

April 9, 1935.

E. D. MASCAU

1,996,874

ARTICULATED ANKLE JOINT FOR ARTIFICIAL FEET

Filed Aug. 28, 1933

2 Sheets-Sheet 1

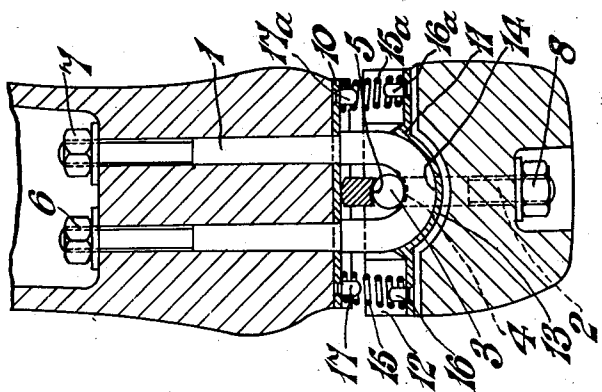


Fig. 1.

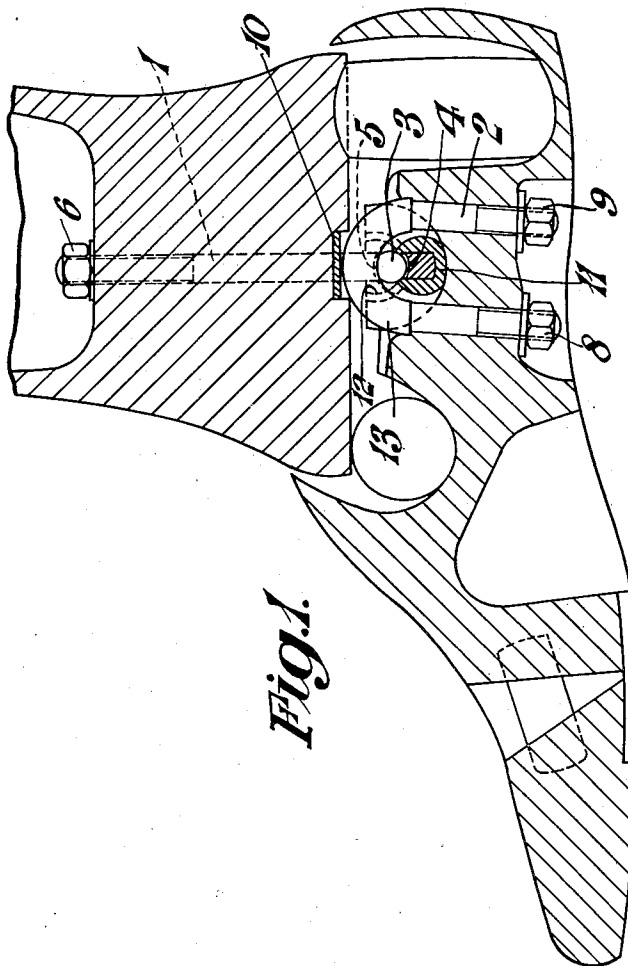


Fig. 2.

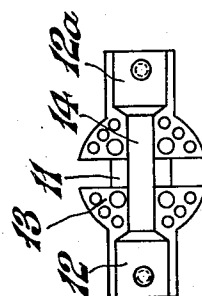


Fig. 3.

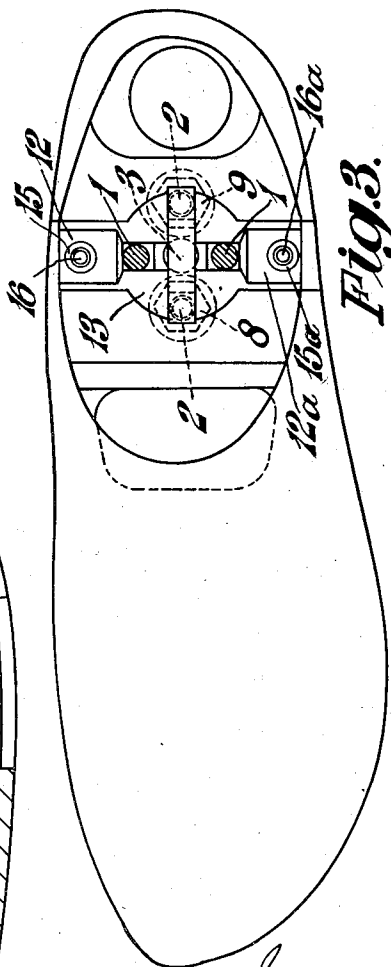


Fig. 4.

Inventor:
Emile Marie Mascau,
by Thomas. Andersen
att.

April 9, 1935.

