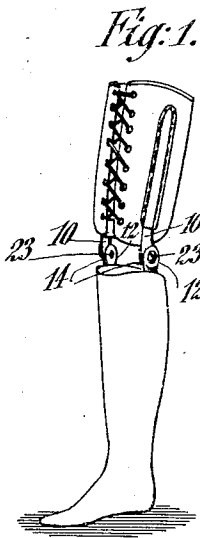
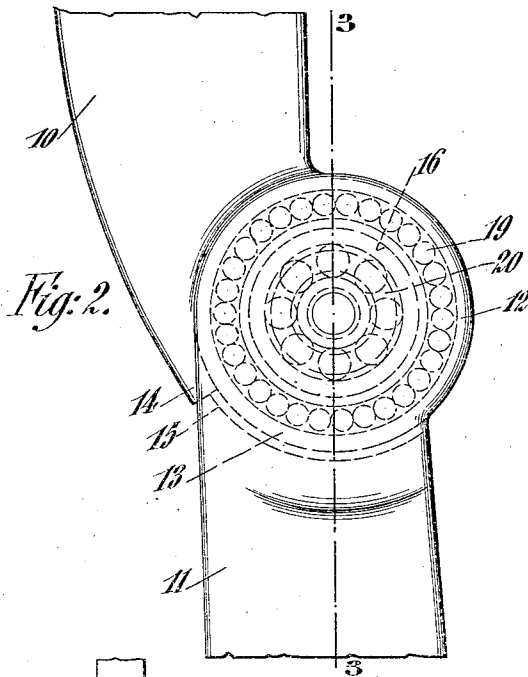
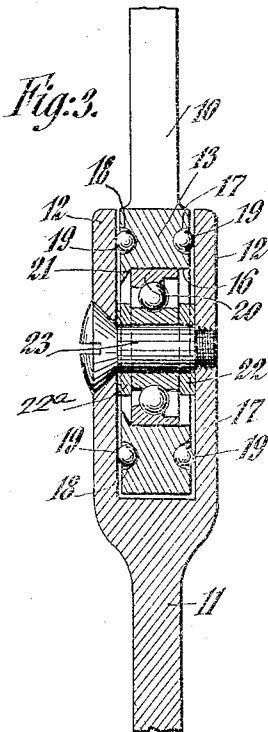
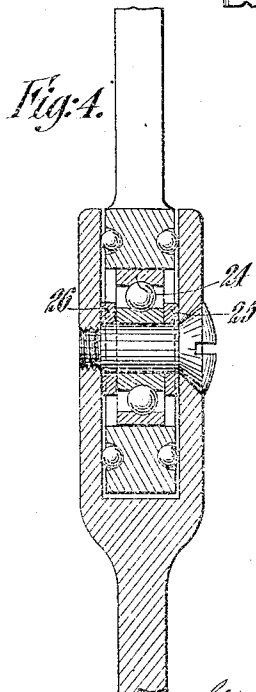
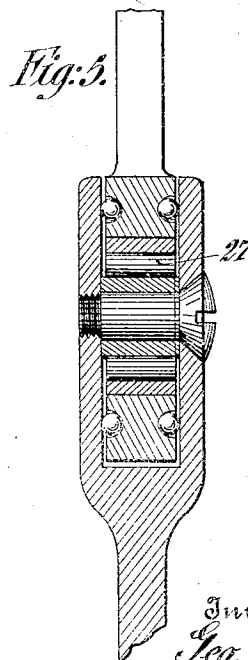


G. R. BOTT.
JOINT FOR ARTIFICIAL LIMBS.
APPLICATION FILED MAY 26, 1916.

1,336,812.

Patented Apr. 13, 1920.



Inventor
Geo. R. Bott
By *his* Attorney
Geo. F. Cooper

UNITED STATES PATENT OFFICE.

GEORGE R. BOTT, OF NEW YORK, N. Y., ASSIGNOR TO THE NORMA COMPANY OF AMERICA, A CORPORATION OF NEW YORK.

JOINT FOR ARTIFICIAL LIMBS.

1,336,812.

Specification of Letters Patent.

Patented Apr. 13, 1920.

