No. 817,625. PATENTED APR. 10, 1906.

C. W. CRANNELL.

NAILLESS HORSESHOE.

APPLICATION FILED JAN. 27, 1905.

2 SHEETS—SHEET 1.

Fig. 2.

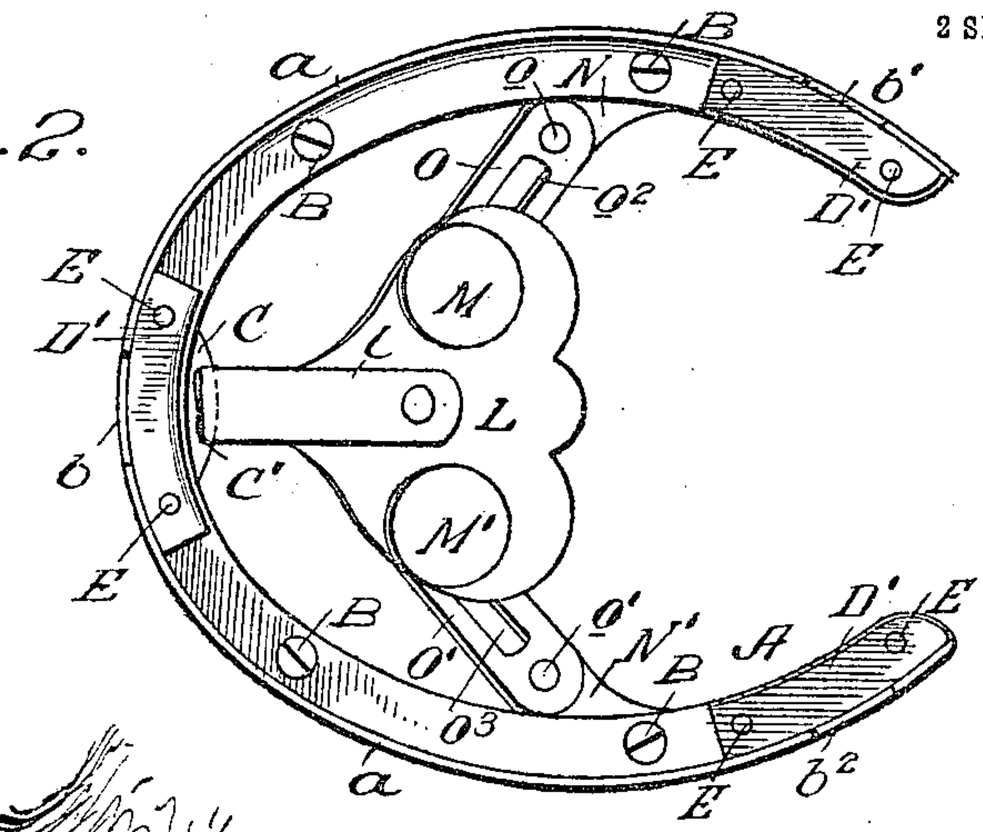


Fig. 1.

