

S. GORDON.
HORSESHOE AND CALK.
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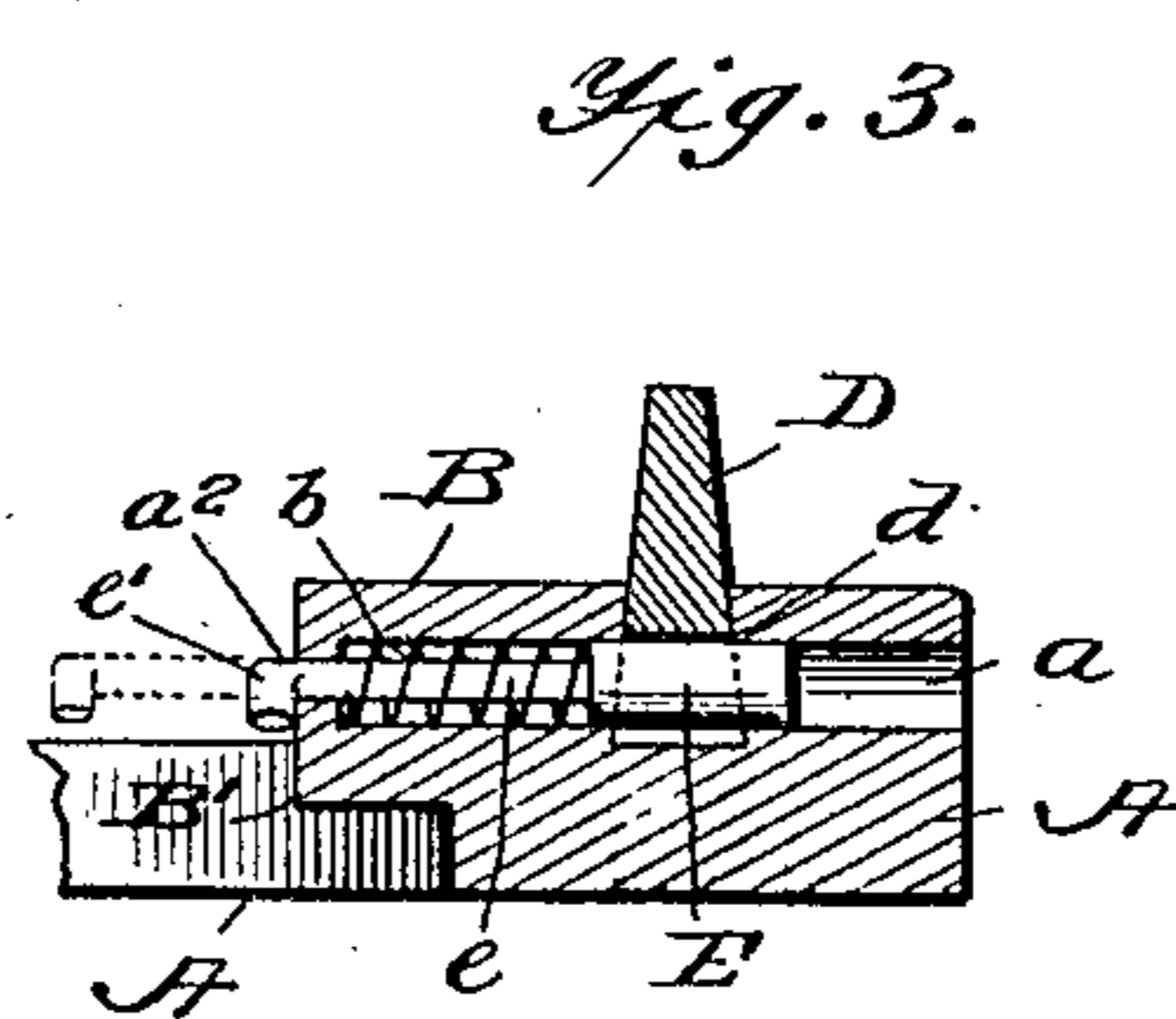
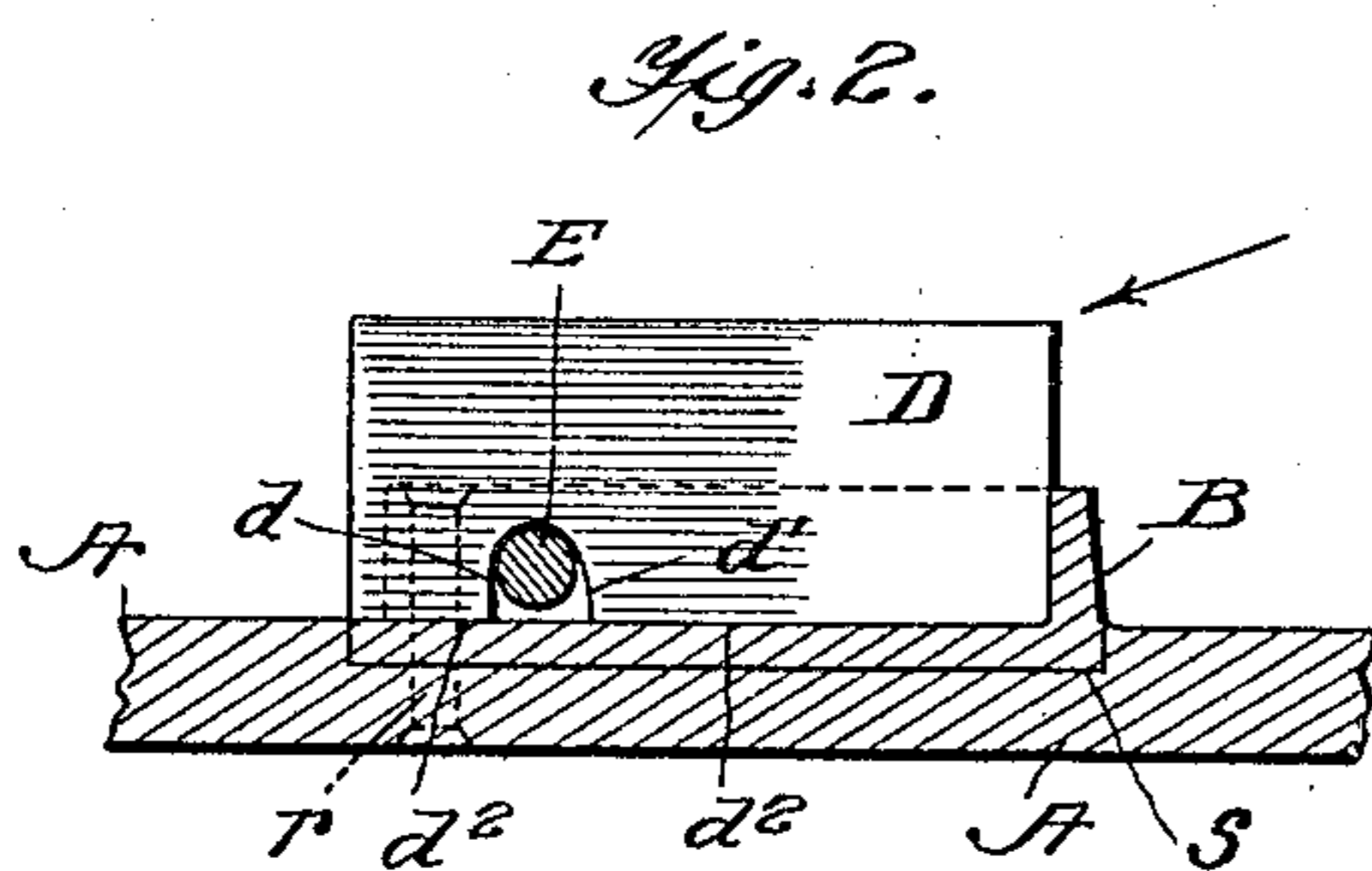
