

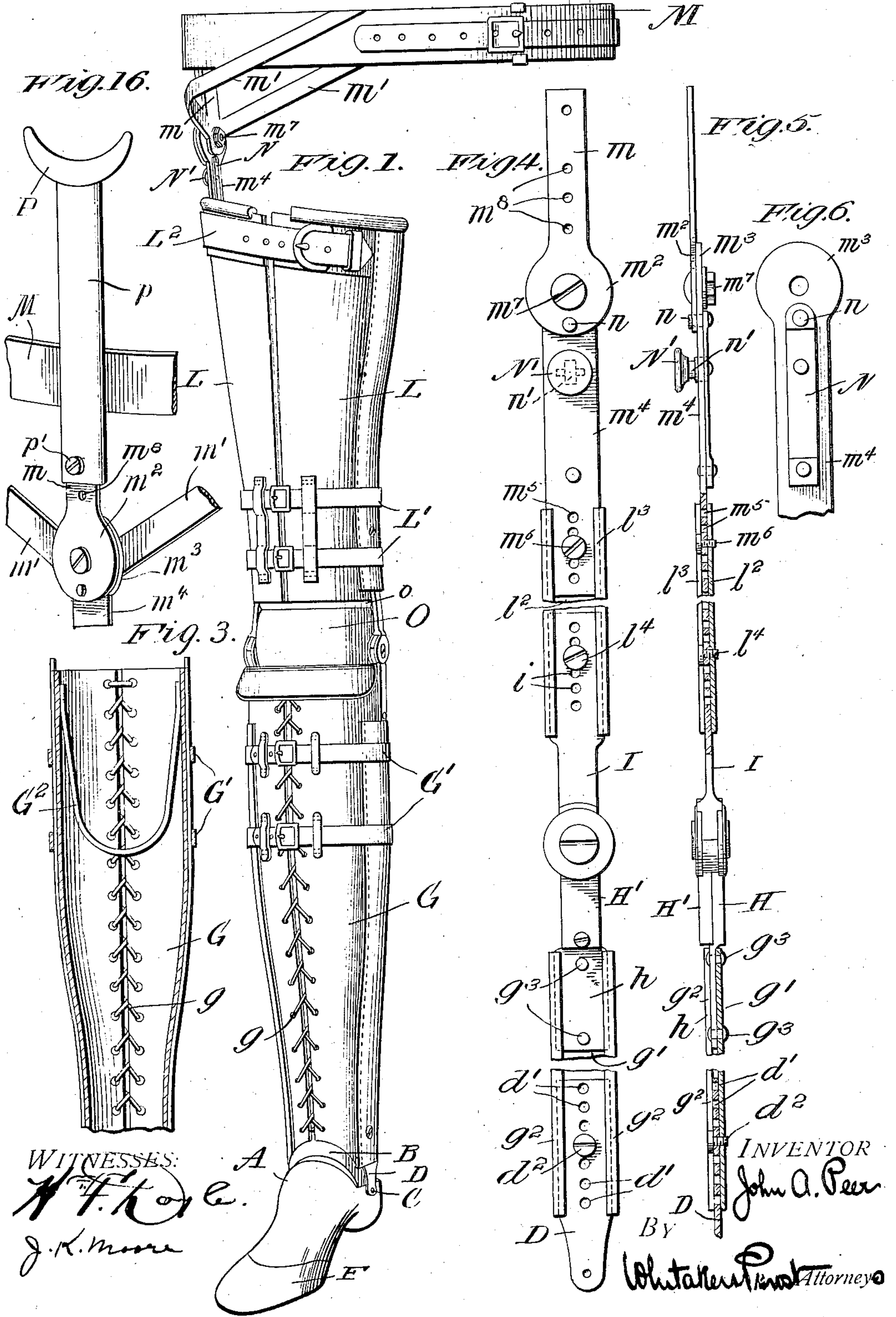
No. 822,385.

PATENTED JUNE 5, 1906.

J. A. PEER.
ARTIFICIAL LEG.

APPLICATION FILED FEB. 8, 1905. RENEWED NOV. 6, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