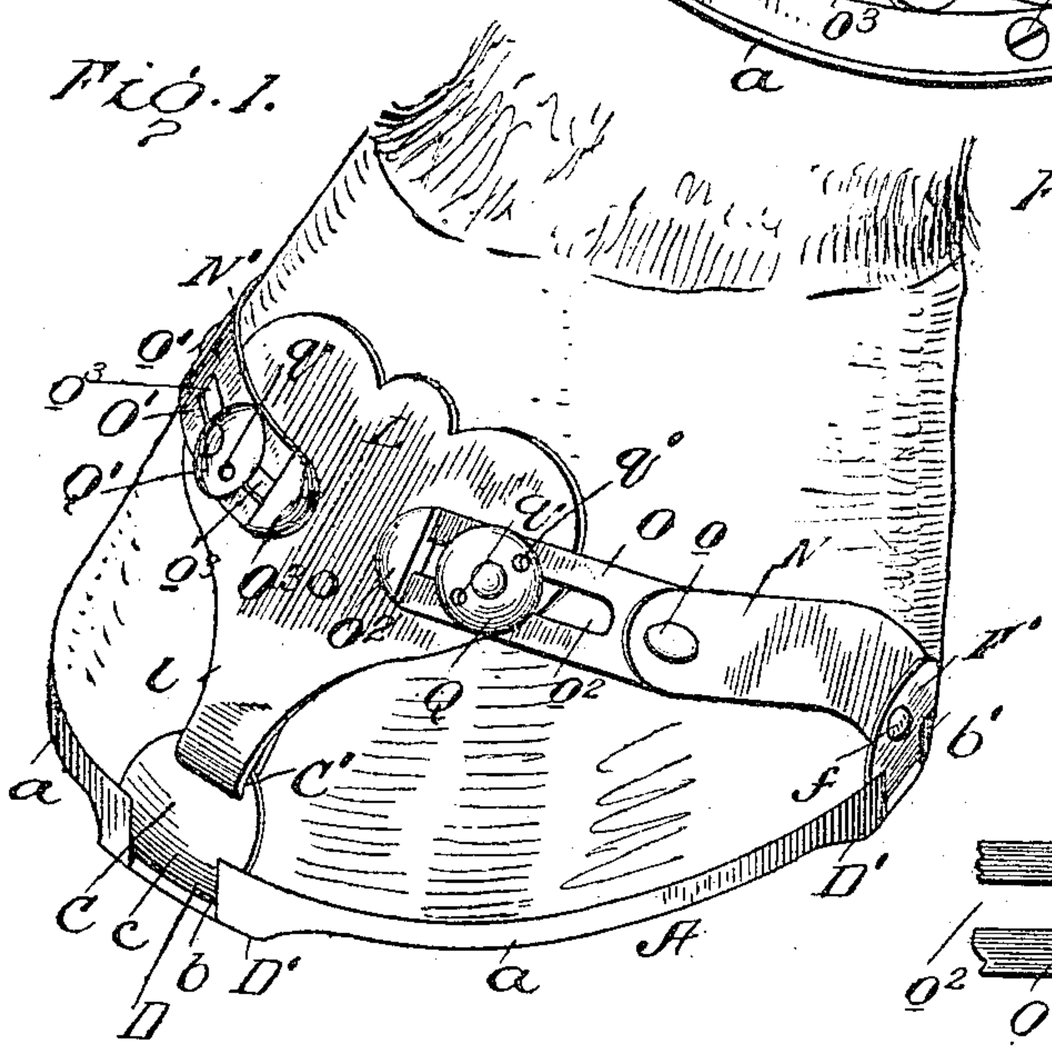


Fig. 7.

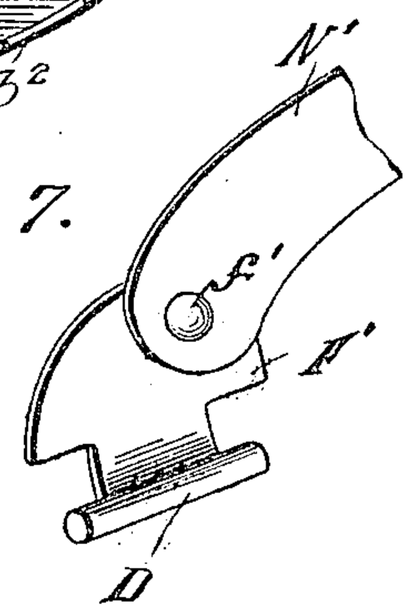


Fig. 8.

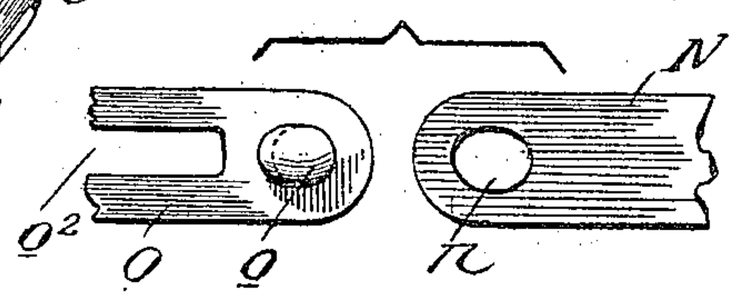
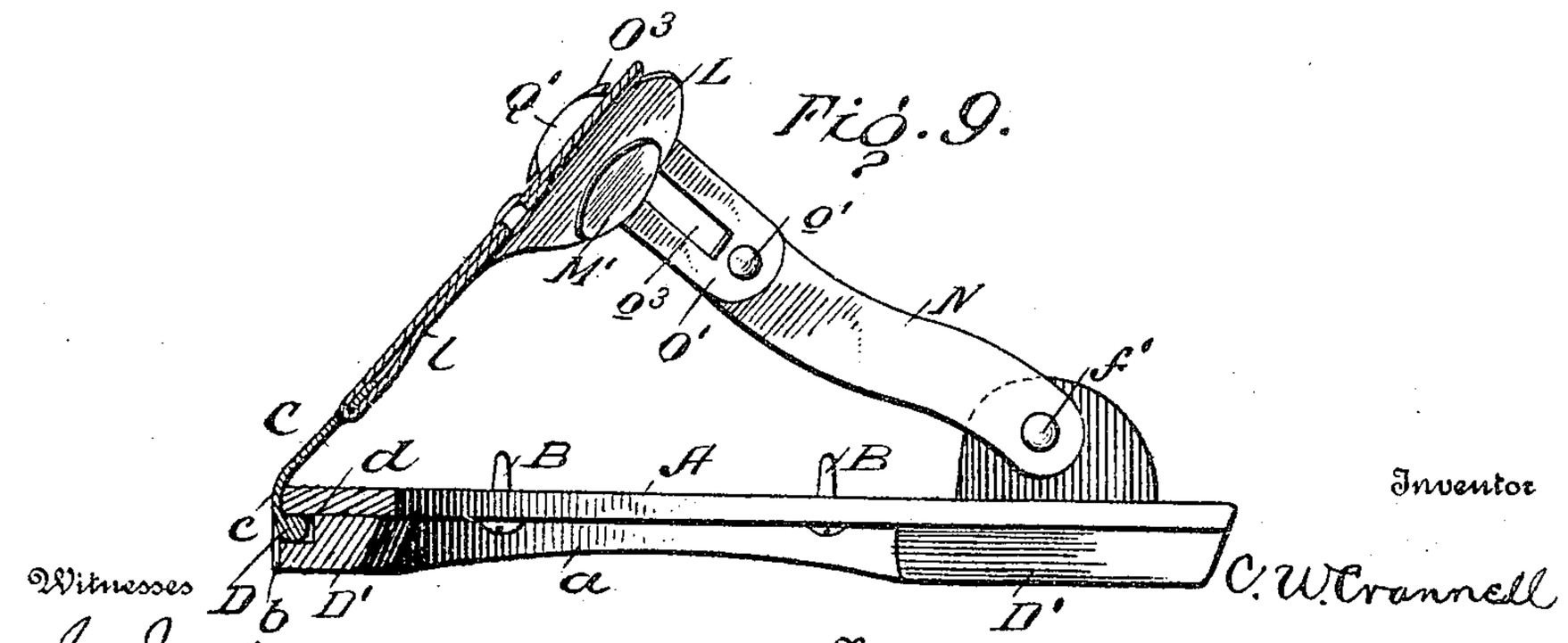


