No. 832,060. PATENTED OCT. 2, 1906.

A. HOLMQUIST.

HORSE HOOF LEVEL GAGE.

APPLICATION FILED JAN. 29, 1906.

Fig. 1.

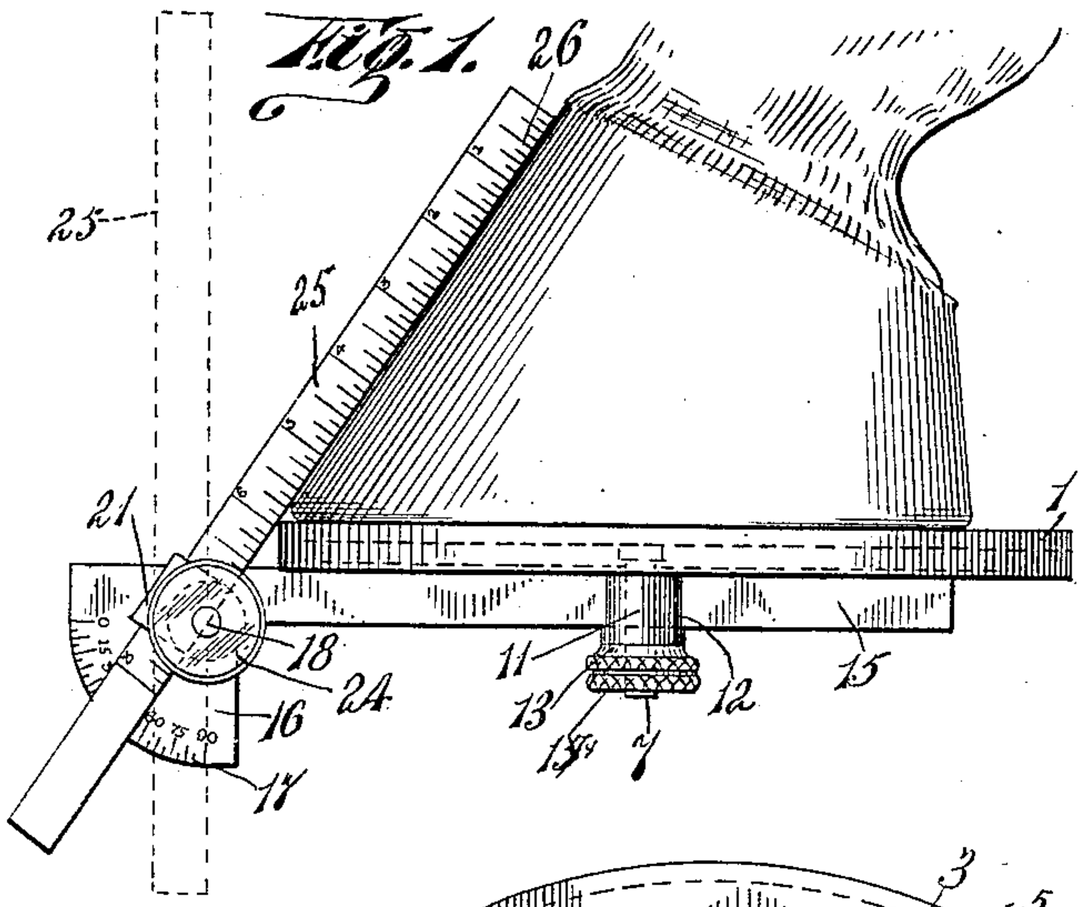


Fig. 4.

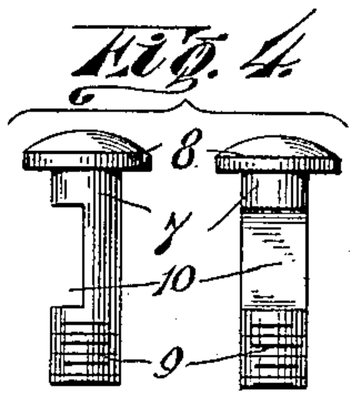


Fig. 5.