J. R. Moore
J. A. Peer

INVENTOR

John A. Peer

By

Whitaker & Knott Attorneys

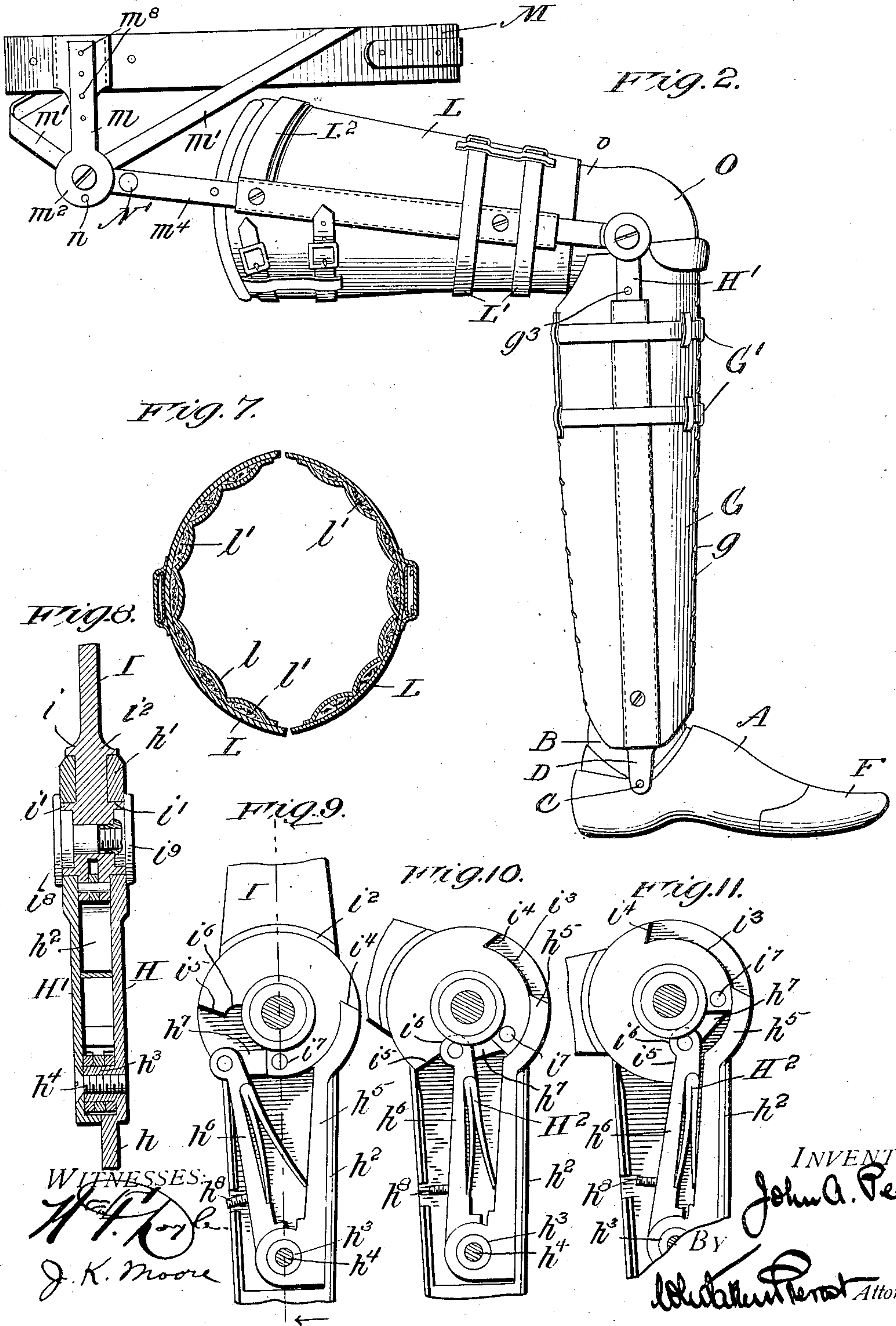
No. 822,385.

PATENTED JUNE 5, 1906.

J. A. PEER.
ARTIFICIAL LEG.

APPLICATION FILED FEB. 8, 1905. RENEWED NOV. 6, 1905.