Fig. 9.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

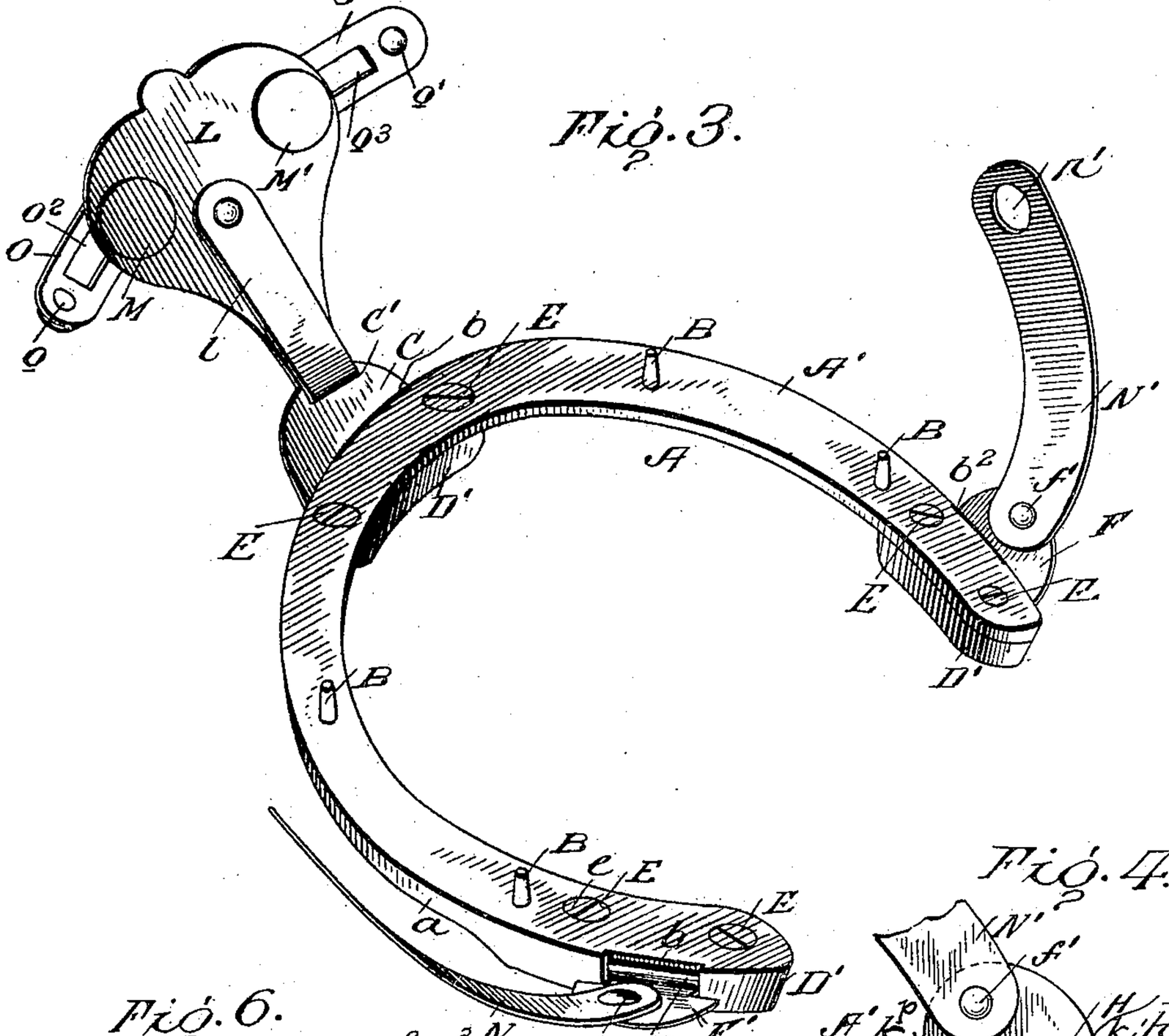


Fig. 4.