Application filed May 26, 1916. Serial No. 99,926.

To all whom it may concern:

Be it known that I, GEORGE R. BOTT, a citizen of the United States, residing in the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Joints for Artificial Limbs, of which the following is a specification.

The present invention relates to improvements in joints for artificial limbs, and particularly an anti-friction joint in which the wearing parts may be quickly and economically renewed when the same become worn, and without depriving the wearer of the use of the limb for any appreciable time. While I have disclosed a joint for artificial limbs, it will be understood that the same may be employed, if desired, for other purposes analogous to the invention. With such joints as heretofore constructed, the renewal of the wearing parts required expert and expensive services, the owner was deprived of the use of the limb during repair, and when once worn, these joints would never be repaired to a state as good as when originally put into use. It is an object of the present invention, therefore, to provide in such joints anti-friction means which will be of a standard and commercial type, which will allow of replacement when worn without disturbing or wearing out the center screw or the two main parts of the joints, and which will take up all the wear, so that these parts do not become worn. As these bearings are of a commercial type, the wearer of the limb may procure the same at other than the original place of purchase, and may attach the same without requiring expert services.

With these and other objects in view, my invention is shown in the accompanying drawings, and will be hereinafter more fully described with reference thereto and finally pointed out in the claims.

In the accompanying drawings:

Figure 1 is a perspective view of an artificial limb embodying my improved joint.

Fig. 2 is an enlarged side view of the joint.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a vertical sectional view of a slightly modified form of joint, and

Fig. 5 is a similar view of a further modified form.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, and more particularly to Figs. 2 and 3 thereof, my invention comprises upper and lower attachment members 10 and 11, the lower member being forked at its upper end as at 12, the lower end 13 of the upper member fitting therein as clearly indicated in the drawings. Forward collapse of the two members is prevented by the coöperation of the abutment shoulders 14 and 15 provided respectively thereon.

An enlarged opening 16 is provided in the lower end portion 13 of the member 10, and at each side of said end portion there are provided circumferential grooves 17 and 18 within which are disposed anti-friction balls 19 which engage the inner surface of the forked end 12 of the lower member, the forked end extending over the ends of the opening. The opening 16 is of such size as to accommodate the ordinary annular ball bearing.

In this embodiment of my invention, I have shown an open type of bearing 20 comprising an outer race, an inner race and anti-friction members therebetween disposed therein and held in position by a flanged portion 21 at the end of said opening engaging one end of the outer race, and washers or spacing members 22 and 22^a. The flanged portion 21 prevents axial movement of the outer race in one direction while the same is free to move in the other direction when the forked end of the member 11 is disengaged from the member 10 thereby exposing the opening 16. A center screw or spindle 23 provided in the forked end 12 extends through the bearing and washer and secures the parts together, the washers holding the inner race rigid with the forked ends, upon tightening of the screw. The annular portions of the forked end 12 surrounding the center screw or spindle inclose the ends of the opening 16.

In Fig. 4 I have shown the application of an annular bearing 24 to my improved joint, the same being positioned by washers or spacing members 25 and 26 at either

side thereof. This bearing need not necessarily be like that shown in the drawing, but can be any type of anti-friction bearing. In Fig. 5 I have shown the joint provided with a roller bearing 27.

In order to renew the bearing it is only necessary to remove the center screw which slidably and removably engages the inner race, whereupon the worn bearing may be removed being slid from the opening 16 and a new one put in its place. As there is no wear on the center screw or the two main parts of the joint, and as the new bearing is an exact duplicate of the old, the repaired joint will be as perfect in its function as when originally put into use.

I have illustrated preferred and satisfactory forms of my invention, but it is obvious that changes may be made therein, within the spirit and scope thereof as defined in the appended claims.

