(No Model.)

# J. E. HANGER.

## ARTIFICIAL LEG.

No. 465,698. Patented Dec. 22, 1891.

Fig. 1.

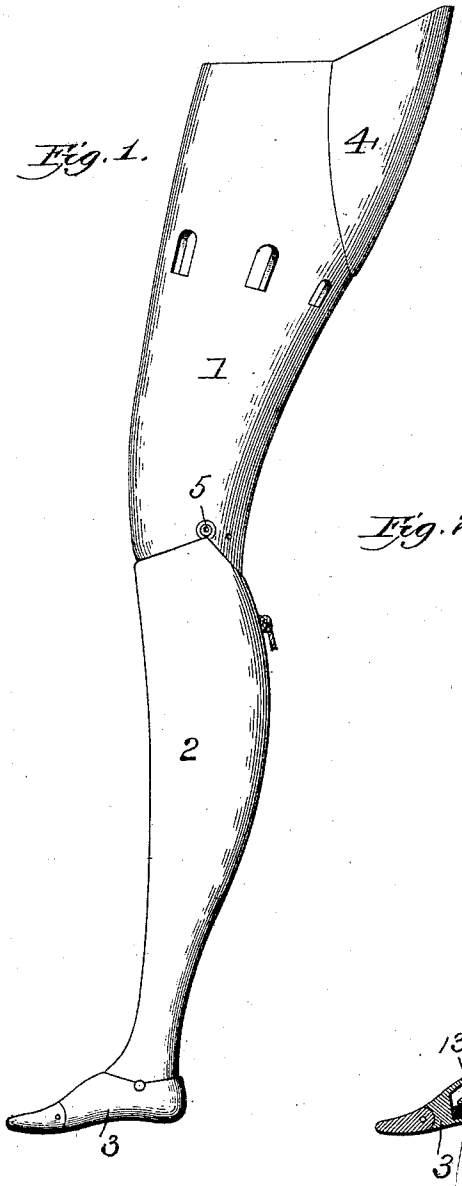
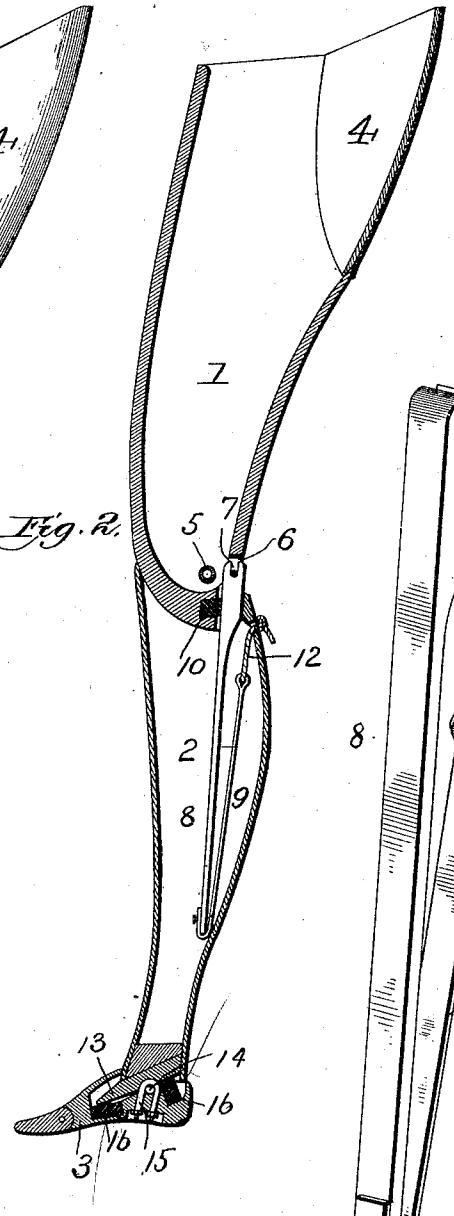



Fig. 2.



