





# UNITED STATES PATENT OFFICE.

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## HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 716,901, dated December 30, 1902.

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*To all whom it may concern:*

Be it known that I, THOMAS F. JUDGE, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Horseshoes; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in horseshoes.

The object of my invention is to furnish a calk for horseshoes which may be readily attached to any description of horseshoes or easily detached therefrom for the purpose of sharpening or renewal without removing the shoe from the hoof of the horse.

My invention consists in the combination, with a horseshoe of the usual form, of a brace or abutment detachably secured to the bottom of the shoe, means for detachably securing a calk to said abutment, and means for preventing the disengagement or displacement of the said parts so combined together, as hereinafter more especially described in the following specification, pointed out in the claims, and illustrated in the accompanying drawings.

In the drawings, Figure I is a plan of the under side or bottom of a shoe embodying my invention. Fig. II is a side elevation of the same. Fig. III is a side elevation of a portion of a shoe, showing one of the rear calks arranged approximately at a right angle to the toe-calk. Fig. IV is a section on line IV-IV, Fig. II, looking toward the front and showing the method of assembling and fastening the toe-calk to the shoe. Fig. V is a detail view of a portion of the front of the shoe, showing the method of locking the bolt which secures the calk to the abutment. Fig. VI is an enlarged detail sectional view through one of the heel-calks, showing the method of securing the abutment in the shoe and the calk to the abutment. Fig. VII is a view of the calk supports or abutments.

Again referring to the drawings,  $a$  represents the plate which forms the body of a horseshoe of the usual shape and construction. In this plate are formed four screw-

threaded holes  $a^1$ ,  $a^2$ ,  $a^3$ , and  $a^4$ . The holes  $a^1$  and  $a^2$  are arranged at the respective sides of the shoe near the heel, and the holes  $a^3$  and  $a^4$  are arranged at the toe of the shoe.

$b$  represents the abutments or supports which constitute the means for holding the respective heel-calks in position. Each of these abutments are identical in form and are provided with shank portions  $b^1$ , which are screw-threaded and adapted to screw into the holes  $a^1$  and  $a^2$ . In the abutments  $b$  are formed bolt-holes  $b^2$ , which extend horizontally through the said abutments. The heel-calks are identical in form, and each comprises a body portion  $c$ , equal in size to the abutment  $b$ , and a wedge-shaped head portion  $c^1$ , which is formed integral with the body portion  $c$  and arranged to extend over and abut against the top of the abutment to which the calk is secured. A screw-threaded hole  $c^2$  is formed in the body portion  $c$  in line with the bolt-hole  $b^2$  in the supporting-abutment. A bolt  $d$ , having a hole  $d^1$  formed in its end, is passed through the bolt-hole  $b^2$  in the abutment and the bolt-hole  $c^2$  in the calk, so as to secure the calk to the abutment. In the face of the body portion  $c$  and intersecting the axis of the bolt-hole  $c^2$  is formed a groove  $c^3$ . This groove forms a seat for a pin  $d^3$ , which is passed through the hole  $d^1$  in the end of the bolt  $d$  in order to prevent the bolt from turning and becoming loose. On the body portion  $c$  of the calk I form a projecting lug  $c^4$ , which fits into a depression  $a^5$ , formed in the shoe-plate, and forms a lock which holds the calk against sidewise displacement and prevents the screw-threaded shank  $b^1$  from working loose.

At the toe of the shoe are secured two abutments  $g$  and  $h$ . The abutment  $g$  is in all respects similar to the abutments  $b$ , which support the heel-calks, having a screw-threaded shank  $g^1$ , which screws into the screw-threaded holes  $a^3$ , formed in the shoe-plate. A bolt-hole  $g^2$  extends horizontally through the abutment. The abutment  $h$  is provided with a screw-threaded shank  $h^1$ , which screws into the screw-threaded hole  $a^4$  in the shoe-plate. A slot  $h^2$  extends horizontally through the abutment. The shank portions  $g^1$  and  $h^1$  are preferably provided with a right-hand thread



and a left-hand thread, respectively, and the holes  $a^3$  and  $a^4$  in the shoe-plate are threaded accordingly, so that the abutment cannot work loose after the calk has been secured to them. The toe-calk is about twice the length of the heel-calks and comprises a body portion  $i$ , having a wedge-shaped head portion  $i'$ , arranged to extend over the tops of the abutments  $g$  and  $h$ . The body portion  $i$  is provided with two screw-holes  $i^2$  and  $i^3$ .

The calk is secured to the abutment by means of screws  $l$ , which pass through the respective holes in the abutments and calk. The screws have holes  $l'$  formed in their ends. In the body portion  $i$  of the calk is formed a groove  $i^4$ , which passes through the axis of the holes  $i^2$  and  $i^3$  and forms a seat for the locking-pins  $l^2$ . The toe of the shoe may be either spread or reduced within certain limits without interfering with the passage of the screws, as some part of the slot  $h^2$  will always register with the corresponding hole in the toe-calk.

In the drawings I have shown holes  $a^5$  and  $a^6$  in each side of the heel-plate somewhat forward from the heel. This is to allow the calks to be set forward from the heel in case the horse has a sore heel. Also one of the heel-calks is shown arranged parallel with the toe-calk and the other at right angles thereto; but this arrangement is not essential, as the calks may be arranged according to the circumstances of each case.

What I claim is—

1. The combination with a horseshoe-plate provided with a series of screw-threaded holes, of supporting members provided with screw-threaded shank portions arranged to screw into said screw-threaded holes in said shoe-plate, calks arranged to abut against and lap over said supporting members, screws securing said calks to said supporting members and means for locking said screws against accidental displacement, substantially as described and for the purpose set forth.

2. The combination with a horseshoe-plate provided with a series of screw-threaded holes, of supporting members having screw-thread-

ed shank portions arranged to screw into said holes in said shoe-plate, calks arranged to abut against and lap over said supporting members, grooves formed in the surfaces of said calks, screws securing said calks to said supporting members, eyelets formed in the ends of said screws and locking-pins arranged in said grooves in said calks and passing through the eyelets in said screws, substantially as described and for the purpose set forth.

3. The combination with a horseshoe-plate, provided with a series of screw-threaded holes, of supporting members provided with screw-threaded shank portions adapted to screw into the holes in said shoe-plate, depressions formed in said shoe-plate, calks arranged to abut against and lap over said supporting members, lugs projecting from the bottom of said calks and arranged to enter said depressions in said shoe-plate and means for securing said calks to said supporting members, substantially as described and for the purpose set forth.

4. The combination with a horseshoe-plate provided with a series of screw-threaded holes, of supporting members provided with screw-threaded shank portions adapted to screw into the holes in said shoe-plate, calks arranged to abut against and lap over the said supporting members, depressions formed in said shoe-plate, lugs projecting from the bottom of said calks and arranged to enter said depressions in said shoe-plate, grooves formed in said calks, screws securing said calks to said supporting members, eyelets formed in said screws and pins arranged in said grooves in said calks and passing through the eyelets in the said screws, substantially as described and for the purpose set forth.

In testimony whereof I sign the foregoing specification, in the presence of two witnesses, at Cleveland, Ohio.

THOMAS F. JUDGE.

Witnesses:

VICTOR C. LYNCH,  
G. M. HAYES.