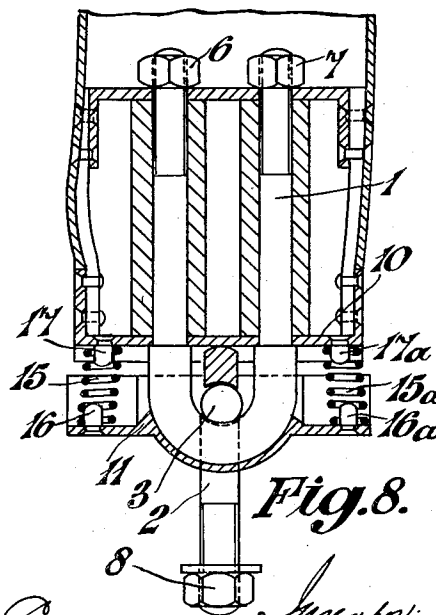
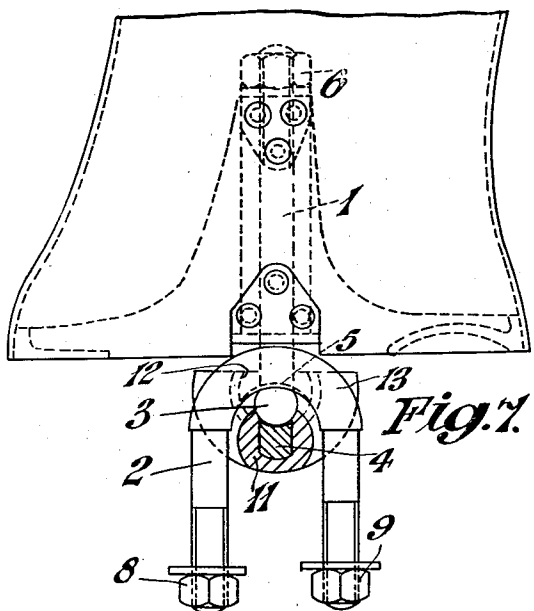
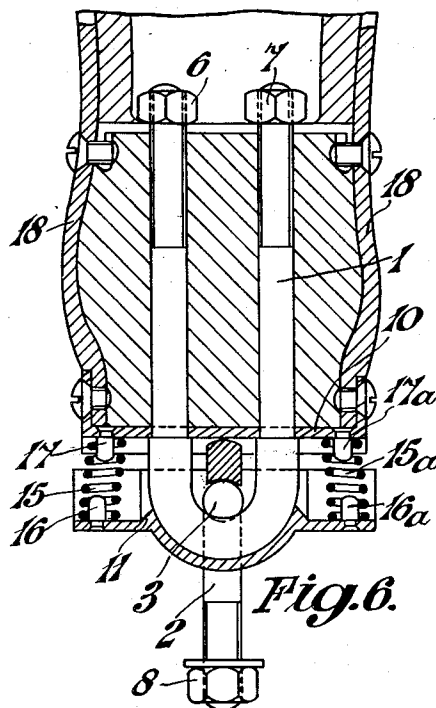
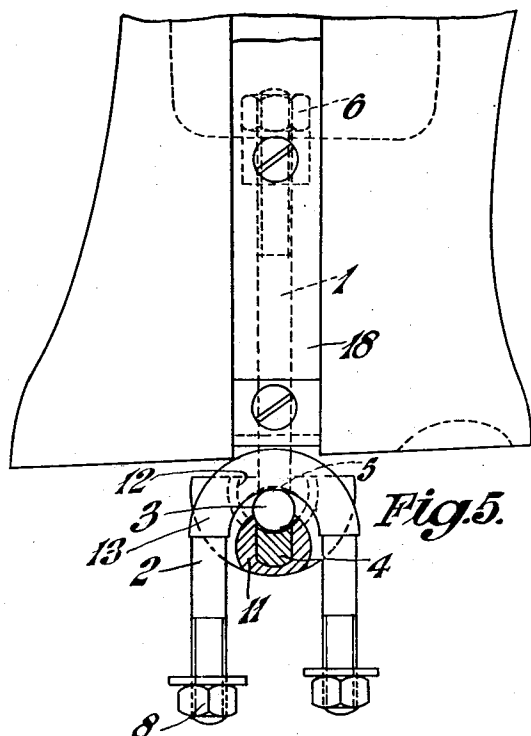
E. D. MASCAU

1,996,874

ARTICULATED ANKLE JOINT FOR ARTIFICIAL FEET

Filed Aug. 28, 1933

2 Sheets-Sheet 2



Inventor:
Emile Desire Mascau,
by Mark A. Ahlstrom

UNITED STATES PATENT OFFICE

1,996,874

ARTICULATED ANKLE JOINT FOR
ARTIFICIAL FEET

Emile Desirè Mascou, Rouen, France

Application August 28, 1933, Serial No. 687,206
In France August 31, 1932

2 Claims. (Cl. 3—6)

This invention relates to artificial feet and has for its object to provide an articulated ankle joint rendering possible any kind of movement of the artificial foot.

tudinal groove 14 which is U-shaped to receive the U-shaped bend of the upper rider 1.