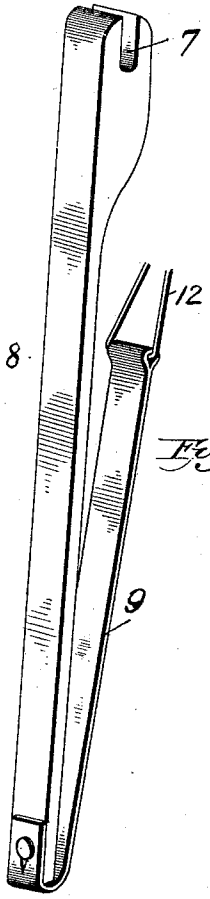




Fig. 3.

Witnesses
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# UNITED STATES PATENT OFFICE.

JAMES E. HANGER, OF WASHINGTON, DISTRICT OF COLUMBIA.

## ARTIFICIAL LEG.

SPECIFICATION forming part of Letters Patent No. 465,698, dated December 22, 1891.

Application filed November 7, 1891. Serial No. 411,134. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. HANGER, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Artificial Limbs; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in artificial legs, the object being to provide an improved construction of the knee and ankle joints and of the socket, whereby superior advantages are attained with respect to simplicity, efficiency, and comfort of the wearer.

The invention consists in the novel construction and combination of parts hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an artificial leg constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a perspective view of the knee spring and lever on an enlarged scale.

In the said drawings, the reference-numeral 1 designates the thigh portion, 2 the lower leg portion, and 3 the foot. The thigh portion, after the socket has been shaped to fit the stump, is cut away at the upper posterior portion on each side from a point a little in the rear of the center and on a slight curve to a point a short distance above the lower end of the socket. Secured to the edges of the socket at this cut-away portion is a piece 4, of leather, canvas, or other soft flexible material, corresponding to the contour of the stump. The object of this construction is to provide a socket, which, coming up over the buttock, will conform to the different shapes thereof when in different positions, especially when sitting down or riding horseback, as the flexible material will yield to the required shape, making a comfortable seat, and will not wear out the pants like a hard unyielding socket. The portions 1 and 2 are articulated or jointed together by means of the pivot-bolt 5, located slightly in rear of the center of the knee. Immediately in rear of the bolt 5 the thigh portion is recessed or cut away and provided with a pin or stud 6. This pin engages with a recess 7 in the upper end of a downwardly-extending lever 8 and forms a pivot therefor. Connected with the lower end of lever 8 is an upwardly-extending spring-arm 9, the upper end of which is connected with a knotted cord or rope 12, which passes through an aperture in the lower leg portion. The object of lever 8 is to check the forward motion of the leg-piece 2, which comes into contact with the lower end of thigh-piece 1 and upper rear part of leg-piece 2. The points of contact are provided with rubber bumper 10 to take up the shock and render the step elastic. The purpose of the spring 9 is to bring the lower leg piece 2 forward when the knee-joint is flexed in walking. It also holds the lever firmly against its pivot-pin and against the rear of the lower leg-piece 2. The leg-piece 2 is made solid for a short distance above the ankle-joint, and in this solid part is mortised a strong piece of wood 13, extending a short distance into the foot, a suitable recess being made in the foot to receive the same. The foot-piece is pivoted to piece 13 by means of pivot 14 and strap 15. Rubber bumpers or cushions 16 are provided in the foot with which the piece 13 contacts. By this construction the weight in walking is thrown upon the ball of the foot and a free ankle motion is permitted.

Having thus described my invention, what I claim is—

1. A socket for an artificial leg, having its upper posterior portion cut away or recessed and provided with a filling-piece of flexible material, substantially as described.

2. In an artificial leg, the combination, with the thigh-piece having its lower portion recessed at the rear and provided with a pin

or stud and the lower leg-piece jointed to said thigh-piece, of the downwardly-extending lever pivoted to said pin or stud and the flexible elastic strip connected with said lever, substantially as described.

3. In an artificial leg, the combination, with the lower leg-piece having a forwardly-extending piece mortised in its lower end, of the recessed foot-piece pivoted to said forwardly-extending piece and provided with elastic bumpers, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. HANGER.

Witnesses:
J. FICKLING,
F. D. STONE.