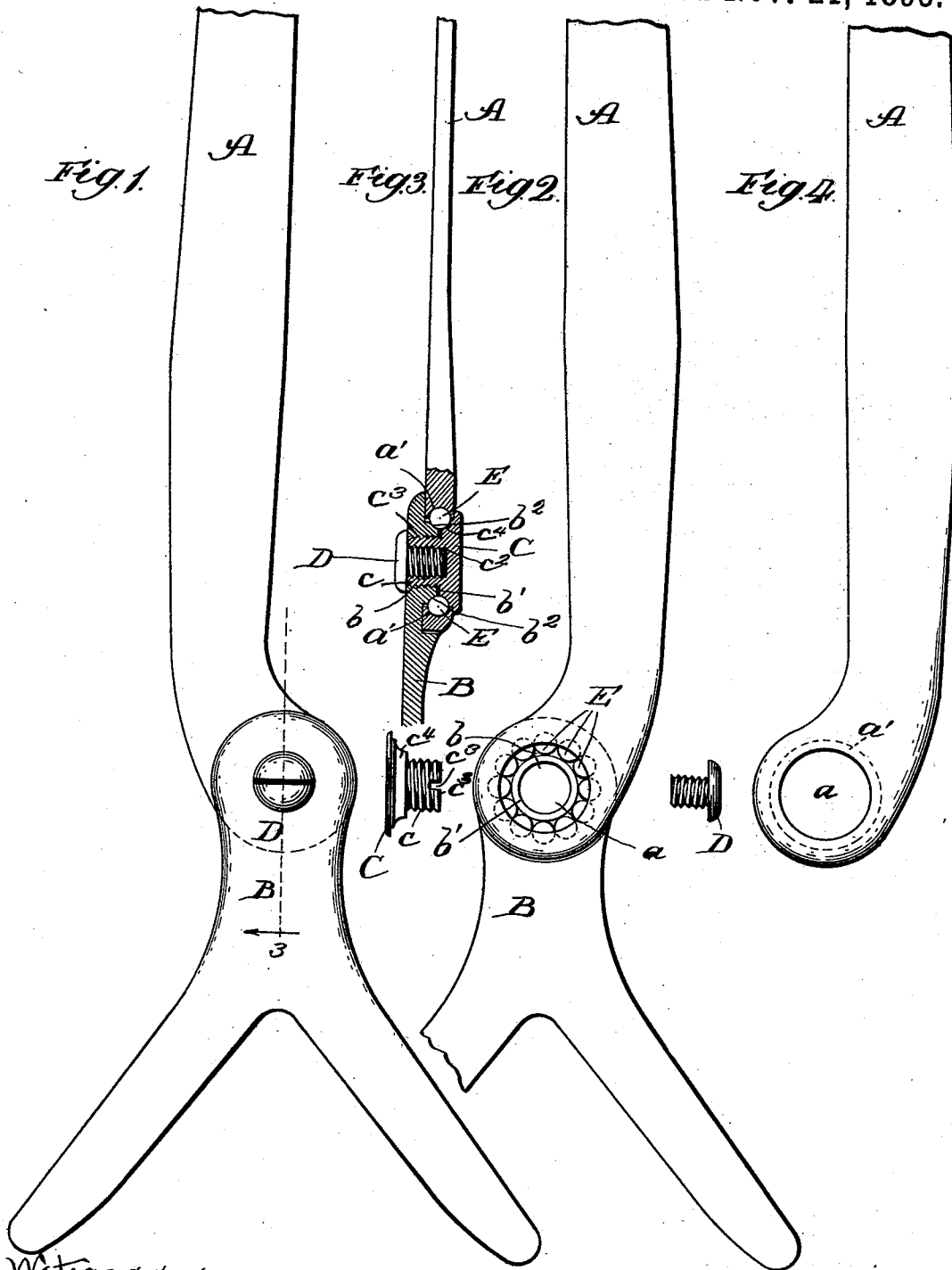


(No Model.)