3 SHEETS—SHEET 2.



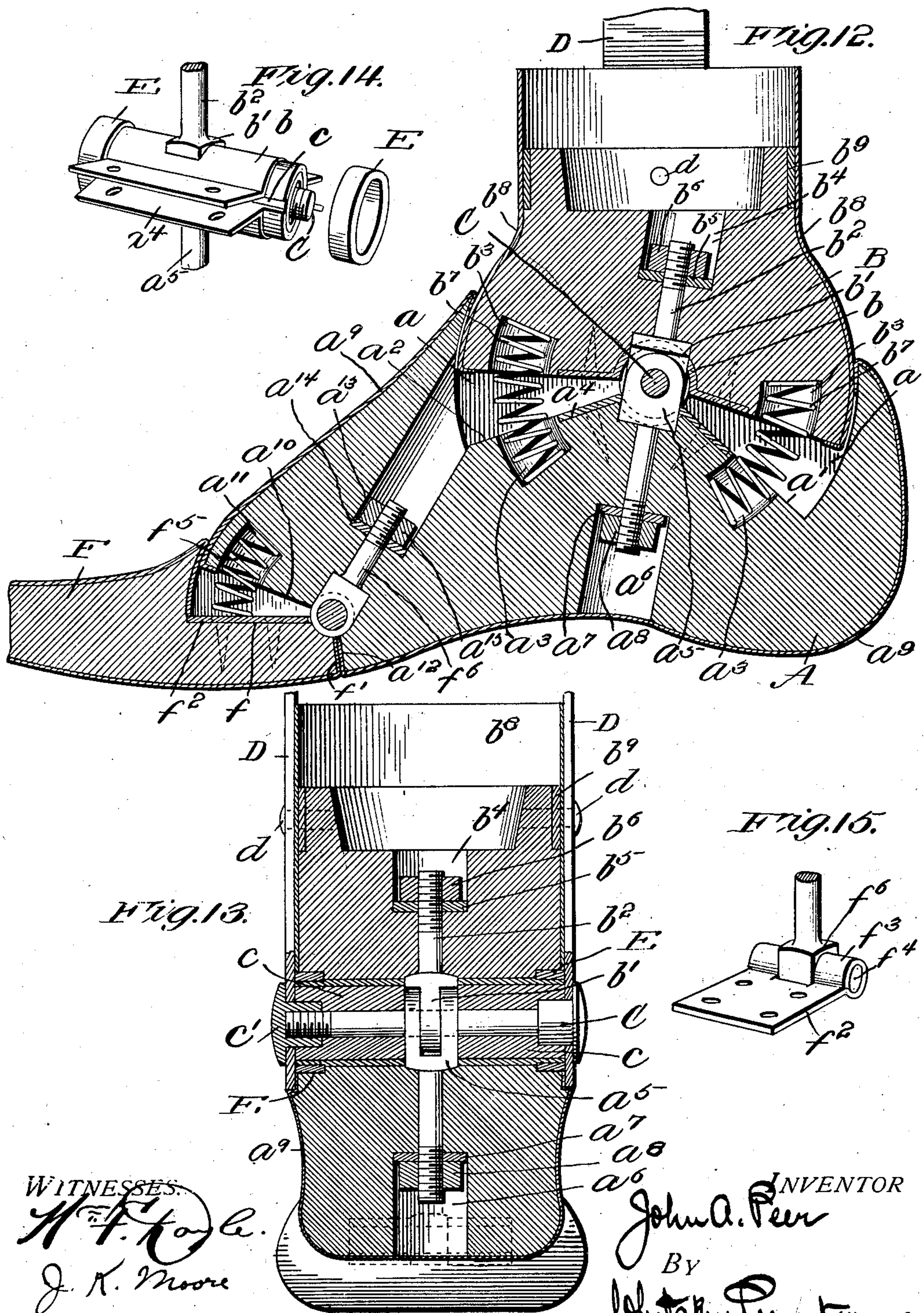
No. 822,385.

PATENTED JUNE 5, 1906.

J. A. PEER.
ARTIFICIAL LEG.

APPLICATION FILED FEB. 8, 1905. RENEWED NOV. 6, 1905.

3 SHEETS—SHEET 3.



WITNESSES:
H. F. K. G.
J. K. Moore

INVENTOR
John A. Peer
By
Whitaker Peat Attorneys

UNITED STATES PATENT OFFICE.

JOHN A. PEER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
PEER ARTIFICIAL LEG MANUFACTURING CO., OF WASHINGTON, DIS-
TRICT OF COLUMBIA, A CORPORATION OF THE DISTRICT OF COLUMBIA.

ARTIFICIAL LEG.

No. 822,385.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed February 8, 1905. Renewed November 6, 1905. Serial No. 286,132.

To all whom it may concern:

Be it known that I, JOHN A. PEER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Artificial Legs; and I do hereby 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.

My invention consists in the novel features hereinafter set forth, reference being had to the accompanying drawings, which illustrate the best form in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 is a perspective view of a complete leg embodying my invention, showing it in a vertical position. Fig. 2 is a side elevation of the same, showing it in the position which it occupies when the wearer is seated. Fig. 3 is a vertical sectional view of the calf or lower section of the leg, showing a spring-spreader for use in amputations above the knee. Fig. 4 represents a side elevation of one set of the lateral stiffening-bars and connected parts and illustrating the longitudinal adjustment thereof. Fig. 5 is an edge view of the same, partly in section. Fig. 6 is a detail illustrating the spring-lock for the hip-joint. Fig. 7 is a horizontal sectional view of the thigh-section of the leg, showing the manner of attaching the lateral stiffening-bars and of lining the section. Fig. 8 is a vertical sectional view of one of the knee-joints for connecting the lateral stiffening-bars. Figs. 9, 10, and 11 are detail side elevations of the same with cover-plate removed and showing the parts in different positions. Fig. 12 is a vertical longitudinal sectional view of the foot-section. Fig. 13 is a transverse sectional view of the same through the ankle-joint. Fig. 14 is a detail perspective view of the ankle-joint detached. Fig. 15 is a detail perspective of the joint connecting the toe-section to the foot-section. Fig. 16 is a detail perspective view of a crutch attachment.