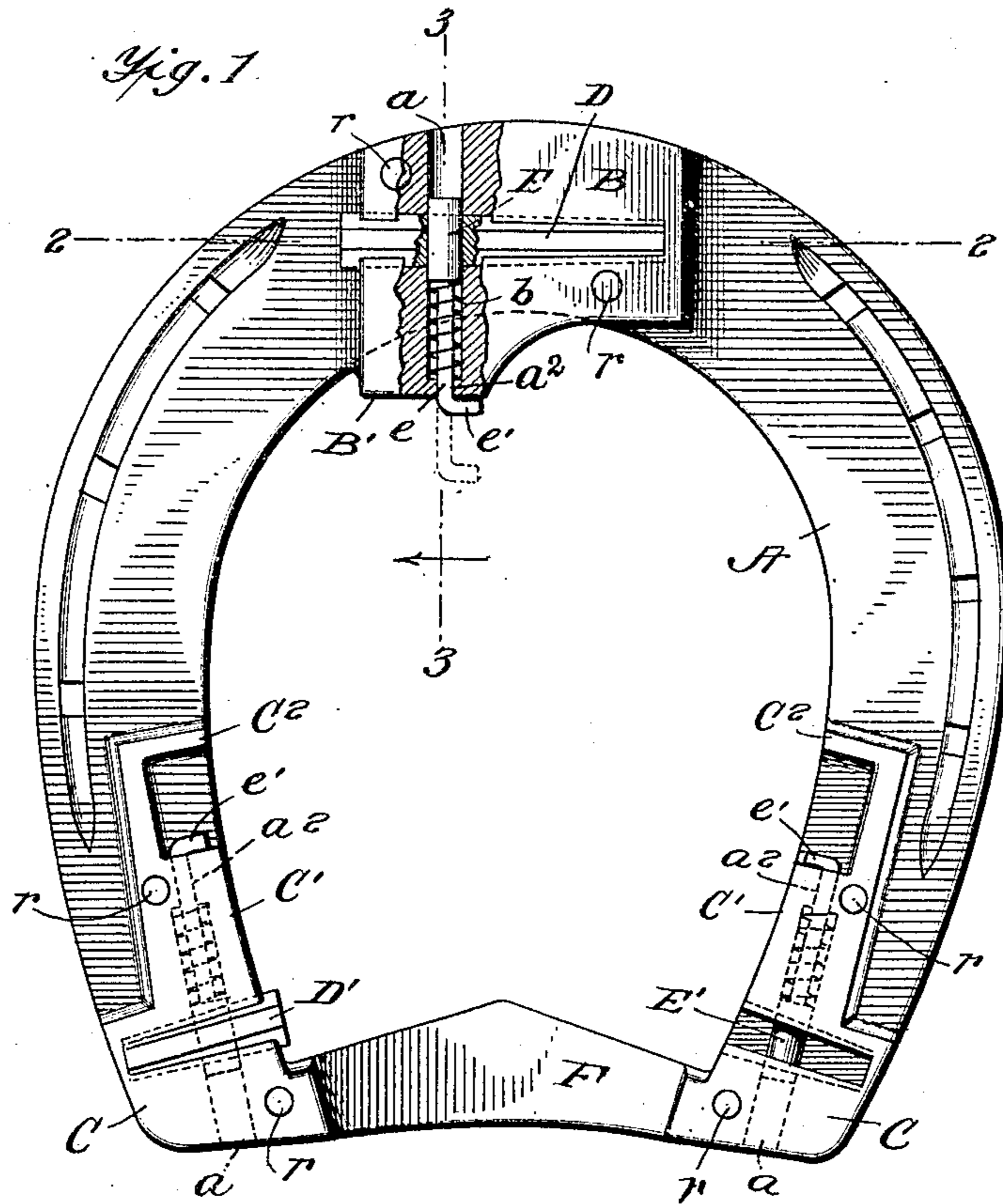
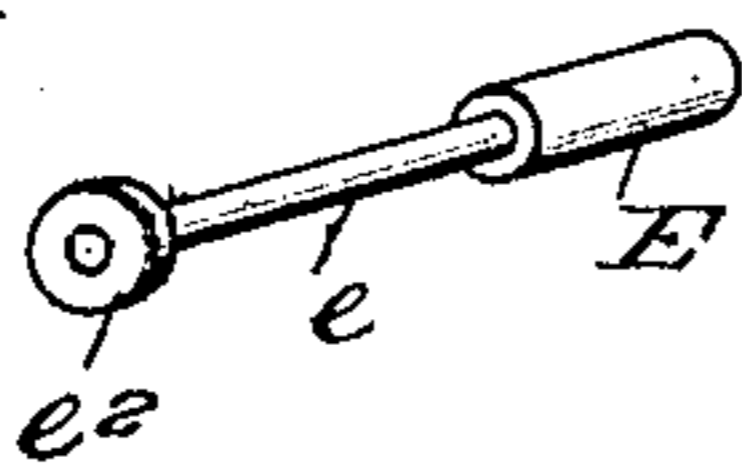


