

(No Model.)

2 Sheets—Sheet 1.

S. ROBINSON.
HORSESHOE CALK.

No. 504,943.

Patented Sept. 12, 1893.

Fig. 1.

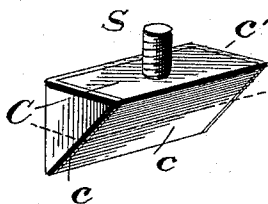


Fig. 2.

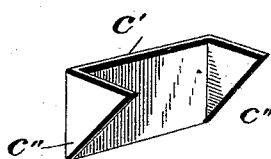


Fig. 3.

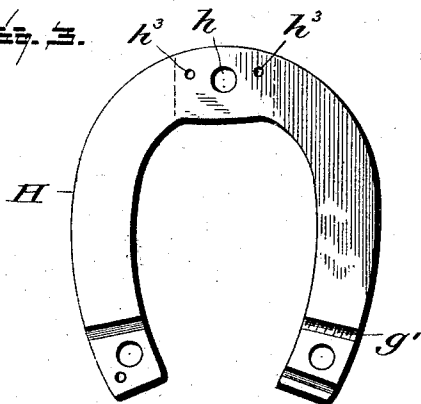


Fig. 4.

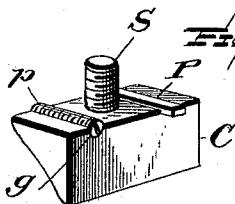
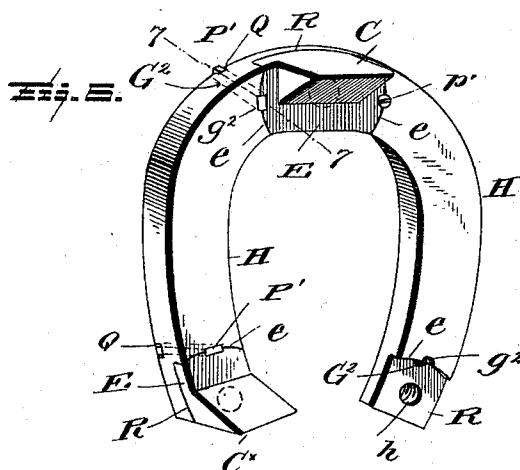
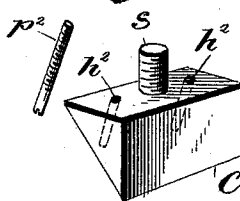


Fig. 5.



Witnesses

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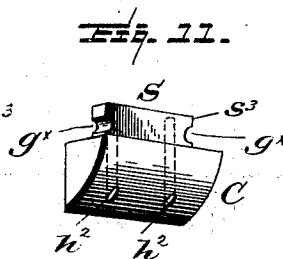
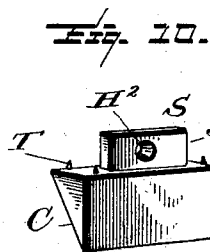
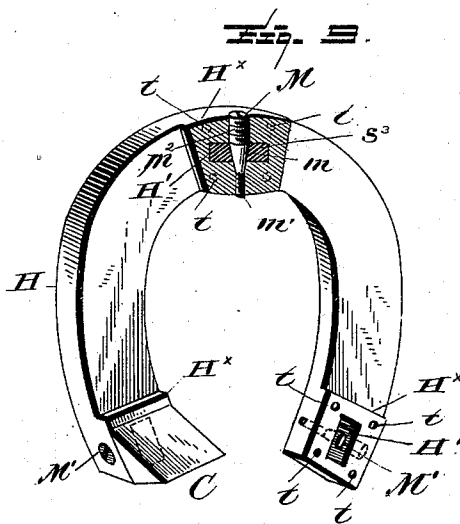
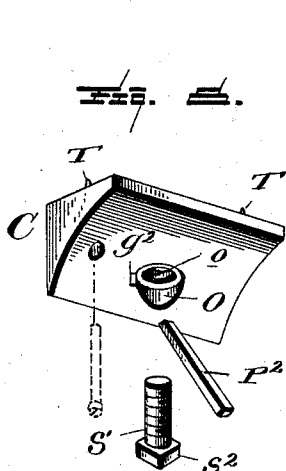
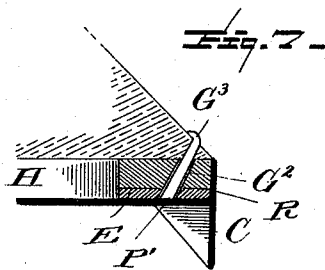
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2 Sheets—Sheet 2.