Referring to the drawings, I will first describe the foot-section, which is best illustrated in Figs. 12 and 13.

A represents the main foot-section, which is preferably formed of wood or papier-mâché and is provided on its upper face with a recess *a* to receive an ankle-section B, the bottom of said recess being formed by two flat faces *a'* *a''*, disposed at an angle to each other, as shown, and each provided with a circular pocket or recess *a'''*. The foot-section A is provided with a bearing-plate *a⁴*, extending substantially the full width of the same, said plate having a curved central bearing portion and lateral straight flanges fitting upon or recessed into the faces *a'* *a''* and secured thereto by screws, as indicated in dotted lines, Fig. 12.

The ankle-section B is provided on its lower face with a similar plate *b* and with circular recesses *b³* *b³*, corresponding with the recesses *a³* *a³* above described. The parts A and B are held together by means of hinge members consisting of a yoke *a⁵*, having a threaded stem passing through the body of the foot-section A and terminating in a recess *a⁶*, formed in the bottom of the foot-section, said stem being provided with an elastic washer *a⁷* and nut *a⁸*. The other hinge member is secured to the ankle-section B and consists of a shouldered perforated ear *b'*, having a threaded stem *b²*, terminating in a recess *b⁴* in the upper face of the ankle-section and provided with an elastic washer *b⁵* and nut *b⁶*.

The bearing-plates *a⁴* and *b* are cut away to accommodate the hinge members *a⁵* and *b'*, and the hinge members are united by a transverse bolt C, which passes horizontally through them and through two hardened rollers *c c*, interposed between the said bearing-plates, as clearly shown in Fig. 13. This bolt C has a cylindrical shouldered portion of larger diameter than the bolt, which passes through a steel attaching-bar D on one side of the foot, and a similar bar D is provided on the other side, which is engaged by a similar shoulder on the nut *c'*, which is screwed upon the threaded end of the bolt C. I also provide two safety retaining-rings E E, (see Figs. 13 and 14,) which are slipped over the outer ends of the cylindrical portions of the bearing-plates *a⁴* and *b*, which are extended for the purpose, the wood being cut away around these portions of the plates at each side to allow the rings to be slipped on in as-

sembling the parts, said rings being held in place by the attaching-bars D D. It will be seen that even if the central hinge-bolt C should loosen and fall out the safety-rings would still hold the parts of the hinge-joint together, and thus avert a possible accident to the wearer of the leg.

The foot and ankle sections A and B are provided with the springs b^7 b^7 , having their ends seated in the recesses a^3 a^3 b^3 b^3 , as shown in Fig. 12, said springs normally maintaining the foot-section A in normal position with respect to the ankle-section B, while permitting the forward-and-backward rocking of the ankle-section, corresponding to the natural movements of the ankle-joint. The foot-section A is covered, preferably, with leather or other suitable material, as shown at a^9 , and the ankle-section is also covered with leather or other material, as shown at b^8 , which covering is preferably extended upward above the wood portion, as shown in Figs. 12 and 13, so as to extend within the thigh-section of the leg and allow for a certain amount of longitudinal adjustment in connection therewith. The ankle-section B is also provided with a reinforcing or bracing ring b^9 , of metal, which is preferably fitted onto the upper part thereof and is connected to the lateral attaching-bars D D by screws d d , as shown in Fig. 13, which pass through the metal parts and also enter the wood to strengthen the construction. The foot-piece A is also provided with a movable spring-actuated toe-piece F, attached to the forward end of the foot-piece by a spring hinge connection. The front end of the foot-piece A is cut away angularly, as shown, to provide an inclined overhanging face a^{10} , provided with a spring-holding recess a^{11} and a nearly vertical face a^{12} . The rear end of the toe-piece F is provided with a cut-away portion to receive the overhanging part of the foot-piece A and having a substantially horizontal face f and a substantially vertical face f' , adapted to engage the face a^{12} when the toe-piece is in normal position to prevent overmovement.