Fig. 4.



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HORSESHOE AND CALK.

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To all whom it may concern:

Be it known that I, SIMON GORDON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Horseshoes and Calks, of which the following is a specification.

My invention relates to horse-shoes of that type which are provided with detachable calks, and especially that form employing dove-tail tapering calks with means for locking them in their seats on the face of the shoe.

My invention consists in the novel construction and arrangement of parts for quickly and conveniently locking the calks in place, or removing them, as occasion may require, and for securely holding them in place against accidental dislodgment, as will be hereinafter more fully described with reference to the drawing, in which—

Figure 1 is an outside face view of a shoe partly broken away and showing the detachable calks and my improved means for locking them in place, Fig. 2 is a detail sectional view, taken on the line 2—2 of Fig. 1, Fig. 3 is a sectional detail taken on line 3—3 of Fig. 1, and Fig. 4 is a detail in perspective of a modified form of locking bolt.

In the drawing A represents a horse shoe which may be forged or cast. As shown, it is cast with a bridge-piece F connecting the heels, which bridge-piece may, however, be dispensed with if desired. At the toe the shoe is formed with a projecting part B of greater thickness than the sides of the shoe and the heels are formed with thickened portions C C of the same vertical thickness as the toe part B. In the thickened portion B of the toe, and also in the parts C of the heel, are formed dove-tail or undercut seats opening at one end but stopping short of the other side of the thickened portion. These seats are dove-tail in cross section, being widest at the bottom, as seen in Fig. 3. Said seats are also tapered in the direction of their length, being widest at their opening ends so that the detachable calk D, which is of corresponding dove-tail and tapering form, will enter the seat with a wedging action. The locking devices for holding the calks in their seats are substantially the same for both the toe and heel parts. The calks are arranged transversely to the line of travel and through the raised portions B and C are

drilled holes in horizontal direction, parallel to the plane of the shoe. The hole at the toe part is drilled from front toward the rear of a definite diameter a adapted to receive a corresponding horizontal locking bolt E. From the hole a the drilling is continued through to the interior of the shoe with a smaller hole a^2 . The locking bolt E is formed with a reduced stem portion e adapted to pass through the smaller hole a^2 . Around the smaller stem portion is disposed a spiral spring b which bears at one end against the shoulder between the larger portion of the bolt and its stem and at the other end bears against the seat formed between the larger holes a and the smaller hole a^2 in the raised portion B of the shoe. This spring, it will be seen, has a tendency to force the bolt E across the channel in which the calk is seated. The extent to which it is allowed to go is determined by a bend e^1 on the end of the stem of the bolt which takes up against the metal of the shoe outside the hole. To enable this bolt to engage and lock the calk in its seat, the lower and thicker edge of the calk is formed with an open slot d , see Fig. 2, through which the bolt E extends when its spring forces it across the channel of the calk, as seen in Fig. 1. When in this position the bolt E by engaging with the hole a on each side of the channel of the calk and also with the slot d of the calk, prevents the latter from moving out of its seat, the dove-tail form of the calk in cross section preventing the latter from moving vertically away from the bolt.

The object in having the open slot d in the calk, instead of a round hole, is, see Fig. 2, to allow the calk to get at the points d^2 d^2 a solid bearing on the body A of the shoe, so that the weight of the horse and the stamping strain does not come on the bolt E to bend and cramp it, but the bolt is relieved of all damage incident to travel on the road bed, so that it is never bent or damaged and its freely sliding and operative character is never interfered with by the conditions of use. It will also be seen that one side of the slot d is made a little inclined, as seen at d^1 in Fig. 2. The object of this is as follows: If, by the lateral thrust of a stone or other cause, a strain is brought on the calk in the direction of the arrow in Fig. 2, tending to drive it out of its seat, the incline d^1 will ride up on the bolt E tending to bring the thick, dove-

tail edge of the calk into the narrower outer part of the channel and thus jam and hold the same.

For inserting the bolt E in its seat, the hole *a* is drilled from the outside and the bolt E is originally made with a straight stem *e*. The spring *b* is then placed around the stem *e* and the two together are inserted from the outside in hole *a*, the stem *e* being entered first. After it is forced in a sufficient distance, the spring is held under compression by a nail or other object inserted in the hole *a* with the bolt in proper relation to the calk seat, and while in this position the inner end of the stem is bent around at *e*¹, so that the latter forms a stop projection to limit the expansive action of the spring. To remove the calk it is only necessary to pull back the bent end *e*¹ of the bolt, as shown in dotted lines in Fig. 1, and this action removes the bolt from the slot *d* of the calk and allows the latter to be withdrawn from its seat.

Instead of bending over the inner end of the stem *e*, as seen at *e*¹ in Fig. 1, the stem may have a button riveted onto its end, as seen at *e*² in Fig. 4.

The construction and arrangement of the heel calks D¹ and their locking bolts E¹ and other parts is precisely the same as that described for the toe. For securing the locking bolts, however, at the heels, the raised portions C are extended at C¹ inwardly in relation to the shoe and a raised projection C² is formed on the shoe surrounding the inner end of the bolt to prevent damage to its inner end and yet be far enough away to allow the withdrawal of the bolt. The prolongation of the raised portion C¹ gives ample room for the proper seating and movement of the bolt, which at the toe is provided for by a slight inward projection B¹ of the raised toe portion. It will be seen that the portion B¹ of the toe projection and the portions C¹ of the heel projections are in the nature of horizontal extensions on one side of the calk seats which form housings for the spring bolts and which are necessary in order to give sufficient room for the retraction of the bolt in disengaging it from the calk.