S. ROBINSON.
HORSESHOE CALK.

No. 504,943.

Patented Sept. 12, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL ROBINSON, OF MONMOUTH, ILLINOIS.

HORSESHOE-CALK.

SPECIFICATION forming part of Letters Patent No. 504,943, dated September 12, 1893.

Application filed December 22, 1892. Serial No. 456,000. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL ROBINSON, a citizen of the United States, and a resident of Monmouth, Warren county, State of Illinois, have invented certain new and useful Improvements in Horseshoe-Calks; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to horse-shoes, and more especially to the calks thereon; and the objects of the same are to produce an improved calk and to provide improved means for securing a calk detachably to the shoe.

To this end the invention consists primarily in a calk composed of a triangular iron body with a steel facing or covering upon one side and both ends, together with means for securing it detachably to the shoe; and secondarily in an attaching means consisting essentially of a shank on the calk engaging an opening in the shoe, and incidentally of a locking pin (which may be either a key or screw) to be used in connection with the shank—all as described below and illustrated on the accompanying drawings, wherein—

Figure 1 is a perspective view of the calk alone. Fig. 2 is a similar view of the steel facing of the calk. Fig. 3 is a bottom plan view of a shoe showing three forms of pin-openings. Fig. 4 is a plan view of a calk with the screw and key pins in place. Fig. 5 is a perspective view of a calk with the screw pin slightly removed. The calks shown in Figs. 4 and 5 are capable of application to the shoe shown in Fig. 3. Fig. 6 is a perspective view of a shoe showing two calks in place and one omitted. Fig. 7 is a section on the line 7—7 of Fig. 6. Fig. 8 is a perspective view of another form of calk with the screw shank and its key pin slightly removed. This view also shows in dotted lines how a screw pin may be used with this calk. Fig. 9 is a perspective view of one form of shoe showing one calk omitted, one in place, and a third in place and in section. Fig. 10 is a perspective view of one of the calks used in Fig. 9. Fig. 11 is a perspective view of another form of calk which may be used in Fig. 9 with slight changes in the construction there shown.

In all the figures of the drawings where they

occur, the letter H designates the horse-shoe, R a recess therein, C the calk, E its enlargement, S the shank, and P the fastening pins, which may be screws as indicated by small letters or keys as indicated by large letters.

The calk.—The construction of the calk is preferably as follows (see Figs. 1 and 2): The body *c* of the calk is of comparatively soft iron, triangular in end elevation and rectangular in all sections at right angles to its axis; that is to say, the upper face or top and the two sides of the calk are rectangular, while the ends are triangular, thereby forming an approximately flat side for the calk against the shoe and a narrow working edge which strikes the earth. Secured in any suitable manner to one face and to both ends of the body *c* is a covering or coating *c'* of steel fully illustrated in Fig. 2. It will be obvious that the softer body will wear away in use more rapidly than the harder facing, and as the latter stands on edge and with the points of the triangular ends *c''* downward, the wearing away of the softer body will keep the calk constantly sharp. However, in summer the calk could be filed off to present a flat lower face, as on the dotted line in Fig. 1; or the whole calk could be filed off, having only the shank *S* to fill the shank-opening.