The horizontal face f has secured to it, by screws or otherwise, a hinge-plate f^2 , which at its rear end is bent into substantially cylindrical form, as shown at f^3 , to receive a hinge-pin f^4 , which also passes through a perforated hinge member f^5 , fitted in a central recess in said cylindrical portion f^3 and provided with a threaded stem extending into the foot-section A and terminating in a recess a^{13} therein, where it is provided with an elastic washer a^{14} and nut a^{15} . A spring f^5 is seated in the recess a^{11} and bears on the hinge-plate f^2 to hold the toe-piece in normal position, but permitting the required movement of the toe-piece with respect to the foot-section in walking.

The lower leg or calf-section G of my im-

proved leg is formed of flexible material, preferably leather, divided at front and rear, and the two side pieces thus formed adjustably secured together by lacings g , as shown in Fig. 1. The calf-section is provided on each side with a lateral stiffening-bar g' , which is formed of a flat bar having its edges bent over on one side to stiffen the bar and also to form guiding-flanges, as shown at g^2 . These stiffening-bars are secured to the flexible side pieces of the calf-section and are preferably covered by an exterior strip, as shown.

The upper part of the ankle-section B is inserted in the lower part of the calf-section, and the lateral attaching-bars D D are inserted within the guiding-flanges g^2 g^2 of the stiffening-bars g' , as clearly shown in Figs. 4 and 5. The attaching-bars D D are each provided with a series of apertures d' d' , which may be brought into registration with a single aperture in each of the stiffening-bars g' g' , and the parts are secured in any position to which they may be adjusted longitudinally by screws d^2 d^2 .

The upper end of each stiffening-bar g' fits upon a shank h of a hinge-piece H, forming part of the knee-joint, said shank fitting into the guiding-flanges g^2 g^2 , as shown in Figs. 4 and 5, and secured thereto, preferably without adjustment, by rivets g^3 g^3 . It will be seen that by adjusting the attaching-bars D with respect to the stiffening-bars g' g' the artificial limb can be adjusted so that the distance between the center of the knee-joint and the center of the ankle-joint shall be substantially the same as it is in the natural member.

The lower section of the leg is also provided near the top of the same with one, two, or more straps G' , extending around the same (two being shown herein) for better enabling the flexible portions of the lower section to be firmly held around the part of the natural leg when the amputation is below the knee.

I preferably provide the lower leg-section G with a spring spreading device G^2 . (Shown in Fig. 3.) This consists, preferably, of a bow-spring having its ends riveted or otherwise secured to the lateral stiffening-bars and constructed to press them apart. The lower leg-section will then be laced and held by the straps G' G' in the required position to hold the knee-joints of the leg, hereinafter described, at the desired distance apart to suit the comfort of the thigh portion of the natural leg of the wearer, and the spreading device will prevent the lacings or straps from drawing the parts too closely around the lower part of the amputated member, which may even in some cases extend down into the lower section of the artificial leg. It will be seen that after the parts are adjusted to hold the natural member firmly in the artificial leg this spring spreading device will con-

tinually tend to relieve it of unnecessary or unintended pressure and add greatly to the comfort of the leg.

The construction of the knee-joint is shown in detail in Figs. 8, 9, 10, and 11. There are two of these joints or hinges, one connected to each of the stiffening-bars g' , and a description of one will therefore suffice for both. The knee-joint comprises two hinge members. The upper hinge member I consists of an attaching-shank provided with a series of adjusting-holes i and having at its lower end a counterbored boss i' on each side and a central aperture for a coupling screw or bolt, as shown in Fig. 8. The shank of the part I is also provided with a flange i^2 on each side, having its inner edge curved concentrically with the bosses i' . The lower hinge member consists of the hinge-plate H, previously referred to, the shank h of which extends into and is connected to one of the stiffening-bars of the thigh-section of the leg, and a covering or closing plate H'. The plate H is provided with a substantially circular upper portion h' , having a concentric bearing-aperture engaging one of the bosses i' . The portion of the plate H between the portion h' and the shank h is provided with a lateral flange h^2 , projecting from one side and forming an inclosing recess in the lower part of which is a circular boss or stud h^3 , having a central threaded aperture therethrough, said boss being of the same height as the flange h^2 .

H' represents a closing-plate which fits upon the flange h^2 , as shown in Fig. 8, and has at its upper end a substantially circular portion having a concentric aperture fitting over one of the bosses i' of the upper hinge member, and the lower part of said plate is provided with a countersunk hole registering with the threaded hole in the lower boss h^3 for the reception of a screw h^4 , which secures the plates H and H' together. The hinge member I is therefore held between the plates H and H', which pivotally engage its bosses i' . The central portion of the hinge member I is cut away on its front side concentrically with the bosses i' , as shown at i^3 , Fig. 11, terminating in a shoulder i^4 . On its rear side this central portion of the hinge member is also cut away to the boss forming a shoulder i^5 and a curved recess i^6 , as shown best in Fig. 9.