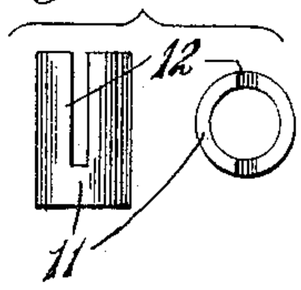


Fig. 2.

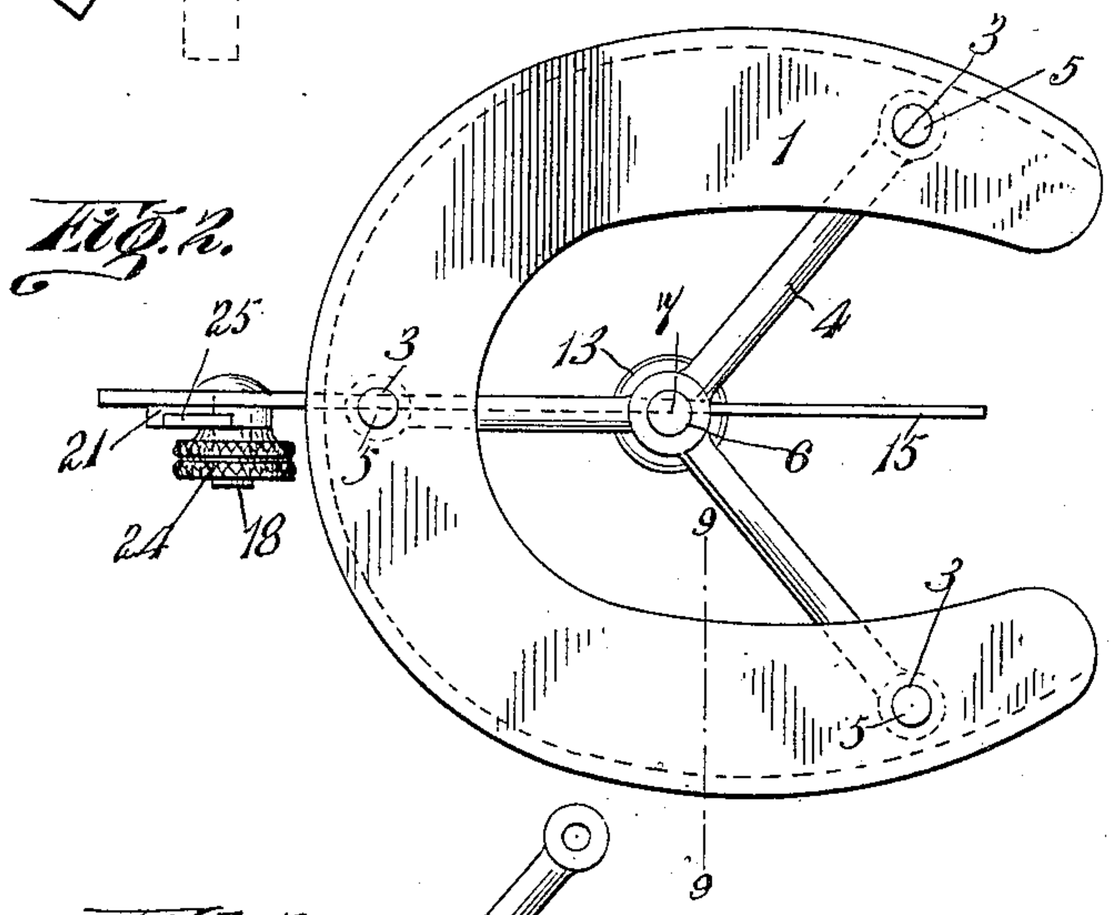


Fig. 6.

