

site ends of the sleeve 10 into abutment with the opposite ends of the sleeve 11 for the purpose both of retaining said sleeve 11 and of sealing the space within said sleeve, 5 whereby a lubricant chamber for hard oil is provided for maintaining a supply of lubricant which finds its way to those relatively moving parts or surfaces which may require a certain amount of oiling for re- 10 ducing the friction.

The lower end of the bolt 17 is also provided with a suitable thread for the application of a nut 26, which is countersunk within a recess 27 in the lower or tread face 15 of the foot member 6, whereby the latter is securely connected with the joint structure. The inner or upper face of the nut 27 is suitably cupped out or recessed in order that a minimum amount of stock is required 20 to be cut out of the foot member 6.

It will thus be seen that a neat, and compact joint structure, of comparatively few parts, is provided for forming the pivotal connection between the leg and foot mem- 25 bers, and that ample and broad bearing surfaces are provided for the pivot elements, by the provision of the pair of sleeves 10 and 11 arranged co-axially for practically the entire distance across the foot member. 30 The space within the sleeve 11 further enables an adequate supply of lubricant to be maintained for thoroughly oiling the bearing surfaces of the joint. It may also be pointed out that the intermediate portion 35 of the sleeve 10 within which is formed the above described recess 19 is enlarged in size as clearly shown in Figs. 2 and 3 and accommodated within recesses provided for that purpose within both of said members 40 6 and 7, which feature of construction insures effectively against any tendency toward lateral shifting movements of the joint parts relatively to the members 6 and 7. The parts of the pivotal connection are readily 45 assembled, in a convenient manner, the sleeves 10 and 11 being fitted together in the relation shown before one or the other of the members 6 and 7 is attached to its bolt element. This assembly is effected by 50 introducing the head of the bolt 17 within the recess 19 and then inserting the sleeve 11 into the sleeve 10 through the eye of said

head member 18, the keyway 21 of the sleeve 11 affording clearance for the key 20 until the latter becomes seated within the inner 55 end of said keyway 21. After this the plugs 25 are fitted into the opposite ends of the sleeve 10, and the other member 6 or 7 is applied to its bolt and secured thereto. The construction described is simple and effi- 60 cient, affording all the necessary pivotal movements required of a joint of this character, and allowing an easy and noiseless action, due to the broad bearing surfaces of the pivotal portions of the joint and the 65 constant lubrication of said surfaces.

While I have illustrated and described what is now deemed to constitute the preferred form of construction, I desire to reserve the right to make such changes as may 70 fairly fall within the scope of the following claims.

What I claim is:

1. An ankle joint structure for artificial limbs comprising leg and foot members, a 75 sleeve provided with means for fixedly securing the same to one of said members, and a second sleeve journaled within said first sleeve, and a bolt secured to the other of said members and formed with an eye portion 80 encircling said second sleeve, said eye portion of the bolt having an internal key element and said second sleeve being formed with a longitudinal open keyway permitting insertion of said second sleeve within said 85 first sleeve into keyed relation to the eye portion of said bolt.

2. An ankle joint structure for artificial limbs comprising leg and foot members, a sleeve formed with an intermediate trans- 90 verse recess and provided with means for fixedly securing said sleeve to one of said members, a second sleeve journaled within said first sleeve and provided with a bolt element secured to the other of said mem- 95 bers, said bolt having a head portion encircling said second sleeve and keyed thereto within said recess, and plugs secured in the ends of the first-named sleeve and forming closures for said second sleeve. 100

In witness whereof I hereto affix my signature.

MILO E. RICE.