Within the recess formed between the plates H and H' is a stop-bar h^5 , having its lower end provided with an aperture to fit over the boss h^3 and its upper end curved to engage the reduced concentric portion i^3 of the upper hinge member, the extreme upper end of the stop-bar being constructed to engage the shoulder i^4 when the leg is in vertical or extended position, and thus prevent the hinge from opening backward. This construction enables the wearer of the leg to stand perfectly securely on the leg when it is

in the extended position. The front face of the upper or curved portion of the stop-bar is flush with the curved edges of the plates H and H', and when the knee-joint is operated to bend the leg, as shown in Figs. 10 and 11, these edges of the plates H and H' will prevent the clothing from being caught between the shoulder i^4 and stop-bar h^5 .

h^6 represents a retracting-lever, pivoted at its lower end on the boss h^3 and having its upper end connected by a link h^7 to the reduced portion i^3 of the upper hinge member, as at i^7 . The point i^7 is substantially in line with and below the bosses i' when the leg is extended as shown in Fig. 9.

H² represents a V-shaped mainspring which is fitted into a recess in the upper end of the retracting-lever and has its ends compressed between the said lever and the stop-bar h^5 . The retracting-lever h^6 is also provided with an adjusting-screw h^8 for engaging one end of the spring to adjust the same, the end of the screw being accessible through a hole in the flange h^2 , as shown, for adjusting it without taking the joint apart.

When the knee is bent, the link h^7 will draw the retracting-bar to the right, Figs. 9, 10, and 11, and compress the spring H². As the movement of the knee is substantially through ninety degrees, the point of connection i^7 between the link h^7 and the upper hinge member after moving through the first forty-five degrees begins to move vertically faster than it moves laterally. To render the pressure of the spring uniform on the hinge members throughout the whole movement, the recess i^6 in the hinge member I is so constructed that when the point i^7 has moved through about forty-five degrees the curved wall of said recess i^6 will engage the upper end of the retracting arm or lever h^6 and push the same while the remaining forty-five degrees of movement is made and until the shoulder i^5 comes into contact with the rear face of the retracting-arm, as shown in Fig. 11, and checks the movement.

It will be observed that while the upper end of the retracting-arm travels a considerable distance the arms of the spring are located between the lower ends of said retracting-arm and the stop-arm, and the actual movement of the spring H² is comparatively small, thus lengthening greatly the lift of the spring.

The knee-joint is held together by the screw and nut $i^8 i^9$ in a well-known manner. It is to be noted that in this entire knee-joint or hinge construction no strain whatever is permitted to come upon either of the screws which hold the parts together. The weight of the body of the wearer is transmitted to the shank of the upper hinge member I and thence through the integral bosses i' and flanges i^2 to the substantially circular portions of the plates H H', forming the lower

hinge member. The retracting-bar and stop-bar within the plates H H' are also mounted on a boss, and therefore they will remain in place even if the attaching-screw h^4 should work loose.

The thigh or upper leg-section is also formed of flexible material, such as leather, and in two parts L L, as shown in Fig. 7, and these parts are provided with a corrugated lining l , so as to ventilate the natural member to which it is attached and prevent overheating. I prefer to provide the interiorly-projecting parts of this lining with ribs of cork or similar material, as shown at l' . The parts L L are also provided with an inner and an outer stiffening-bar $l^2 l^2$, which are of the same form as the stiffening-bars g' of the lower leg-section and have the bent-over lateral guiding and strengthening flanges $l^3 l^3$, as clearly shown in Figs. 4 and 5. The shanks of the upper hinge members I I of the knee-joints are inserted in the lower ends of these stiffening-bars $l^2 l^2$, as shown in these figures, and are secured in their adjusted positions by means of screws l^4 .

The two parts L L of the upper or thigh section may be laced together at front and back, if desired, like the parts of the lower leg-section; but this lacing may be dispensed with, and I have shown it dispensed with in the drawings. The lower part of the thigh-section is provided with one or more straps L', surrounding the same for securing it to the remaining part of the amputated member, and a similar strap L² is provided at the upper end of the section.