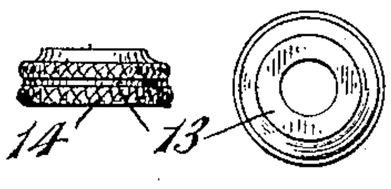


Fig. 7.

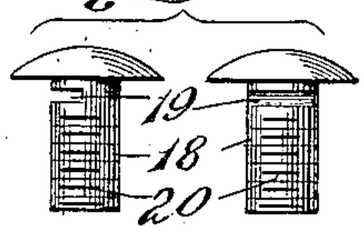


Fig. 3.

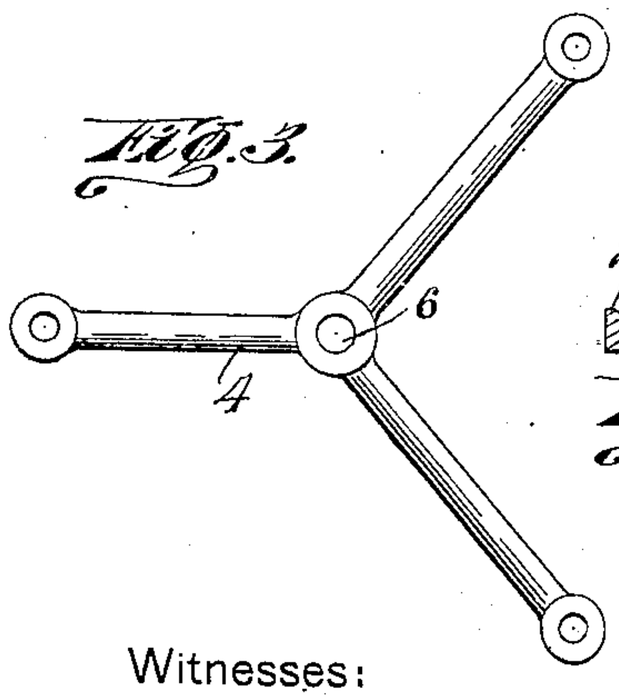


Fig. 9.

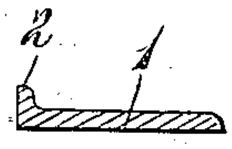
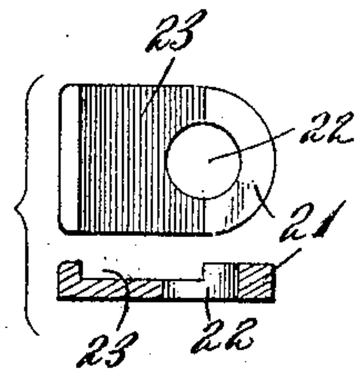


Fig. 8.



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UNITED STATES PATENT OFFICE.

AUGUST HOLMQUIST, OF BRIDGEWATER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EBEN PERKINS, OF BRIDGEWATER, MASSACHUSETTS.

HORSE-HOOF LEVEL-GAGE.

No. 832,060. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed January 29, 1906. Serial No. 298,404.

To all whom it may concern:

Be it known that I, AUGUST HOLMQUIST, a citizen of the United States of America, residing at Bridgewater, county of Plymouth, in the State of Massachusetts, have invented certain new and useful Improvements in Horse-Hoof Level-Gages; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to horseshoers' gages.

The object of my invention is to provide a gage by the use of which may be determined the height, the pitch, and the level of the under side of the hoof.

A further object of my invention is to provide such an instrument with a swiveled connection, so that the height and pitch of the sides of the hoof may be determined without removing the instrument from the hoof.

A further object is to provide a beveled protractor which is swiveled to and detachable from the base portion of the instrument.

A further object is to provide a supporting member for the gage which is detachable, so that various sizes of plates may be used to suit different sizes of hoofs.

A further object is to provide means for slidably supporting a straight-edge and a protractor-bar, so that they may be adjusted to various sizes of hoofs; and my invention consists of the construction, combination, and arrangement of parts, as herein illustrated, described, and claimed.