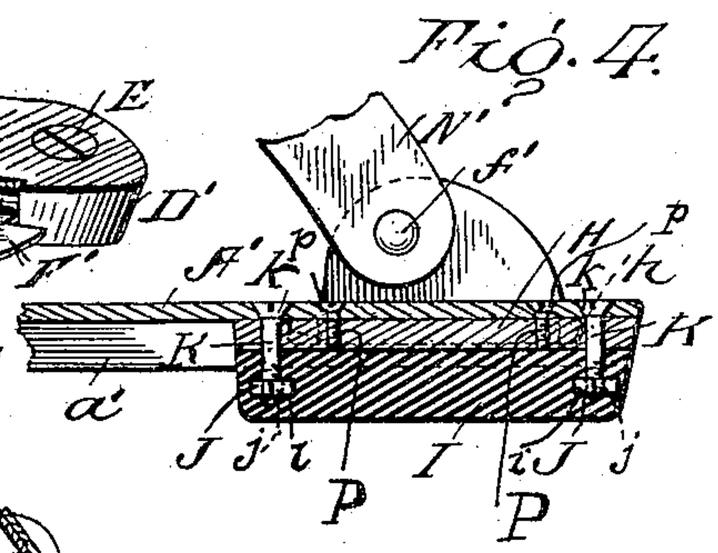


Fig. 6.

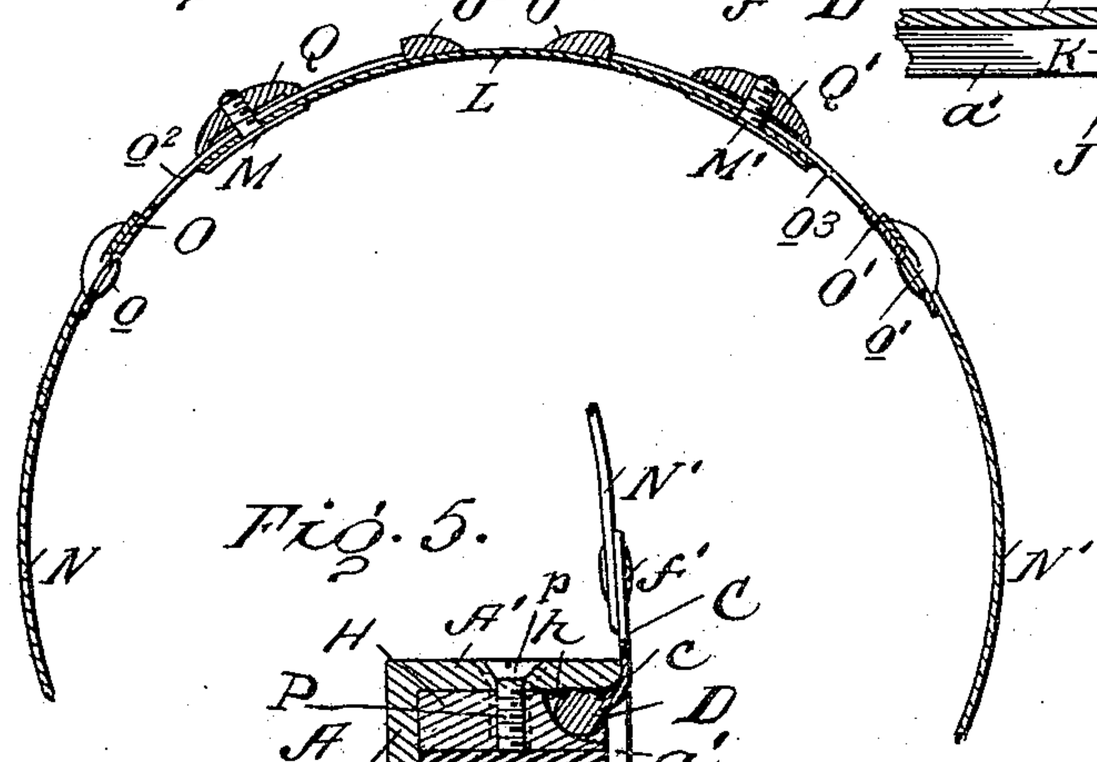
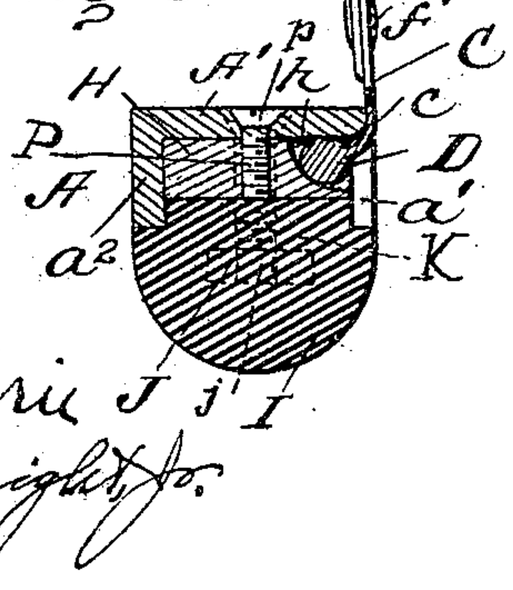


