M. SPRING.

ANKLE JOINT FOR ARTIFICIAL LIMBS.

APPLICATION FILED NOV. 20, 1907.

**907,192.** Patented Dec. 22, 1908.

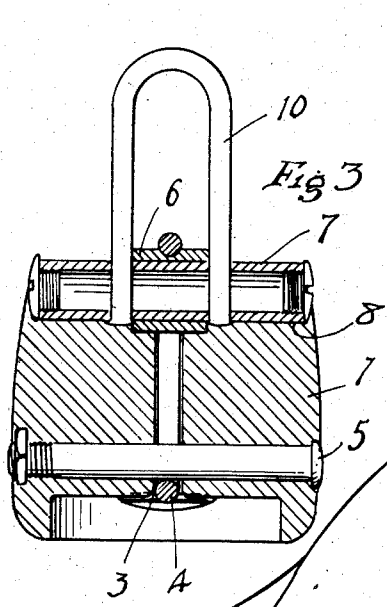



Fig 3

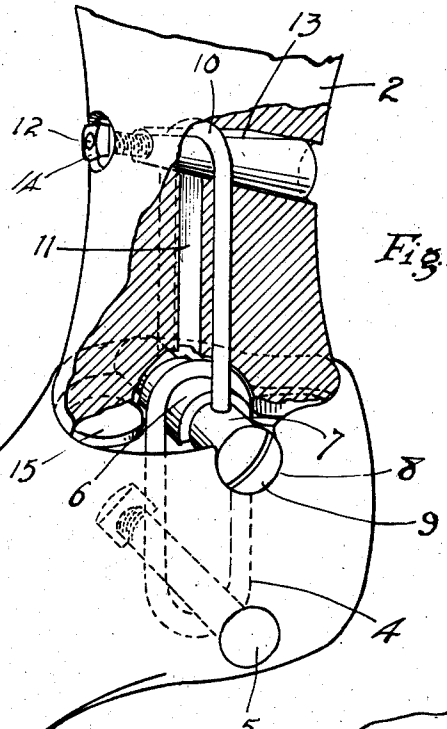



Fig 1

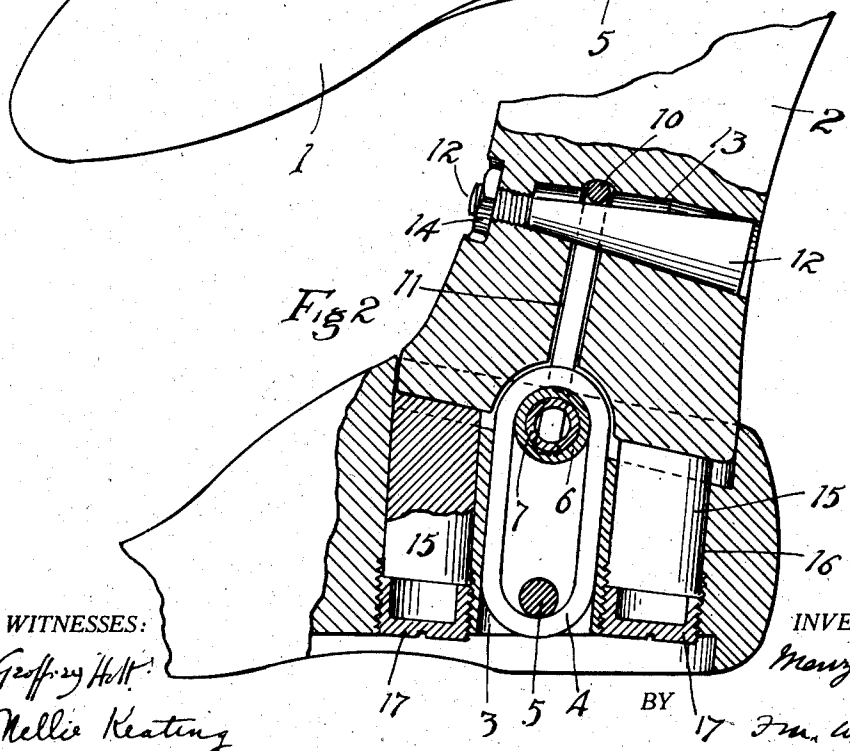



Fig 2

WITNESSES:

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# UNITED STATES PATENT OFFICE.

MENZO SPRING, OF OAKLAND, CALIFORNIA.

## ANKLE-JOINT FOR ARTIFICIAL LIMBS.

No. 907,192. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed November 20, 1907. Serial No. 402,942.

