

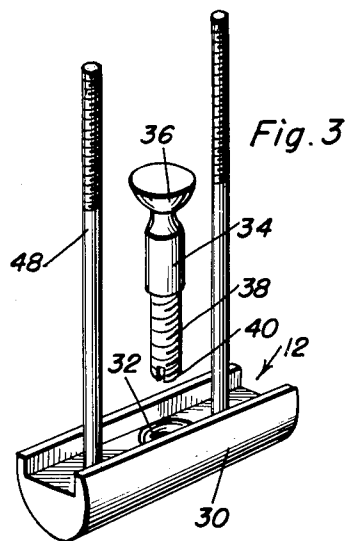
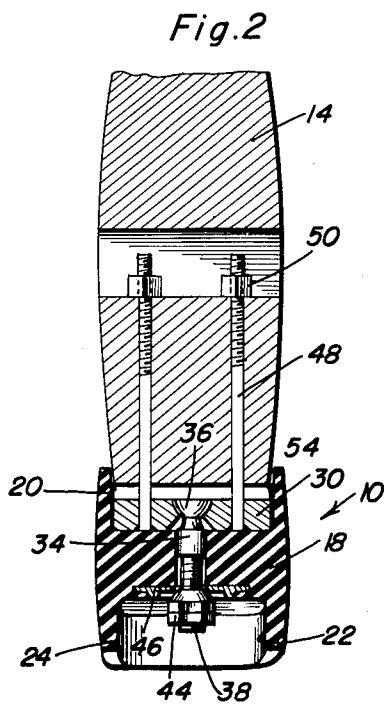
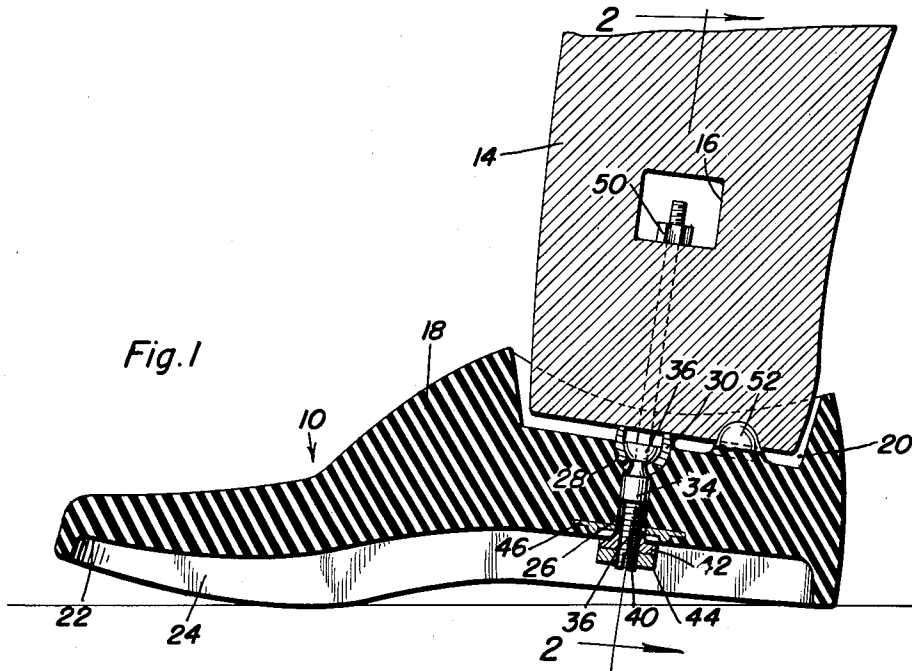
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T. E. WITHERS

2,745,108

ANKLE JOINT AND ARTIFICIAL FOOT

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2,745,108

ANKLE JOINT AND ARTIFICIAL FOOT

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2 Claims. (Cl. 3—7)

This invention relates to an ankle joint and artificial foot and more specifically provides an improved construction of a resilient foot together with an ankle joint therefor which represents an improvement on Patent No. 2,551,724 issued May 8, 1951.

An object of this invention is to provide a resilient foot member of a novel construction that is formed completely of rubber material that simulates the action of a natural foot together with an improved type of ankle joint associated therewith wherein the foot may pivot within limits to any direction that pressure is applied thereto thereby forming an ankle joint that effectively simulates the operation of a natural ankle joint, as to the flexibility and the direction of pivotal movement.

A further object of the present invention is to provide an ankle joint and artificial foot wherein the artificial foot is provided with a hard rubber central portion and progressively softer rubber areas adjacent the outer edges thereof wherein the foot will flex in substantially the same manner as the natural foot.