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES W. CRANNELL, OF ROCKY FORD, COLORADO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE AMERICAN NAIL-LESS HORSE SHOE COMPANY, A CORPORATION OF COLORADO.

NAILLESS HORSESHOE.

No. 817,625. Specification of Letters Patent. Patented April 10, 1906.

Application filed January 27, 1905. Serial No. 242,869.

To all whom it may concern:

Be it known that I, CHARLES W. CRANNELL, a citizen of the United States, residing at Rocky Ford, in the county of Otero and State of Colorado, have invented certain new and useful Improvements in Nailless Horseshoes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in nailless horseshoes.

The object of my invention is to provide a shoe of this character in which the clamping members for holding the shoe on the hoof are over the thickest part of the shell thereof, while in the ordinary nailless and nail-shoe the holding means is in or over the thinner part of the shell of the hoof, and therefore not holding as well, and causing the feet of the horse to become tender.

Another object of my invention is to provide a shoe which can be removed at will, and the calks or rubber tread may be readily replaced when they become worn, or it can also be used in connection with speedy horses when it is desired to increase or decrease the weight of the shoe, and this is accomplished by placing larger or smaller calks thereon. The said calks serve the twofold purpose of a calk and the means for holding the pivoted clamping members to the shoe.

A still further object of my invention is to provide a shoe of this character in which the hoof is allowed to have its natural expansion during motion.

In the accompanying drawings, Figure 1 is a perspective view of a horse's hoof, showing my shoe applied thereto. Fig. 2 is a bottom plan view of the shoe removed, showing the links connected as shown in Fig. 1. Fig. 3 is an enlarged perspective view of the shoe removed, showing the toe and heel plates thrown outwardly for the reception of the hoof. Fig. 4 is a vertical longitudinal sectional view of one of the heel-plates, showing the rubber tread applied. Fig. 5 is a transverse vertical sectional view of Fig. 4. Fig. 6 is a horizontal sectional view through the enlarged toe-plate and the connecting-links. Fig. 7 is an enlarged detached perspective view of one of the heel-plates. Fig. 8 is an enlarged detached view of the links, showing the interlocking means carried thereby. Fig. 9 is a vertical longitudinal sectional view of the shoe and the connecting-links.

Referring now to the drawings, A represents the shoe, which, as shown, will be made in a number of sizes, so that the same can be fitted on the ordinary horse, and which is provided at its outer edge with the downwardly-extending flange *a*, as shown in Fig. 3, which forms the tread portion of the shoe in the ordinary use thereof. The said shoe has its upper face A′ provided with upwardly-extending studs or projections B, which are pointed and adapted to be driven into the horse's hoof, and thus aid in preventing any lateral movement of the shoe on the hoof. The said projections are preferably screwed through the shoe A and their upper ends not provided with threads for the purpose above described. The said projections are of such a length that they do not extend far into the hoof, and thus the shoe may be readily removed when desired. After the shoe has once been driven on and removed it is understood that the openings in the hoof are such that the projections B will readily enter the same without being driven in.

