995,817.

W. H. VANORMAN.

ARTIFICIAL RAWHIDE LEG.

APPLICATION FILED JULY 20, 1910.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

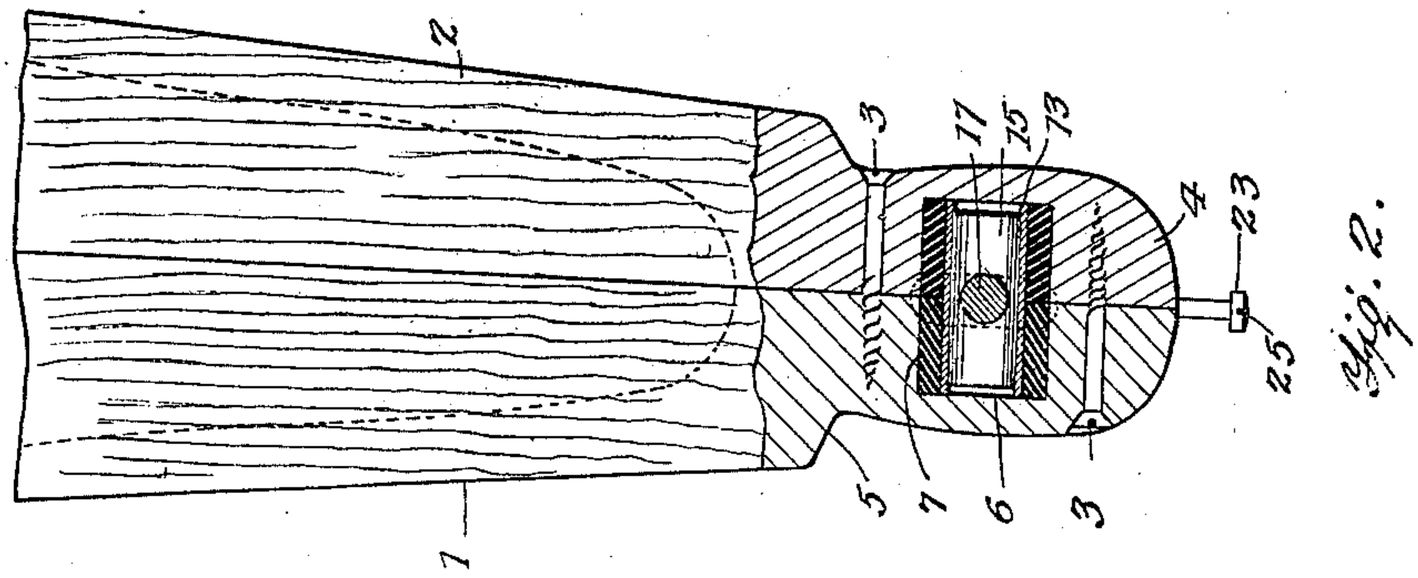

Fig. 2.