In pointing out the distinguishing features of novelty in my invention, I would state that the coacting elements are to be found mainly in the horizontal arrangement of the spring bolt in a plane of movement parallel to the plane of the shoe but within the raised projection in which the calk seat is formed, which projection renders it possible to have such horizontally reciprocating bolt with ample play and locking movement without impairing the strength of the body of the shoe and also making a positive, strong lock and in a manner which is not liable to be damaged by use.

The shoes are to be made in various sizes to fit any horse, and the calks may be carried

in the pockets of the driver and be quickly applied to meet sleety and slippery conditions of road bed in any emergency and at any time or place.

If desired, the ends of holes *a* may be filled with a plug of wood or cork to keep out dirt, and, in like manner, the calk seats may have wooden filling pieces to keep out dirt when the calks are not in place, but I make no claim to such filling pieces, as they are old and well known expedients.

As so far described I have spoken of the raised projections B, C, C, as though they were formed integrally with the body of the shoe, and in some cases they are to be so formed, as shown in Fig. 3. My invention contemplates, also, the formation of the raised projections B, C, C, as separate and independent parts carrying the calks and spring locking bolt, which calk seats are adapted to be applied to any flat shoe by rivets *r*. Such flat shoes are preferably made with a recess *s*, Fig. 2, to receive the raised projection and hold it more strongly.

I claim—

1. A horse shoe having on its outer surface a projection extending beyond the face of the shoe and formed with an under-cut calk seat opening on the surface of the projection and also at one side, said projection being also formed with a horizontal extension on one side of the calk seat to form a housing for a spring bolt, and a spring bolt arranged in said horizontal extension and engaging the calk.

2. A horse shoe having on its outer surface a projection extending beyond the face of the shoe and formed with an under-cut calk seat opening on the surface of the projection and also at one side, said projection being also formed with a horizontal extension on one side of the calk seat to form a housing for a spring bolt, and a spring bolt arranged in said horizontal extension and engaging the calk, said spring bolt being extended through said horizontal extension and having a stop outside of the same to limit the movement of the spring bolt across the calk seat.

3. A horse shoe having an undercut calk seat and a detachable calk of cross section corresponding to the undercut calk seat, and a spring bolt arranged in a plane parallel to the plane of the shoe and engaging the calk, said calk being formed with a transverse slot in its wider side to receive the bolt and straddle the same without involving a bearing strain on the bolt, and the inner side of said slot being inclined.

4. A horse shoe having on its outer face a raised projection having a horizontal calk seat in the same and having also transversely to said calk seat a horizontal hole of two diameters, a bolt of two diameters having its smaller stem end extending through the

smaller hole and provided with an external stop projection on its end and a spiral spring wound about the stem and arranged to force the bolt across the calk seat, and a detach-
5 able calk arranged to be rocked by said bolt.

5. A horse shoe having on its outer face a raised projection having a horizontal calk seat in the same and having also transversely to said calk seat a horizontal hole of two di-
10 ameters, a bolt of two diameters having its smaller stem end extending through the smaller hole and provided with an external stop projection on its end and a spiral spring wound about the stem and arranged to force
15 the bolt across the calk seat, the larger end of the hole being on the outside of the shoe and the bolt being inserted from the outside and having its stop projection subsequently formed on its inner end, and a detachable
20 calk arranged to be locked by said bolt.

6. A horse shoe having at its heel portion a raised projection extending inwardly and a supplemental guard around the inner end of

the projection, and an undercut calk seat, a detachable calk arranged therein and a 25 spring locking bolt arranged parallel to the plane of the shoe and having its inner end within the protection of the guard.

7. A horse shoe having a detachable calk seat secured thereto and carrying a detach- 30 able calk and a spring bolt for locking the latter in the said calk seat, said calk seat being formed with a projection on one side in which the bolt is arranged.

8. A calk seat made separate and apart 35 from the shoe and having a detachable calk therein, a projection on one side of the calk seat, and a spring bolt for locking the calk in its seat, said spring bolt being arranged in said projection. 40

In testimony whereof I affix my signature in presence of two witnesses.

SIMON GORDON.

Witnesses:

GEORGE M. MANN,
GEORGE W. COOK.