I claim:

1. An improved joint of the character described, comprising a pair of members adapted to be pivotally swung relatively to each other, one of said members being provided with an enlarged transversely disposed cylindrical opening, the other of said members being provided with a forked end engaging the end of said first mentioned member and extending over the ends of said opening, a removable spindle extending between said forked ends, axially through said opening and spaced from the wall thereof, the annular portions of said forked end surrounding said spindle inclosing the ends of said opening, and antifriction means disposed within the space between said spindle and the wall of said opening, and comprising an inner race removably and slidably engaging said spindle, an outer race removably and slidably engaging the wall of said opening, and a plurality of antifriction members disposed between said races, removal of said spindle adapted to permit disengagement of said forked end from said first mentioned member to expose said opening, said inner and outer races and said antifriction members being free to move axially of said opening to be removed therefrom, upon disengagement of said forked end.

2. An improved joint of the character described, comprising a pair of members adapted to be pivotally swung relatively to each other, one of said members being provided with an enlarged transversely disposed cylindrical opening, the other of said members being provided with a forked end engaging the end of said first mentioned member and extending over the ends of said opening, a removable spindle extending between said forked ends, axially through said opening and spaced from the wall thereof, the annular portions of said forked

end surrounding said spindle inclosing the ends of said opening, and antifriction means disposed within the space between said spindle and the wall of said opening, and comprising an inner race removably and slidably engaging said spindle, an outer race removably and slidably engaging the wall of said opening, and a plurality of antifriction members disposed between said races, means disposed between said antifriction means and said forked ends, and spacing the same from the inner surfaces of said forked ends, removal of said spindle adapted to permit disengagement of said forked end from said first mentioned member to expose said opening, said inner and outer races and said antifriction members being free to move axially of said opening to be removed therefrom, upon disengagement of said forked end.

3. An improved joint of the character described, comprising a pair of members adapted to be pivotally swung relatively to each other, one of said members being provided with an enlarged transversely disposed cylindrical opening, the other of said members being provided with a forked end engaging the end of said first mentioned member and extending over the ends of said opening, a removable spindle extending between said forked ends, axially through said opening and spaced from the wall thereof, the annular portions of said forked end surrounding said spindle inclosing the ends of said opening, and antifriction means disposed within the space between said spindle and the wall of said opening, and comprising an inner race removably and slidably engaging said spindle, an outer race removably and slidably engaging the wall of said opening, and a plurality of antifriction members disposed between said races, spacing means disposed between the ends of said inner race and said forked ends adapted to hold said inner race rigid with respect to said forked member, removal of said spindle adapted to permit disengagement of said forked end from said first mentioned member to expose said opening, said inner and outer races and said antifriction members being free to move axially of said opening to be removed therefrom, upon disengagement of said forked end.

4. An improved joint of the character described, comprising a pair of members adapted to be pivotally swung relatively to each other, one of said members being provided with an enlarged transversely disposed cylindrical opening, the other of said members being provided with a forked end engaging the end of said first mentioned member and extending over the ends of said opening, a removable spindle extending between said forked ends, axially through said

opening and spaced from the wall thereof, and antifriction means disposed within the space between said spindle and the wall of said opening, and comprising an inner race 5 removably and slidably engaging said spindle, an outer race removably and slidably engaging the wall of said opening, and a plurality of antifriction members disposed between said races, a flange at one end of 10 said opening adapted to prevent axial movement of said outer race in one direction, removal of said spindle adapted to permit disengagement of said forked end from said first mentioned member to expose said opening, said antifriction means being free to 15 move axially of said opening to be removed therefrom, upon disengagement of said forked end.

5. An improved joint of the character 20 described comprising a pair of members adapted to be pivotally swung relatively to each other, one of said members being provided with an enlarged transversely disposed opening, the other of said members 25 being provided with a forked end engaging the end of said first-mentioned member and

extending over the ends of said opening, a removable spindle extending between said forked ends, axially through said opening and spaced from the wall thereof, and anti- 30 friction means disposed within the space between said spindle and the wall of said opening, and comprising an inner race removably and slidably engaging said spindle, an outer race removably and slidably 35 engaging the wall of said opening, and a plurality of anti-friction members disposed between said races, removal of said spindle adapted to permit disengagement of said forked end from said first-mentioned mem- 40 ber to expose said opening, said inner and outer races and said anti-friction members being free to move axially of said opening to be removed therefrom upon disengagement of said forked end. 45

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEO. R. BOTT.

Witnesses:

O. P. WILSON,
LUCIUS I. WIGHTMAN.