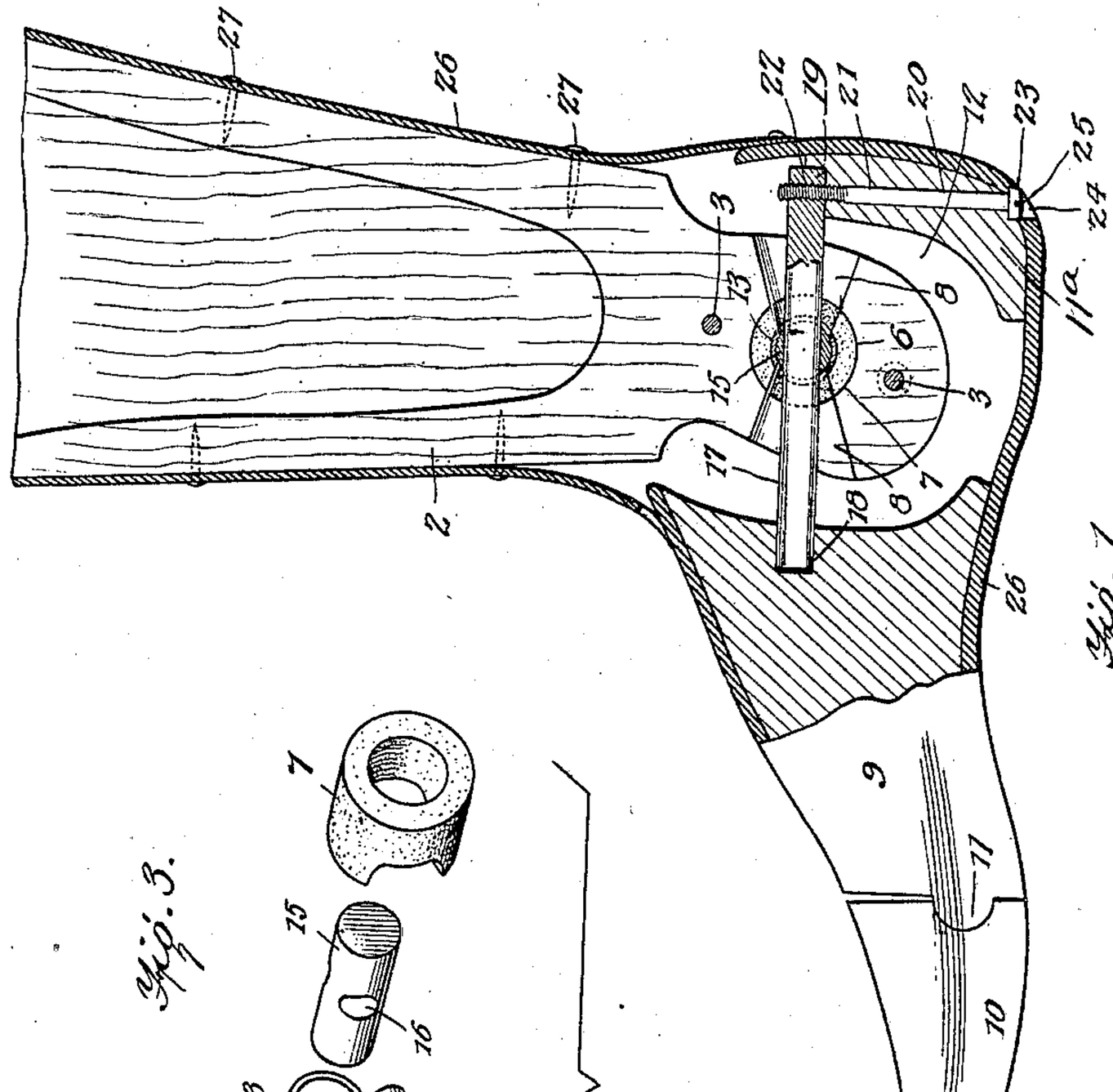

Fig. 1.

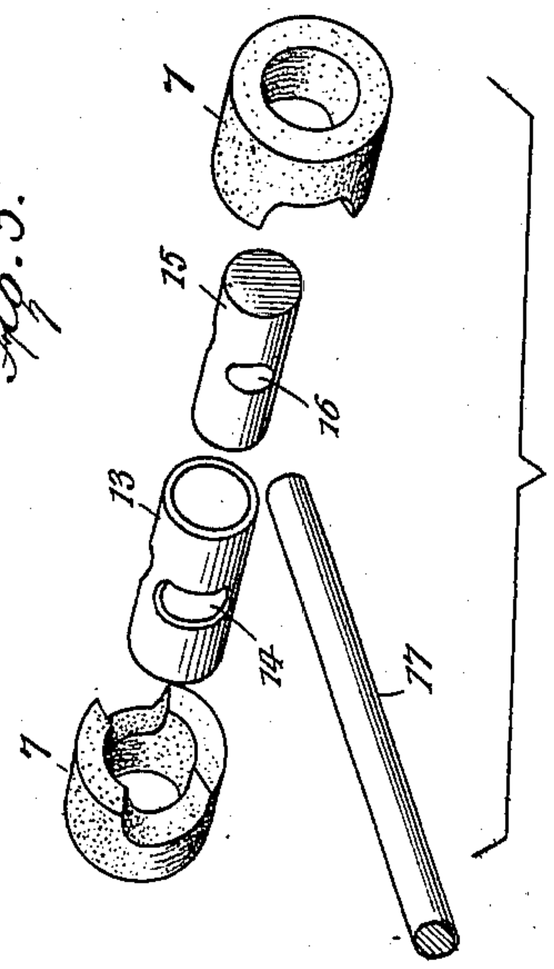

Fig. 3.

WITNESSES:

L. H. Schmidt

C. E. Tranter

INVENTOR

WILLIAM H. VANORMAN,

BY Munn & Co.

ATTORNEYS

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Fig. 4.

WITNESSES:

L. H. Schmidt

C. E. Frame

INVENTOR

WILLIAM H. VANORMAN,

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM HENRY VANORMAN, OF AUBURN, NEW YORK.