Yet another object of the present invention is to provide an ankle joint and artificial foot having a novel joint wherein the foot may move in limited amounts in any direction and wherein the frictional resistance to movement may be adjusted.

Still another important object of the present invention is to provide an ankle joint and artificial foot that is simple in construction, natural in operation, adjustable as to its movement, well adapted for its intended purposes and relatively inexpensive to manufacture.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is a longitudinal, vertical sectional view taken substantially upon a plane passing along the longitudinal center line of the ankle joint and artificial foot of the present invention together with the artificial leg showing the attaching means for the artificial foot;

Figure 2 is a transverse, vertical sectional view taken substantially along section line 2—2 of Figure 1 showing further structural details of the ankle joint and artificial foot of the present invention; and

Figure 3 is a perspective view showing the semi-cylindrical transverse member and the bolts for securing the transverse member to the artificial foot thereby permitting pivotal movement between the transverse member and the bolt together with pivotal movement between the transverse member and the artificial foot.

Referring now specifically to the drawings, the numeral 10 generally designates the artificial foot of the present invention, the numeral 12 generally indicates the ankle joint and the numeral 14 indicates the artificial leg 14. The artificial leg 14 is provided with a transverse open-

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ing 16 for a purpose described hereinafter and the leg 14 is provided with a flat lower surface.

The artificial foot 10 includes a resilient member 18 with an enlarged recess 20 on the upper surface thereof adjacent the rear end for receiving the lower end of the leg 14 in the normal position of the ankle. The lower surface of the resilient foot member 18 is provided with an enlarged bottom recess 22 formed by a depending peripheral flange 24. The resilient member 18 is provided with a relatively hard rubber center and a relatively soft rubber exterior portion thereby forming a resilient foot that will simulate the natural action of a foot.

A substantially vertical bore 26 extends through the rear portion of the foot 18 and communicates with the recess 20 and a semi-circular groove 28 disposed in the bottom thereof.

The ankle joint 12 includes a generally semi-cylindrical transverse member 30 having a semi-spherical countersunk aperture 32 therein for receiving a bolt 34 having a semi-spherical head 36 thereon for pivotal movement within the countersunk aperture 32. The lower end of the bolt 34 is provided with a threaded portion 38 and a slot 40 wherein the slot 40 may be utilized for using a screwdriver when clamping nuts 42 and 44 are positioned thereon with the nut 44 acting as a lock nut for the clamp nut 42 which engages a metal plate 46 in the lower surface of the resilient member 18. A pair of elongated bolts 48 are rigidly secured to the transverse member 30 and extend upwardly into the transverse bore 16 in the leg 14 wherein nuts 50 are attached to the threaded end of the bolts 48 thereby securing the resilient member 18 to the leg 14. An upstanding spherical projection 52 is provided in the bottom of the recess 20 for engaging the recess in the bottom of the artificial leg 14 thereby limiting the backward pivotal movement of the leg 14. The bore 32 is provided with a relieved portion 54 for permitting transverse and longitudinal pivotal movement of the resilient foot member 18.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. An ankle joint and artificial foot comprising a resilient artificial foot member having an enlarged recess on the upper surface thereof, a substantially vertical aperture in said foot member substantially in the center of the recess, a transverse member positioned in said recess, a bolt extending through said transverse member and said aperture for securing the transverse member to the foot member, and a threaded bolt rigidly secured to said transverse member and extending upwardly therefrom for attachment to an artificial leg, said bolt extending through said transverse member being pivotal in relation thereto for permitting a natural movement of the foot, said foot including a relatively hard rubber center portion and progressively softer rubber areas adjacent the outer edges, and a bottom recess formed by a depending peripheral flange for cushioning the steps and simulating a natural foot.

2. An ankle joint and artificial foot comprising a resilient artificial foot member having an enlarged recess on the upper surface thereof, a substantially vertical aperture in said foot member substantially in the center of the recess, a transverse member positioned in said re-

cess, a bolt extending through said transverse member and said aperture for securing the transverse member to the foot member, and means upstanding from the transverse member for attachment to an artificial leg, said bolt extending through said transverse member being pivotal in relation thereto for permitting a natural movement of the foot, said foot including a relatively hard rubber center portion and progressively softer rubber areas adjacent the outer edge, and a bottom recess formed by a de-

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pending peripheral flange for cushioning the steps and simulating a natural foot.

References Cited in the file of this patent**UNITED STATES PATENTS**

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