L. S. GARDNER.
JOINT FOR ARTIFICIAL LIMBS.

No. 509,157.

Patented Nov. 21, 1893.



Witnesses:
Clifford N. White,
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UNITED STATES PATENT OFFICE.

LEVI S. GARDNER, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-HALF
TO ANDREW McDERMOTT, OF SAME PLACE.

JOINT FOR ARTIFICIAL LIMBS.

SPECIFICATION forming part of Letters Patent No. 509,157, dated November 21, 1893.

Application filed September 21, 1893. Serial No. 486,052. (No model.)

To all whom it may concern:

Be it known that I, LEVI S. GARDNER, a citizen of the United States, residing at New Orleans, parish of Orleans, State of Louisiana, have invented a certain new and useful Improvements in Joints for Artificial Limbs; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of a ball bearing joint for use more particularly, although not necessarily, in connection with artificial limbs. In the manufacture of these limbs it is of course desirable that there be as little friction as is possible on all the parts, the idea being to make the artificial approach as near to the real as is possible.

My invention consists in a combination of the devices and appliances hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of one side of the joint and adjacent parts. Fig. 2 is a view of the other side with parts removed. Fig. 3 is a vertical section showing the construction. Fig. 4 is a detail.

In carrying out the invention A represents that portion which is attached to the limb of the person, and B that portion which is attached to the artificial limb. I have not herein shown the latter, because it is unnecessary. The lower end of the piece A is provided with an orifice *a*, the inner wall of which is provided with a groove *a'*. The piece B is also provided with an orifice *b* in its end, and around this orifice *b* is a circular projection *b'*. The corner of this projection is provided with a groove or recess *b²*.

C is a cap having a projection *c*. This projection is bored as at *c'* and interiorly threaded as at *c²*. The projection is also threaded on its exterior as at *c³*.

D is a binding screw which enters the projection *c* and binds the parts to hold them in position. The cap C is also provided with a groove *c⁴*.

E is a series of balls resting in the grooves *a'*, *b²* and *c⁴*. Now as will be seen by screwing the cap C into the orifice in the plate or piece B the groove *c⁴*, *b²* forms a semi-circular groove and the cap C and plate B clamping

the end of the piece A between them bring the groove *a'* adjacent to the semi-circular groove formed by *c⁴*, *b²* and a substantially circular receptacle is provided for the balls E. These balls as will be seen are thus located at the frictional point between the piece A and the piece B so that the balls take up the strain and relieve the friction. The screw D is employed to bind and hold the cap C in its relation with the piece B and is more in the nature of a locking screw, and while not essential is preferable.

It will thus be seen that by the above construction I have provided a joint which is compact, simple, durable and effective; one which materially lessens the friction between the parts and one which can be easily taken apart and put together.

What I claim is—

1. A joint for artificial limbs consisting of the combination with the pieces A, B, one of said pieces provided with a groove of the cap C engaged to the other piece, said cap C and the piece to which it is engaged also provided with grooves and a series of balls bearing upon each of the three grooves above mentioned, substantially as described.

2. In an artificial limb the combination with the pieces A, B, the latter provided with a groove *a'*, of the cap C provided with a projection which engages the piece B, said cap C provided with the groove *c⁴*, and the piece B provided with the groove *b²*, a series of balls clamped between the piece A and pieces B and C and a screw D for binding and locking the parts in position, substantially as described.

3. In a joint for artificial limbs the combination with the piece A provided with an orifice *a*, the latter provided with a groove *a'* of the piece B provided with an orifice *b* and groove *b²* the cap C provided with the projection *c*, a projection bored as at *c'*, said projection engaged to the piece B by screw threads, the balls E and the screw D engaging the screw threaded bore *c'* all arranged, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

LEVI S. GARDNER.

Witnesses:

D. I. DOWERS,
OLIVER MONTAGNET.