ARTIFICIAL RAWHIDE LEG.

995,817. Specification of Letters Patent. Patented June 20, 1911.

Application filed July 20, 1910. Serial No. 572,867.

To all whom it may concern:

Be it known that I, WILLIAM H. VANORMAN, a subject of the King of Great Britain, and a resident of Auburn, county of Cayuga, and State of New York, have made certain new and useful Improvements in Artificial Rawhide Legs, of which the following is a specification.

My invention is an improvement in artificial limbs, and consists in certain novel constructions, and combinations of parts, hereinafter described and claimed.

The object of the invention is to provide an improved ankle joint construction, which, while very strong, will be simple and easily adjusted, and which will not wear out readily.

Referring to the drawings forming a part hereof:—Figure 1 is a vertical section of the improvement; Fig. 2 is a vertical section at right-angles to Fig. 1; Fig. 3 is a detailed perspective view of the joint-connecting mechanism, and Fig. 4 is a longitudinal section of the casing for the leg portion.

The embodiment of the invention shown in the drawings comprises a leg portion composed of a plurality of sections 1 and 2, shaped to correspond with the shape of the lower leg and held together by screws 3 or other suitable means. It will be noticed that the screws are preferably arranged to be inserted from both sides, (Fig. 2).

Each section is rounded at its lower end and cut out at the junction of the rounded portion with the main portion so that when the sections are secured together, a rounded portion or head 4 is formed, separated from the main portion by a neck 5.

Each section 1 and 2 is recessed on its inner face at 6, the recess being circular in cross section and a rubber bushing 7 is inserted in each recess. The recesses register when the sections are secured together and each section is also grooved transversely on its inner face in both directions from the recess as shown at 8 in Fig. 1.

The groove 8 of the two sections coöperate to form openings leading rearwardly and forwardly from the recesses 6 and the grooves taper from without inwardly so that the openings are substantially frusto conical in form. The foot portion is composed of a foot proper 9 and a toe portion 10, hinged to the foot proper at 11, and the foot proper is provided with a vertical opening or recess 12 for receiving the rounded end of the leg portion.

The recess 12 is formed between the foot proper and a heel block 11^a, which, as shown, is inserted at the heel and may be held in position by bolts 30. The recess 12 is of considerably greater size than the rounded end or head of the leg portion and the said head or rounded end is supported out of contact with the walls of the recess by the following mechanism. A bushing 13 is provided, preferably of brass, and the bushing is provided with a transverse opening 14.

A tumbler 15 is adapted to be inserted in the bushing and is provided with a transverse opening 16, registering with the opening 14 of the bushing when the tumbler is in place.

The bushing 13 with the tumbler in place, is journaled in the rubber bushings, as shown in Fig. 3, and a bolt 17 is passed through the openings formed by the grooves 8, and through the registering openings 14 and 16 of the bushing and tumbler. The bolt extends beyond the rounded end 4 on both sides and the front end thereof engages an opening 18 in the front wall of the recess 12.

The rear end of the bolt rests on a ledge or shoulder 19 formed on the heel block, and the said block is provided with a vertical opening 20 leading from the bottom thereof to the ledge or shoulder. A screw rod 21 is passed through the opening 20 and engages a threaded opening 22 in the bolt.

The head 23 of the screw rod rests in a recess 24 in the foot, and the said head is provided with a transverse kerf to permit the screw rod to be turned by a suitable tool.

Both the leg portion and the foot portion are held in casings 26 of raw-hide or other suitable material by screws 27 or in any other suitable manner. The casings 26 are shaped while wet on cores of wood, or the like, molded or cut to correspond with the shape of the leg or foot and are sufficiently strong to support the weight of the wearer. By taking out the screws 27, the leg or foot portions may be removed from the casing.

The limb is assembled by first inserting the rubber bushings in the respective sections; the bushing 13 is then inserted in the rubber bushing of one section with the tumbler in place; the bolt 17 is then placed

after which the sections 1 and 2 are secured together. The rounded end of the leg portion is now inserted in the recess 12, the bolt being inserted in the opening in the recess wall. After the bolt is seated, the screw rod is inserted and turned sufficiently to hold the bolt on the ledge. The leg is freely movable in a forward or rearward direction and the bearing or pivot on which it swings is mounted to yield with respect to the foot so that not only will there be no jar to the wearer but the operation will be noiseless. A limited lateral movement of the leg and foot with respect to each other will also be permitted by the rubber bushings. The wear of the parts will also be greatly lessened on account of the yielding mounting of the joint. It will be understood that the leg portion is made in sections merely for the purpose of permitting the bushings to be inserted from within so that they will be retained in place and hidden from the outside.