The downwardly-extending flange *a*, carried by the outer edge of the shoe, is cut away at the toe and heel portions on each side, the toe portion being cut away at the joint *b*, while the heel portion is cut away on opposite sides at *b*′ and *b*², the toe and heel plates being constructed in precisely the same manner, and I will now only describe the toe-plate C. The said plate C is of the shape clearly shown in Fig. 1 of the drawings and is provided with a reduced inwardly-curved portion *c*, which is of a width slightly less than that of the cut-away portion *b* of the flange *a*, and thus the same passes freely through the said cut-away portion. The lower end of said curved portion *c* is provided with a transverse rounded bar D, which extends beyond each end of the curved member *c* and forms pivots by means of which the same is swingingly connected to the shoe. The said bar in its operative position is on the under side of the shoe, and for holding the same in said position I provide the calk D′ with the cut-away portion *d*, which is adapted to receive the bar, and the said calks are held in said position by screws E, which extend down through the shoe A proper into

the calks, the heads *e* of the screws being embedded in the shoe, so that a perfectly smooth surface is obtained. While I have specifically described only the toe-plate C, it is understood that the heel-plates F and F′ are constructed in precisely the same manner and held in position by the two heel-calks, which are held on the shoe by screws in the same manner as the toe-calk D′.

While I have shown and described the form of shoe shown in Figs. 2, 3, and 9, my shoe may be constructed as shown in Figs. 4 and 5, and that is with a downwardly-extending flange a' and a^2, and in this form the calks are applied in the same manner as the preferred form, this only making a heavier shoe and at the same time forming a shoe which is adapted to hold a rubber tread. When using the rubber tread instead of the calks, I employ thinner plates H, which are formed with recesses *h*, corresponding to the recesses *d* of the calks D′, and thus having a space outside of the plate and the lower edge of the flanges a' and a^2. The rubber tread I, as shown in Fig. 5, is of semicircular form in cross-section and snugly fits between the flanges a' and a^2. The said rubber tread I is provided with squared openings *i*, in which are embedded the squared members J, which are provided with screw-threaded openings *j*, and passing through the shoe A are screw-bolts K, which have their heads *k* embedded in depressions in the upper face of the shoe, and thus the same are flush with the shoe and the said bolts screwed into the squared member J and firmly holding the rubber tread to the shoe. These bolts, as well as the screw-bolts holding either plates or calks to the shoe, being flush with the upper face of the shoe, it will be clearly seen that the hoof firmly rests upon the heads of the bolts and prevents the same from screwing upward, and thus it will be impossible for either the calks or the rubber tread to become loose or drop off. While it is understood that the bolt K will hold the plate H in its operative position, I preferably use two smaller screw-bolts P, which have their heads *p* embedded in the shoe, so that their upper ends may be flush with the upper face of said shoe, and said bolts are of such a length that they do not pass beyond the plate, thus only holding the plate H to the shoe.

The toe-plate C being pivoted, as before described, it will be readily seen that the same can be swung outwardly, so that the same will readily receive the hoof. The said plate has at its upper end a horizontal slot C′, through which passes the lower looped end *l* of the main clamping-plate L. The said clamping-plate L is of an enlarged form and has secured thereto adjacent its side edges the outwardly-extending screw-threaded studs M and M′, and said studs are rigidly held against rotation therein. The main clamping-plate L, as shown, is enlarged and curved to fit the curvature of the hoof, and the said plate extends about half-way up from the lower end of the hoof to the upper end. The shell of the hoof at this point is thicker than at the extreme lower end or the upper end, and thus there is less liability of the clamping member pinching the hoof.

The heel-clamping plates F and F′ are of the shape clearly shown and have pivotally connected thereto at *f* and *f′* the links N and N′, which have their outer ends provided with the slots *n* and *n′*, which are adapted to receive the studs *o* and *o′*, carried by the slotted links O and O′, and said studs have an overprojecting portion which prevents the links from slipping therefrom. The links O and O′, as before stated, are provided with the slots o^2 and o^3, through which pass the screw-threaded studs M and M′, and carried by the studs on the outside of said links O and O′ are the thin rounded nuts Q and Q′, which are adapted to firmly clamp the links to the toe-plate C. The said nuts have openings *q* and *q′* on opposite sides thereof for the reception of an instrument, whereby the nuts are tightened or loosened, as desired.

The inner ends of the links O and O′ are provided with lugs or shoulders O^2 and O^3, which form a biting or holding surface for a pair of forceps and drawing the inner end of the links O and O′ together, thus drawing the heel-plates and the toe-plates tight together and drawing the shoe tight in its proper position on the hoof. This enables the holding means to be more readily and tightly drawn together and held in such a position, while the nuts Q and Q′ are tightened, as heretofore described.