The fastening pins.—In the lower face of the horseshoe, at proper points I make openings *h* for the shanks *S* of the calks, which openings are preferably of good size and threaded, the shanks *S* being preferably also threaded to correspond,—whereby the shank of the calk may be screwed into the shank-opening. After so seating it, means must be provided to prevent its unscrewing and hence I have devised the fastening pins. These pins may be screws as shown at *p*, and which pass across grooves *g* in the top of the calk (Fig. 4) and corresponding grooves *g'* in the shoe (Fig. 3); or, as in Fig. 6, the screw *p'* may pass upward in grooves *g''* in the meeting faces of the calk and shoe through the groove and through a hole as shown at *g''*; but it will be clear the screw *p''* may pass directly through a hole *h''* in the calk (Figs. 5 and 11) and into a hole *h''* in the shoe. After being inserted the screw is turned tightly home and its dislocation is next to impossible. The fastening pin may be a key *P* which may pass across

the top of the calk as shown in Fig. 4 and in the same manner as does the screw p therein; but which key P' will preferably pass into registering grooves G^2 between the meeting faces of the end of the calk and the shoe (Figs. 6 and 7), thence upward through an inclined hole G^2 in the shoe, and at the toe through a portion of the hoof, and be clinched thereon as shown at G^3 —thereby securing the calk against rotation around its shank and also securing the shoe upon the hoof. Heretofore these fastening pins have been passed horizontally through the shank and shoe or in grooves in their meeting faces, and they have also been passed vertically through the calk and shoe—thus being either at right angles to or parallel with the shank; but I am not aware that the pins have ever been arranged oblique to the length of the shank, and I consider such arrangement highly advantageous. If the shank should be plain—that is without threads—an oblique fastening pin would tend to prevent to a certain degree the dislocation of the shank from the shank-opening; and whether the shank is smooth or threaded, it will be obvious that the pin will prevent the rotation of the shank in its opening. A vertical pin would not prevent the shank being drawn out of its opening, and a horizontal pin would not afford so strong a resistance to the rotation of the shank; hence I claim for an oblique pin the combined advantages arising from either of the other constructions. The two forms of fastening pin may be used independently or simultaneously as shown in various views, as desired.

The shank.—As has been above stated, the shank S is usually practically a screw cast or formed integral with the calk as shown at s in Fig. 5, though this is susceptible of some modification. For instance, in Fig. 8 I have formed an opening o through the body of the calk with its lower end enlarged as at O , and I make the shank s' in the shape of a screw with an angular head s^3 of a size to pass into the enlarged lower end O of the opening o and to rotate therein. A calk of this construction preferably has points or teeth T on its upper face to embed the shoe or to pass into teeth openings t therein as shown in several views. The calk is brought into position and the screw s' passed through the opening o and into the shank opening h and after the screw is turned home a fastening key P^2 is brought into use to prevent the screw from working loose. This key is passed through an inclined opening g^2 in the calk, and preferably through the shoe and clinched as shown in Fig. 7, and the head of the key stands against one of the flat faces of the head s^2 of the screw-shaped shank s' .

A second modification is shown in Figs. 9, 10 and 11. In this case the shank s^3 is rectangular and fits into a similarly shaped hole H' in the shoe H , said hole being formed in a slightly thickened part H^x of the shoe. Transversely through the shank s^3 is formed

a tapering hole H^2 , and through this hole is adapted to be passed a screw M (Fig. 10) whose center m is smooth and tapering, whose smaller end m' is threaded, and whose larger end m^2 is threaded and has a slot m^3 in its extremity for a screw driver. Horizontally through the shoe at its thickened portions H^x are formed holes M' for the reception of the screws M , as seen at the right of Fig. 9. A slight additional modification is shown in Fig. 11 wherein the square shank s^3 is provided with grooves g^x for the reception of either style of pin shown in Fig. 4, and in this case the enlargements H^x of the shoe must of course be provided with suitable openings for these pins.