M represents a belt which is to be worn around the waist and is provided at one side with an attaching-bar m , riveted or otherwise secured to and depending from the belt and preferably provided with stays or straps $m' m'$, extending from its lower end up to the belt at front and rear. The bar m is provided at its lower end with a substantially circular plate m^2 , to which is bolted or otherwise pivotally secured a similar plate m^3 , to which is connected a shank m^4 . The shank m^4 is provided with a series of adjusting-holes m^5 and is adapted to be inserted in the guiding-flanges of the outer stiffening-bar l^2 of the thigh-section, as shown in Figs. 4 and 5, and held in its adjusted position by a screw m^6 . The attaching-bar m is of such length that when the belt is properly adjusted the pivotal connection m^7 between the plates m^2 and m^3 will lie directly over the hip-joint and will form the hip-joint of the artificial leg. By adjusting the shank m^4 and the shank of the upper hinge member I with respect to the stiffening-bar of the thigh-section the distance between the centers of the hip-joint at m^7 and the knee-joint can be made to correspond exactly to the distance between the hip and knee joints of the natural member. In Fig. 2 I have shown how natural is the po-

sition of the various parts of the leg when the wearer is in sitting position, and it is found that with this direct connection to the belt through the hip-joint shown and described the use of all shoulder-straps, hip-straps, and other clumsy and uncomfortable attaching devices is avoided.

In some cases it is desirable to lock the hip-joint to prevent it from turning, and I preferably provide a locking bolt or stud n , carried on the end of a spring N, the other end of which spring is secured to the inner face of the shank m^4 , as shown in Figs. 5 and 6. The bolt or stud n extends through a hole in the circular part m^3 and a registering hole in the part m^2 , thus locking the hip-joint out of operation.

N' represents a button, which is attached to the spring N in such a manner that it may be turned, and has an oblong part n' , extending through a similarly-shaped slot in the shank m^4 . By pushing on the button N' the spring N will be pressed in and the bolt n released from the plate m^2 , thus permitting the hip-joint to operate. If it is desired to hold the locking-stud out of operative relation, the button N' will be turned after it is pressed in, thus throwing the oblong part n' across the slot in the shank m^4 and holding the bolt n out of engagement with the plate m^2 . This locking device for the hip-joint above described is more particularly adapted for use when a crutch is applied to the attaching-bar m . The attaching-bar m is provided with a vertical series of adjusting threaded apertures m^8 , and I provide a crutch P (shown in detail in Fig. 16) which has a vertical part p , consisting of a metal bar having its edge portions turned over on one side to form guiding-flanges, similarly to the stiffening-bars already described. This part p of the crutch is slipped over the attaching-bar m of the hip portion and is secured by a screw p' , passing through the required hole m^8 to give the desired adjustment of the crutch.

It will be observed that the crutch P acts directly to the hip-joint and that no part of the thigh-section extends above the hip-joint. By locking the hip-joint as above described the crutch can be used to assist the wearer in walking on the leg, where this is desirable, and by pressing in the button N the wearer can sit down without in any way interfering with the set of the leg.

In some cases where the leg is used with a member which has been amputated above the knee I employ a knee-piece O, having a spherical knee portion and a cylindrical portion o , adapted to fit within the lower part of the upper leg-section and be held therein by the straps L' L' thereof, so that the clothing of the wearer will be properly fitted at the knee and a natural appearance imparted in either walking, standing, or sitting. This

knee-piece is preferably formed of wood, hollowed out to decrease the weight and covered with leather or other suitable material.

What I claim, and desire to secure by Letters Patent, is—

1. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint, at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section and a locking device for the hip-joint, constructed to hold said attaching-bar, and the outer stiffening-bar rigidly in alinement, substantially as described.

2. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint, at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, a locking device for said hip-joint, for rigidly holding said attaching-bar, and said outer stiffening-bar in alinement, and a device for disengaging said locking device and holding it out of operation, substantially as described.

3. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint, at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, a spring-actuated locking device adapted to pass through registering apertures in the attaching-bar, and outer stiffening-bar, to lock them rigidly in alinement, a push-button for disengaging said locking device, and means for securing said button in its inner position to hold the locking device out of operation, substantially as described.

4. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint,

at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, said outer stiffening-bar being adjustable longitudinally, to regulate the distance between the centers of the artificial hip and knee joints to correspond with the natural limb of the wearer, and a locking device for locking said attaching-bar and said outer stiffening-bar in alinement, substantially as described.

5. In an artificial leg, the combination with the body-belt, provided with a downwardly-extending attaching-bar, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer bar being pivotally connected to said attaching-bar by an artificial hip-joint adapted to lie directly over the hip-joint of the wearer, a calf-section connected to the thigh-section by artificial knee-joints, a foot-section connected to the calf-section by an ankle-joint, the outer lateral stiffening-bar of the thigh-section being adjustable longitudinally to regulate the distance between the artificial hip and knee joints to correspond with the natural leg of the wearer, and said calf-section being longitudinally adjustable to regulate the distance between the artificial knee and ankle joints to correspond with the natural leg of the wearer, substantially as described.