This arrangement provides for the lateral movement of the foot by the rider 1 moving in the groove 14 about the ball 3. This movement is controlled by means of helical compression springs 15 and 15^a arranged in the hollow portions 12, 12^a of the axle bearing 11 and engaging the underside of the plate 10. The springs 15, 15^a are held inclined towards the joint by means of gudgeon pins 16, 16^a and 17, 17^a which are fixed respectively to the axle bearing 11 and to the underside of the plate 10.

The bending and flexing movements of the foot are provided for by forming a recess in the foot shaped to receive the axle bearing 11 and allowing the bearing to rock in the recess about the ball 3 according to the movement of the upper rider 1. This movement is controlled by means of cushioning members of rubber or other suitable material mounted in recesses formed in the foot.

Thus it will be seen that all movement of the foot takes place about the ball 3 as centre and the compression springs 15 remain always in the direction of the calf and operate in a straight position irrespective of the position of the foot. The lower rider 2 on which the foot is suspended is preferably shorter and wider than the upper rider 1 and holds in contact the various components of the articulated joint whereby the latter can be adjusted by adjusting the screws 8 and 9.

The joint can be used in connection with any kind of foot and calf but is shown in Figures 1 and 2 as applied to wooden calves, in Figures 5 and 6 as applied to calves of compressed wood reinforced by means of steel stays 18, and in Figures 7 and 8 as applied to metal calves, for example duralumin.

What I claim and desire to secure by Letters Patent is:—

1. An ankle joint for artificial feet comprising a U-shaped member and means for securing the U-shaped member to the calf, an inverted U-shaped member linked in the first member and means for suspending the foot from said member, a bearing mounted in a recess transversely of the foot and having a U-shaped recess arranged longitudinally therein and running transversely of the foot for receiving the bend of the first mentioned U-shaped member, a ball mounted in a groove provided in the inside of the bend of said first member and supporting the inverted U-shaped member, lateral relative movement of

The invention has for its object more particularly to produce an ankle joint of simple construction which will allow universal relative movement of the foot and leg portions of the artificial limb by means of a ball separating two U-shaped riders linked together and which can be easily adjusted by nuts provided on the lower ends of the lower rider. Lateral movement of the foot is provided for by supporting the bend of the upper rider in a correspondingly shaped groove provided longitudinally in a transverse axle bearing and bending and flexing of the foot is provided for by forming a recess in the foot in which the axle bearing is free to rock.

In order that the invention may be more clearly understood it will now be described with reference to the accompanying drawings in which:

Figure 1 is a sectional side elevation of an artificial foot provided with the articulated ankle joint in accordance with the invention.

Figure 2 is a sectional view at right angles to Figure 1.

Figure 3 is a plan view in section of the device.

Figure 4 is a detail of the device as will hereinafter appear.

Figure 5 is a side elevation partly in section of part of a modified form of the device.

Figure 6 is a sectional view at right angles to Figure 5.

Figure 7 is a side elevation partly in section of a further modification, and

Figure 8 is a sectional view at right angles to Figure 7.

The joint comprises two U-shaped riders 1, 2 linked together and separated by a ball 3 running in grooves 4, 5 provided on the inner sides of the bends of the riders 1 and 2. These bends are of substantially rectangular cross section and the limbs of the riders are of circular cross section and threaded at their extremities to receive nuts 6, 7, 8, 9 for holding them in position relatively to the calf and foot as shown in the drawings. The limbs of the upper rider 1 pass through apertures in a plate 10 resting on the bend portion of the rider which, as mentioned above, is of rectangular cross section.

An axle bearing 11 (shown separately in Figure 4) is mounted transversely of the foot, and comprises a hollow axle portion 12, 12^a and a hemi-spherical portion 13 provided with a longi-

the leg and foot being allowed by motion of the U-shaped member in the recessed bearing about the ball as center and bending and flexing of the foot being allowed by the rocking of the bearing
5 in its recess about the ball as center.

2. The combination with an ankle joint as claimed in claim 1 of a helical compression spring

arranged on each side of the bearing and extending between the leg and foot portions of the limb for controlling the lateral relative movements thereof, and guiding pins secured to the leg and foot portions of the limb and extending into the
5 springs.

EMILE DESIRÉ MASCAU.