ready for use.

In brazing the spelter flows into all surfaces between the calk and plate and into the folds between the two flaps of the calk, and renders the parts then practically a single integral piece. The calk has great strength, hardness and durability, while its construction is so light that the added weight of the plate, due to its application thereto, is barely perceptible.

In use the projection of the toe calk at an angle downwardly and outwardly from the toe, brings it substantially into line with the direction of the thrust as the shoe strikes the ground in running, so that the calk receives the impact of the blow in such a manner that the concussion due to the shoe striking the ground is transmitted directly upward through the body of the calk instead of laterally relative thereto. This direct stroke avoids the tendency to bend the point of the calk either upwardly or rearwardly, and therefore prevents undue dulling of its edge. This inclination of the calk also gives a very perfect grip, particularly when a horse is running on a muddy or soft track, since it preserves the calk at right angles to the forward thrust given by the toe as the horse springs, and as the toe then rests in a rearwardly inclined position the calk is then consequently substantially perpendicular to the ground.

It will be seen that my invention provides an improved toe calk for horse shoes, which is cheap, light and easy of application; and it will be understood that the invention is not limited to the particular construction set forth as constituting its preferred form, since the details of its construction and arrangement can be varied as circumstances or the judgment of those skilled in the art may dictate without departing from the spirit of the invention.

What I claim is—

1. A horse shoe A, having an outer front wall D a gripping edge E at the bottom of said wall, and a wall *a* on its under face, in combination with a calk B, having a bearing edge *e*, shoulder *f* embracing the wall D in

front of said gripping edge E, a groove *g* receiving said gripping edge, and a face *h* embracing said wall *a*, said calk brazed to said shoe, substantially as and for the purpose set forth.

2. A horse shoe A, having a gripping edge E and a groove F on its bottom face, in combination with a toe calk B, having an edge *e*, a shoulder *f* embracing said gripping edge, a face *h*, and a shoulder *i* seating in said groove, said calk brazed to said shoe, substantially as and for the purpose set forth.

3. The improved toe calk for horse shoes, having a downwardly and forwardly inclined edge and upwardly and rearwardly inclined body, a shoulder on its upper face adapted to embrace the front face of the horse shoe, and a face at rear of this shoulder adapted to embrace the under face of a horse shoe, substantially as and for the purpose set forth.

4. The improved toe calk for horse shoes, consisting of a piece of sheet metal folded on itself and having at its fold a bearing edge,

and above its fold faces adapted to fit and be attached to the bottom face of a horse shoe, substantially as and for the purpose set forth.

5. The improved toe calk for horse shoes, consisting of a piece of sheet metal, having flaps *l* and *m* folded together and constituting at their fold the bearing edge of the calk, and constituting above this edge faces for attachment to a horse shoe, substantially as and for the purpose set forth.

6. The improved toe calk for horse shoes, consisting of a piece of sheet metal having a bearing edge *e*, a shoulder *f*, a groove *g*, a face *h*, a shoulder *i*, and a tongue *j*, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM J. KENT.

Witnesses:

GEORGE H. FRASER,
CHARLES K. FRASER.