The invention in its simplest form consists in pivoting the leg portion on an axis longitudinal to the foot and on an axis transverse to the foot, with the axes intersecting, and with the bearings for the transverse axis resilient, together with means for limiting the movement of the leg portion on the transverse axis.

As shown in Fig. 4, a hinge 28 connects the toe portion with the foot proper and a spring 29 has one end connected with the foot proper and the other with the toe portion. As shown in Fig. 4, the casing for the leg portion extends downward upon each side of the foot in the form of a flap.

I claim:

1. An artificial limb comprising a foot and a leg portion, the foot portion having a recess, and the leg portion a rounded end fitting loosely in the recess and out of contact with the walls thereof, the said rounded end having an opening transverse to the foot and an opening at right angles to the first opening and intersecting the same, said last named opening gradually increasing in diameter from its intersection with the first opening outwardly, a bushing of resilient material in the first opening, a metallic bushing in the resilient bushing, a tumbler in the metallic bushing, said bushings and tumbler each having a transverse opening, the openings registering with each other and with the intersecting opening, a bolt passing through the openings, the wall of the recess having a bearing for one end of the bolt and a ledge for engagement by the other, and a rod passing upwardly through the foot and threaded into the end of the bolt on the ledge.

2. An artificial limb comprising a foot having a recess, and a leg having a rounded end for engagement with the recess, the said rounded end being supported out of contact with the wall of the recess, a tumbler journaled in the rounded end transversely of the foot, a resilient bearing in the rounded end for the tumbler, a bolt passing through the said rounded end and the tumbler at right angles thereto, the wall of the recess having a bearing for the front end of the bolt and a ledge for the rear end and a screw passing through the foot and engaging the end of the bolt on the ledge.

3. An artificial limb comprising a foot having a recess, and a leg having a rounded end for engaging the recess, the said rounded end being supported out of contact with the wall of the recess, a tumbler journaled in the rounded end of the leg transversely of the foot, a resilient bearing in the said rounded end for the tumbler, a bolt passing through the rounded end and the tumbler at right angles thereto, the wall of the recess having a bearing for the front end of the bolt and a ledge for the rear end, and means for releasably holding the bolt on the ledge.

4. An artificial limb comprising a foot and a leg portion, the foot portion having a recess and the leg portion a rounded end received in the recess and movable freely in the recess out of contact with the walls thereof, a tumbler journaled in the rounded end of the leg portion at right angles to the foot, a resilient bearing for the tumbler, a bolt passing through the tumbler at right angles to the tumbler, the recess wall having a closed bearing for the front end of the bolt and an open bearing for the rear end, and means for detachably holding the rear end of the bolt in place.

5. An artificial limb comprising a foot and a leg portion, the foot portion having a recess and the leg portion a rounded end received in the recess and movable freely in the recess out of contact with the walls thereof, a bolt journaled in the walls of the recess longitudinally of the foot, the said rounded end having an opening through which the bolt passes, the said opening gradually increasing in diameter from the center of the said rounded end toward each end of the opening, a tumbler journaled in the said rounded end at right angles to the bolt and having an opening through which the bolt passes, and a resilient bearing for the tumbler.

6. An artificial limb comprising a foot and a leg portion, the foot portion having a recess and the leg portion a rounded end received in the recess and movable freely in the recess out of contact with the walls thereof, and a bolt journaled in the walls of the recess longitudinally of the foot, the said rounded end having an opening through which the bolt passes.

7. An artificial limb comprising a foot and a leg portion, the foot portion having a

recess, and the leg portion a rounded end received in the recess and movable freely therein out of contact with the walls thereof, a tumbler connecting the leg portion with the foot portion, and arranged transversely of the said foot portion, a resilient bearing for the tumbler, and a bolt journaled in the walls of the recess longitudinally of the foot, the tumbler having an opening through which the bolt passes.

8. An artificial limb comprising a foot and a leg portion, the foot portion having a recess, and the leg portion a rounded end received in the recess and movable freely therein out of contact with the walls thereof, a tumbler connecting the leg portion with the foot portion, and arranged transversely of the said foot portion, and a resilient bearing for the tumbler.

WILLIAM HENRY VANORMAN.

Witnesses:
FRANK A. WEDDEGEN, Jr.,
AMOS H. UNDERWOOD.