In the accompanying drawings, forming part of this application, I have illustrated one form of embodiment of my invention, in which drawings similar reference characters designate corresponding parts, and in which—

Figure 1 is a side elevation of the instrument, showing its application to the hoof of a horse. Fig. 2 is a bottom plan view of the instrument. Fig. 3 is a plan view of a supporting-spider. Fig. 4 is a side and front elevation of a screw adapted to lock the protractor-bar. Fig. 5 is a side elevation and top plan of a sleeve adapted to coöperate with a screw to lock the protractor-bar in position. Fig. 6 is an edge elevation and bottom plan view of a locking-nut. Fig. 7 is a side and front elevation of a screw adapted to receive the slidable straight-edge used in the invention. Fig. 8 is a plan and longitudinal vertical section of a plate adapted to lock the straight-edge against a screw used in the invention; and Fig. 9 is a vertical transverse section through the base-plate of the instrument, taken approximately on line 9 9 of Fig. 2.

Referring to the drawings, 1 designates a plate having a continuous peripheral flange 2 on its under side. For varying sizes of hoofs the plate 1 may be made of different sizes; but of whatever size made each plate is provided with a plurality of openings 3 relatively of the same distance apart in each plate.

Carried by the plate 1 is a supporting-spider 4, the legs of which are each provided with a lug or pin 5, adapted to engage in the openings 3 when a slight pressure is put on the spider, and when the pressure is removed the contractile force of the spider forces its lugs 5 against the walls of the openings 3 to hold the spider 4 in position on the plate. The spider 4 is provided with a central opening 6, through which is disposed a bolt 7, having a head 8 adapted to hold the same on the spider. The opposite end of the bolt 7 is provided with screw-threads 9, and intermediate of its ends the bolt is provided with a longitudinal recess 10. Rotatably disposed on the bolt 7 is a sleeve 11, provided with a longitudinal slot or recess 12. Disposed on the bolt 7 is an interiorly-screw-threaded nut 13, provided with a milled outer edge 14, whereby the sleeve 11 may be forced upward on the bolt. Disposed through the slot 12 and lying within the recess 10 is a slidable removable bar 15, provided at its outer end with a plate 16, having graduations 17 thereon, marking the degrees from a horizontal plane. The protractor-bar 15 being disposed in the recess 10 of the bolt and the sleeve 11 being disposed on the bolt so that its slot engages over the bar 15 by tightening the nut 13 the sleeve 11 will be forced against the under side of the bar, and its upper surface will be forced against the wall of the slot 10, whereby said bar 15 may be locked in a plurality of positions. This construction permits the bar to swing in a horizontal plane, the bolt 7 serving as a pivotal point. By loosening up the nut 13 the bar and its connecting parts may be entirely removed from its connection with the plate 1.

Projecting through the bar 15 adjacent the plate 16 is a bolt 18, provided with a trans-

verse slot 19 and provided with screw-threads 20 at one end. Disposed on the bolt 18 is a plate 21, provided with an opening 22 of a diameter slightly larger than the diameter of the bolt, so that said plate may slide thereon. Provided in one face of the plate is a recess 23, and disposed on the screw-threaded end of the bolt 18 is a milled nut 24. Slidably disposed in the recess 19 of the bolt 18 and the recess 23 of the plate 21 is a straight-edge 25, provided with graduations 26, commencing at its upper end and increasing downwardly. By tightening up the nut 24 the plate 21 is forced against the straight-edge which is carried in the slot 19, so that the straight-edge may be locked in a plurality of positions with relation to its length. At the same time the straight-edge 25 may be swung through a circle, the bolt 18 forming a pivotal point therefor.

To ascertain the pitch and height of the front portion of a hoof, the instrument is used as illustrated in Fig. 1. To ascertain the pitch and height of the side or rear portions of a hoof, the protractor-bar is swung on its pivotal support until the straight-edge 25 rests at the desired point, the pitch being indicated by the graduations 17 and the height being indicated by the graduations 26.