*To all whom it may concern:*

Be it known that I, MENZO SPRING, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Ankle-Joints for Artificial Limbs, of which the following is a specification.

The object of the present invention is to provide an improved cordless ankle joint for artificial legs, stronger and more durable than those now in use which have no lateral motion, one which is simple of adjustment, easily kept in order, and with a free backward and forward movement easily adjusted to suit the wearer.

In the accompanying drawing, Figure 1 is a broken perspective view of an artificial foot and part of an ankle member equipped with my improved joint; Fig. 2 is a vertical longitudinal section of the same; Fig. 3 is a transverse section.

Referring to the drawing, 1 indicates the wooden foot, and 2 the ankle member. In a vertical hole 3 in said foot is contained a metallic bar 4 in the form of a loop, its lower end being secured in place by means of a transverse pin 5. Through its upper end passes the cylindrical transverse bearing 6, which rests in a suitable socket formed in the upper surface of the foot. In said bearing fits snugly a tubular rock shaft 7. The projecting ends of said rock shaft 7 rock in suitable sockets 8 formed in the artificial foot, and are closed by screws 9. To said rock shaft are secured the lower ends of a metal bar 10 in the form of a staple, the ends of which are driven into and through the tubular rock shaft, one end on each side of the bearing 6 and close to the ends of said bearing. Said staple extends upwards into a recess 11 formed in the lower part of the ankle member, and through the bend or loop portion of said staple, is passed, in the longitudinal direction of the foot, a stay bolt 12, which is conical in form and is received in a somewhat larger longitudinal conical hole 13 in the ankle member. Upon the forward end of said stay bolt is screwed a nut, 14 and by tightening up said nut said stay bolt can be drawn forward so that a part thereof of greater diameter passes through the bend of the staple, thus tightening the union between the lower end of the ankle member and the foot. The lower end of said ankle member rests upon rubber cushions 15, contained in cylindrical sockets 16 in the lower ends of which are screwed the supporting screws 17, which adjustably support said cushions at any desired height in their sockets, and thus by raising and lowering said screws make the tension tight or loose as may be desired. By this means also the ankle can be forced forward or backward to conform for use with high or low heeled shoes.

While the bar 10 shown herein is preferably made in a single piece, this is not absolutely essential, as this metallic fastening might be made in two pieces, the essential condition being that the lower ends are passed through the hollow shaft at points sufficiently far apart.

The great advantage of this joint is its strength and durability, and the fact that it permits of no sidewise movement of the foot relatively to the ankle, and does away with ankle cords, making a strong and durable cordless ankle leg.

I claim:—

1. In an ankle joint, the combination, with a foot and an ankle member, of a shaft arranged transversely in a socket in said foot, a metal loop passing around said shaft, a device passing transversely through the lower end of said loop and securing it to said foot, a metallic fastening having lower ends which are connected to said shaft and means for firmly securing the upper portion of said fastening to the ankle member, substantially as described.

2. In an ankle joint, the combination, with a foot and an ankle member, of a tube arranged transversely in a socket in said foot, a metal loop passing around said tube, a device passing transversely through the lower end of said loop and securing it to said foot, a rock shaft in said tube, a metallic fastening having lower ends which are connected to said shaft in close proximity to the ends of said tube, and means for firmly securing the upper portion of said fastening to the ankle member, substantially as described.

3. In an ankle joint, the combination, with a foot and an ankle member, of a tube arranged transversely in a socket in said foot, a rock shaft in said tube, a metallic fastening connected at its inner end with one of said elements, the shaft and tubes, the outer end of said fastening being in the form of a loop, and a bolt 12 passing through said loop-shaped end, substantially as described.

4. In an ankle joint, the combination,

with a foot and an ankle member, of a tube arranged transversely in a socket in said foot, a rock shaft in said tube, a metallic fastening connected at its inner end with one of said elements, the shaft and tubes, the outer end of said fastening being in the form of a loop, a conical stay bolt passing through said loop-shaped end, and a nut on said bolt for moving it longitudinally, substantially as described.

5. In an ankle joint, the combination, with a foot and ankle member, of an outer tube arranged transversely in a socket in said foot, a metal bar looped around said outer tube and firmly securing it to said socket, an inner tube in said outer tube, a metallic fastening having lower ends which are connected to said inner tube in close proximity to the ends of said inner tube, and means for firmly securing the upper portion of said fastening to the ankle member, the foot having sockets respectively before and behind the outer tube, rubber cushions in said sockets, and screws screwed into the lower ends of said sockets to adjustably support said cushions, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MENZO SPRING.

Witnesses:
FRANCIS M. WRIGHT,
D. B. RICHARDS.