When it is desired to remove the shoe for any purpose whatever, the nuts Q and Q′ are released, as heretofore described, so that the links O and O′ will slide rearwardly, allowing studs *o* and *o′* to slide within the slots *n* and *n′*, so that the links N and N′ will swing outwardly, and thus the toe-section may also be swung outward, so that the shoe may be readily removed from the hoof, as the only thing holding the same is the friction of the upwardly-projecting studs B in the openings in the hoof, and thus the shoe may be easily pried off without the slightest injury to the hoof. In using a shoe of this character it will be understood that it will be necessary to trim the hoof every month or so, so that the hoof will not grow out beyond the shoe, which would cause a bad appearance and the shoe would not clamp properly thereon.

A shoe of this character, it will be seen, has many advantages over the ordinary nail-shoe, as the calks are removably held thereon, so that either a light or heavy calk can be used when it is desired to weight the horse or new calks can be placed thereon for the purpose of roughing the horse during snowy or

slippery weather. The rubber cushion can also be readily replaced when it becomes worn, and it is not necessary to replace the entire shoe, and the shoes can be also removed when the horse is standing and is not being used, and thus preventing the hoof being pinched by the shoe and allowing the hoof to have its natural growth.

While I have shown the shoe provided with calks and rubber tread, it will be understood that instead of using either the calk or the rubber tread I could use a plate the shape of the shoe, which would be provided with the necessary depressions opposite the cut-away portions of the shoe for the purpose of receiving the pivots of the heel and toe plates, and thus a practically solid shoe is produced.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A horseshoe of the character described, comprising swinging heel and toe plates, calks holding said heel and toe plates to the shoe, and links connecting said heel and toe plates.

2. A horseshoe of the character described, comprising swinging heel and toe plates, calks holding said plates to the shoe, and means for connecting said heel and toe plates.

3. A horseshoe of the character described, comprising swinging heel and toe plates, removable calks holding said plates to the shoe and links connecting said heel and toe plates.

4. A horseshoe of the character described, comprising swinging heel and toe plates, removable calks holding said plates to the shoe, links connecting said heel and toe plates and means for holding said links together.

5. A horseshoe of the character described, comprising a shoe, swinging heel and toe plates carried thereby, links connecting said heel and toe plates, projections carried by said links for the engagement of an instrument for drawing said links together for tightening the heel and toe plates, and means independent of said projections for locking the plates in their tightened position.

6. A horseshoe of the character described, comprising a shoe, swinging heel and toe plates carried thereby, links connecting said heel and toe plates, projections carried by said links at their inner end for the engagement of a pair of forceps for drawing said links together for tightening the heel and toe plates, and means for holding the links in said positions.

7. A horseshoe of the character described, comprising a shoe having a downwardly-extending flange at its outer edge, said flange having cut-away portions, curved heel and toe plates passing through said cut-away portions of the flange and having horizontally-extending pivots carried thereby, and calks removably held upon the lower face of the shoe and having a recess adapted to receive said pivots of the toe and heel plates.

8. A horseshoe of the character described, comprising a shoe having downwardly-extending flanges at its inner and outer edges, swinging heel and toe plates carried by the shoe, links connecting said heel and toe plates, means for locking the links together, a rubber tread within said flanges and screw-bolts passing through the shoe from the upper face and screwed into plates embedded in the said rubber tread.

9. A horseshoe of the character described, comprising a shoe, detachable toe and heel plates carried thereby, removable calks holding said heel and toe plates to the shoe, and links for locking said heel and toe plates together.

10. A horseshoe of the character described, comprising a shoe, upwardly-extending studs carried thereby and adapted to enter the hoof, detachable swinging toe and heel plates carried thereby, removable calks holding said heel and toe plates to the shoe, links connecting said heel and toe plates and means for holding said links in their adjusted position while clamping the shoe to the hoof.

11. A horseshoe, comprising a shoe, heel and toe plates carried thereby, links connecting said heel and toe plates, means for taking hold of said links and drawing them together, and means for locking said links in their adjusted position independent of the holding or tightening means.

12. A horseshoe of the character described, comprising a shoe, heel and toe plates carried thereby, links connecting said heel and toe plates, lugs carried by the links and adapted to be engaged by a forcep, and drawing the links together, and disk-shaped nuts having openings for receiving a key and adapted to hold the links in their tightened positions.

13. A horseshoe of the character described, comprising a shoe, heel and toe plates carried thereby, an enlarged curved plate carried by the toe-plate, links connected to the heel-plates and extending over the curved plate, screw-threaded studs carried by the curved plates and extending through slots in the links and flat smooth disk-shaped nuts having openings adapted to receive a key and carried by the screw-threaded studs and adapted to clamp the links to the curved plates.