The spider 4 being held in position on the plate 1 by spring-pressure, any number of sizes of plates 1 may be used with the remainder of the instrument. The protractor-bar being readily removable from its support, the instrument may be used without the use of the plate 1. The straight-edge 25 being held as described may be also readily detached from the remainder of the instrument.

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

1. In a device of the character described, a plate, a supporting member attached to the plate, a bar carried by the supporting member, and a graduated member slidably and pivotally attached to the bar.

2. In a device of the character described, a plate provided with a flange, a supporting member attached to the plate, a bar carried by the supporting member, and a graduated member slidably and pivotally attached to the bar.

3. In a device of the character described, a plate, a supporting member removably attached to the plate, a bar carried by the supporting member, and a graduated member slidably and pivotally attached to the bar.

4. In a device of the character described, a plate provided with openings therein, a spider provided with lugs adapted to engage in said openings, a bar carried by the spider, and a graduated member movably attached to the bar.

5. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, means for attaching the bar to the supporting member, and a graduated member slidably and pivotally attached to the bar.

6. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, means for pivotally attaching the bar to the supporting member, and a graduated member slidably and pivotally attached to the bar.

7. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, means for removably attaching the bar to the supporting member, and a graduated member slidably and pivotally attached to the bar.

8. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, means for pivotally and slidably attaching the bar to the supporting member, and a graduated member slidably and pivotally attached to the bar.

9. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, a bolt carried by the supporting member and provided with a recess adapted to receive the bar, a sleeve pivotally disposed on the bolt and provided with a slot to receive the bar, a nut on the bolt adapted to abut against the sleeve, and a graduated member slidably and pivotally attached to the bar.

10. In a device of the character described, a plate, a supporting member attached to the plate, a bar provided with a protractor-plate, a bolt carried by the supporting member and provided with a longitudinal recess adapted to receive the bar, a sleeve pivotally disposed on the bolt and provided with a longitudinal slot to receive the bar, a nut on the bolt adapted to abut against the sleeve, and a graduated member slidably and pivotally attached to the bar.

11. In a device of the character described, a plate, a bar provided with a graduated protractor-plate and slidably and pivotally connected with the plate, a graduated straight-edge, and means for pivotally connecting the bar and the straight-edge.

12. In a device of the character described, a supporting-plate, a bar provided with a graduated protractor-plate and slidably and pivotally connected with the supporting-plate, a graduated straight-edge, and means for pivotally and removably connecting the bar and the straight-edge.

13. In a device of the character described, a supporting-plate, a bar provided with a graduated protractor-plate and slidably and pivotally connected with the supporting-plate, a graduated straight-edge, a bolt pro-

jected through the bar and provided with a recess adapted to receive the straight-edge, a plate disposed on the bolt and provided with a recess adapted to receive the straight-edge, and a nut on the plate adapted to lock the plate against the straight-edge.

14. In a device of the character described, a protractor-bar provided with a graduated plate, a graduated straight-edge, and means for slidably and pivotally attaching the straight-edge to the bar.

15. In a device of the character described, a protractor-bar provided with a graduated plate, a graduated straight-edge, and means for slidably and pivotally attaching the straight-edge to the bar adjacent the graduated plate.

16. In a device of the character described, a protractor-bar provided with a graduated plate, a graduated straight-edge, a bolt disposed through the bar and provided with a transverse slot, and means for locking the straight-edge in the slot.

17. In a device of the character described, a protractor-bar provided with a graduated plate, a graduated straight-edge, a bolt disposed through the bar and provided with a transverse slot, a plate disposed on the bolt and provided with a recess adapted to receive the straight-edge, and a nut on the bolt adapted to abut against the plate.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

AUGUST HOLMQUIST.

Witnesses:
EBEN PERKINS,
FRANK E. SWEET.