The recessed shoe.—In Figs. 6 and 7 I have shown a shoe provided in its lower face with recesses R , and the calk C is enlarged at its upper end as at E so as to accurately fit said recesses. The ends of the latter and the ends of the calk are rounded or curved as at e concentric with the shank and shank-opening; and the pin-openings are preferably constructed in the shape of grooves g^2 in the ends e and adapted to be caused to register, above which the openings are continued through the shoe as at G^2 . This form of calk is obviously applied by screwing this shank into the shank-opening and thereafter one or more fastening pins are inserted to prevent unscrewing. The shank of the toe-calk stands midway between its curved ends e as seen in dotted lines so that the calk may be turned into the recess R ; after which the pin P' is passed through the registering grooves g^2 and the hole G^2 , and is either clinched on the hoof as shown at G^3 in Fig. 7 or may be clinched in a small notch Q in the top of the shoe as shown in Fig. 6. The shank of the heel calk C^x (Fig. 6) will be nearer the flat rear end of the calk than its front rounded end e , so that this heel calk can be turned to its seat in the recess R ; after which the same fastening pin P' is used as has been described, but here this pin cannot be clinched through the hoof as shown in Fig. 7 but will preferably rest in the notch Q .

It is thought that the manner of attaching and detaching the various calks described and shown, and of inserting and removing the fastening pins will be clearly understood by a person familiar with the art. The essential part of the invention is that the calk has a shank fitted into a shank opening in the shoe—preferably screwing thereinto, although it may pass into such openings and be held by a transverse screw; and the unscrewing or dislocation of the shank from these openings is prevented by means of one or more fastening pins, themselves either screws or keys. All else is but a description of the different ways of carrying out this idea. As stated above, the body of the calk is preferably of iron faced with steel, although this may be modified. Many other changes in the exact details of construction may also

be made without departing from the spirit of my invention.

What is claimed as new is—

1. A horse-shoe calk comprising an iron
5 body having rectangular top and sides and triangular ends, a steel coating on one side and both ends, a shank rising from said body, and means for connecting the shank detachably with the shoe, substantially as described.
- 10 2. The combination with a horse-shoe having a calk-opening and a smooth pin-opening extending obliquely upward through and terminating near the outer edge of the shoe; of a calk having a threaded shank fitting said
15 calk-opening, and a pin opening adapted to be brought in register with that in the shoe, and a fastening key passing through said registering smooth openings, and clinched at its upper end, substantially as described.
- 20 3. The combination with a horse-shoe having a calk-opening, a threaded pin-opening, and a smooth pin-opening extending obliquely upward through and terminating near the outer edge of the shoe; of a calk having a
25 threaded shank fitting said calk-opening, and pin openings adapted to be brought in register with those in the shoe, a fastening screw removably seated in the registering threaded
30 pin-openings, and a fastening key passing through said registering smooth openings, through and out of the hoof, and clinched on the latter, substantially as described.
4. The combination with a horse-shoe, having a recess in its lower face, a threaded calk-
35 opening in the shoe at the center of the recess,

the ends of the latter being curved concentric to said opening, and a pin-opening passing through the shoe and forming a groove in one of said curved ends; of a calk, its body shaped to fit said opening and having a sharpened
40 lower edge extending below the plane of the shoe, and a threaded shank taking into said shank-opening, the end of said body having a groove adapted to register with that in the recess, and a fastening pin passing through
45 said registering grooves into the pin-opening, as and for the purpose set forth.

5. The combination with a horse-shoe having a notch in its upper face and a recess in its lower face, a threaded calk-opening in the
50 shoe within the recess, one end of the latter being curved concentric to said opening, and a pin-opening passing through the shoe to said notch and forming a groove in said curved end: of a calk, its body shaped to fit said
55 opening, a threaded shank taking into said shank-opening, the end of said body having a groove adapted to register with that in the recess, and a fastening pin passing through
60 said registering grooves into the pin-opening and clinched within said notch, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 17th day of December, A. D. 1892.

SAMUEL ROBINSON.

Witnesses:

C. B. PEASE,
B. G. KIMNOEL.