14. A horseshoe of the character described, comprising a plain shoe, heel and toe plates swingingly connected thereto, an enlarged curved plate carried by the toe-plate, links pivotally connected to the heel-plates, links having a key-hold connection with said pivoted links and having slotted ends passing over said curved plates, screw-threaded studs carried by the curved plate and extending through the slots of the links, and flat disk-shaped nuts on said studs and having open-

ings adapted to receive a key, and the adjacent ends of the links having lugs by means of which a forcep may engage the same and draw them together.

15. A horseshoe of the character described, comprising a shoe having a downwardly-extending flange around its outer face, said flange having cut-away portions, at the heel and toe heel and toe plates passing through said openings and having enlarged ends below the shoe, and plates having recesses adapted to receive the said enlarged portion of the plates, and screws passing through the shoe into said plates.

16. A horseshoe of the character described, comprising a shoe having a downwardly-extending flange around its outer edge, said flange having cut-away portions at the heel and toe heel and toe plates passing through said cut-away portions of the flange, and having enlarged ends below the shoe, links connecting said heel and toe portions, plates under the shoe and having recesses adapted to receive the enlarged portion of the heel and toe plates, screws passing loosely through the shoe and having their heads embedded in the shoe and screwed into said plates, and a rubber tread below said shoe and plates, and having bolts passing through the shoe from the upper face and screwed into plates embedded in said rubber tread.

17. A horseshoe of the character described, comprising a shoe, swinging toe and heel plates, removable plates holding said plates to the shoe, links connecting said plates, a rubber tread below said plates and having plates embedded therein, and screws passing downwardly through the shoe, the plate, and entering the rubber tread and screwed into the plates embedded therein.

18. A horseshoe of the character described, comprising a body portion, swinging heel and toe plates removably carried thereby, removable plates independently holding said swinging plates thereon, and links connecting said heel and toe plates.

19. A horseshoe of the character described, comprising a body portion, independently-swinging heel and toe plates carried thereby, removable calks independently holding said swinging plates thereon, links connecting said heel and toe plates, and means for holding said links together.

20. A horseshoe of the character described, comprising a plain shoe having a downwardly-extending flange cut away at the toe and heel portions, swinging heel and toe plates passing through said cut-away portion, removable calks secured to the under side of the shoe and swingingly holding said plates thereon, an enlarged curved plate carried by the toe-plate, links pivotally connected to the heel-plates, links removably connected to said first links, and having slotted ends passing over said curved plates, screw-threaded studs carried by the curved plate and extending through the slot of the links, flat disk-shaped nuts on said studs and having openings adapted to receive a key, and the adjacent ends of the links having lugs by means of which forceps may engage the same and draw them together while the nuts are being tightened.

21. A horseshoe, comprising a shoe, heel and toe plates carried thereby, links connecting said heel and toe plates, studs carried by said links whereby the links may be taken hold of by instruments for drawing them together and means for locking said links in their adjusted position.

22. A horseshoe of the character described, comprising swinging heel and toe plates, links detachably carried by the heel-plates, lugs carried by said links and adapted to be engaged by forceps for drawing the links together, and means for securing the links thereto.

23. A horseshoe of the character described, comprising swinging heel and toe plates, links detachably carried by the heel-plates, lugs carried by said links and adapted to be engaged by forceps for drawing the links together, studs carried by the toe-plate and adapted to pass through the links, and nuts carried by the studs for holding the links in their adjusted position.

24. A horseshoe of the character described, comprising swinging heel and toe plates, links connecting said heel and toe plates, a plate holding said swinging plates to the shoe, a rubber tread holding said plate in its relative position and screw-bolts passing through the shoe from the upper face and through the plates and screwed into plates embedded in the said rubber tread.

25. A horseshoe of the character described, comprising swinging heel and toe plates, and calks holding said heel and toe plates to the shoe.

26. A horseshoe of the character described, comprising swinging heel and toe plates, plates holding the swinging plates to the shoe, and removable rubber calks holding said plates to the shoe.

27. A horseshoe of the character described, comprising swinging heel and toe plates, plates holding the plates to the shoe, rubber calks below the plates, and bolts passing through the plates and securing the plates and rubber calks to the shoe.

28. A horseshoe of the character described, comprising a plain shoe having a downwardly-extending flange cut away at the toe and heel portions, swinging heel and toe plates passing through said cut-away portion, removable calks secured to the under side of the shoe holding said plates thereon and links connecting said heel and toe plates, and means for adjustably holding said links together.

29. A horseshoe of the character described, comprising a shoe, swinging heel and toe plates carried thereby, removable calks holding said heel and toe plates to the shoe, links connecting said heel and toe plates, projections carried by said links for the engagement of an instrument for drawing said links together, for tightening the heel and toe plates, and means independent of said projections for locking the plates in their tightened position.

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

CHARLES W. CRANNELL.

Witnesses:
BEN REED,
SAMUEL J. GREELEY.