6. In an artificial leg, the combination with the lower leg-section of flexible material provided with lateral stiffening-bars, having edge portions bent over on one side to form guiding-flanges, a foot-section provided with attaching-bars adapted to fit within said guiding-flanges and means for securing said attaching-bars and stiffening-bars together, substantially as described.

7. In an artificial leg, the combination with the lower leg-section of flexible material provided with lateral stiffening-bars, having edge portions bent over on one side to form guiding-flanges, a foot-section provided with attaching-bars adapted to fit within said guiding-flanges, one set of said bars being provided with a series of adjusting-apertures, and the other set being provided with an aperture adapted to register with one of the said series, and screws for engaging said apertures and securing said attaching-bars and said stiffening-bars together and permitting the longitudinal adjustment thereof, substantially as described.

8. In an artificial leg, the combination with a lower leg portion of flexible material, a thigh-section of flexible material, said sections being each provided with lateral stiffening-bars composed of flat metal bars having edge portions bent over on one side thereof to form guiding-flanges, hinge devices forming knee-joints, each provided with two shanks for fitting within the guiding-flanges of the stiffening-bars of said thigh-section and

lower leg-section means for securing said shanks in engagement with said bars, and a foot-section secured to said lower leg-section, substantially as described.

5 9. In an artificial leg, the combination with the thigh-section and lower leg-section, of a hinge connection forming the knee-joint and comprising two hinge members pivotally connected, one of said hinge members being
10 provided with a retracting-lever pivoted at a distance from said pivotal connection of the hinge members, a link connecting said lever with the other hinge member, at a point eccentric to its pivotal connection, a spring
15 engaging said retracting-lever, and a stop on one of said members for engaging the other member and limiting the movement of the hinge members in the direction in which they are moved by the spring, substantially as described.
20

10. In an artificial leg, the combination with the thigh-section and the lower leg-section, of a hinge connection for said members forming a knee-joint and comprising among
25 its members, a hinge member provided on opposite sides with integral bearing-bosses, a second hinge member comprising two connected plates having bearing-apertures engaging said bosses, a retracting-lever between said plates pivoted at a distance from
30 said bosses, a link connecting the free end of said lever with said first-mentioned hinge member at a point eccentric to said bosses, a V-shaped spring having one of its arms engaging said lever adjacent to its point of pivoting, and a stop for limiting the movement of said hinge members under the influence of said spring, substantially as described.
35

11. In an artificial leg, the combination
40 with the thigh-section and lower leg-section, of a hinge connection forming a knee-joint, and comprising among its members, a hinge member provided on opposite sides with bearing-bosses, and having a central
45 portion provided on the front side with a stop-engaging shoulder, and on its rear side with a part to engage a retracting-lever, a second hinge member consisting of two connected plates having bearing-apertures engaging said bosses, a stop-bar located between said plates and having a part to engage
50 said stop-engaging shoulder, a retracting-lever pivotally mounted between said plates, a link connecting said lever with the other hinge member, in advance of the lever-engaging portion thereof, a V-shaped spring located between said plates and having one of its arms engaging the retracting-lever adjacent to its point of pivoting, the construction being such that when the hinge members
55 are moved in a direction to compress the spring, the said link will draw the retracting-lever into position to be engaged by the said lever-engaging shoulder of the first-men-

tioned hinge member, substantially as described. 65

12. An artificial leg comprising among its members, a leg-section formed of flexible material divided longitudinally and provided with lateral stiffening-bars, adjustable securing devices for drawing the said flexible portions together and an elastic spreading device interposed between said stiffening-bars, substantially as described. 70c

13. An artificial leg comprising among its members, a leg-section formed of flexible material divided longitudinally and provided with lateral stiffening-bars, adjustable securing devices for drawing said flexible portions together and a bow-spring within said section having its ends secured to the said stiffening-bars, for spreading them apart, substantially as described. 75 80

14. An artificial leg comprising among its members, a foot-section provided with parts movable with respect to each other, and a joint connecting said parts including two plates having substantially semicylindrical end portions and securing-flanges adapted to be attached to the parts of the foot-sections, bearing devices between said plates, and safety-rings engaging said semicylindrical end portions of said plates, substantially as described. 85 90

15. An artificial leg comprising among its members, a foot-section provided with parts movable with respect to each other, and a joint connecting said parts including two plates having substantially semicylindrical end portions and securing-flanges adapted to be attached to the parts of the foot-sections, rollers interposed between said plates, a bolt passing through said rollers transversely of the foot-section connections between said bolt and each of the said parts of the foot-section, and safety-rings engaging the end portions of said plates, substantially as described. 95 100 105

16. An artificial leg comprising among its members, an ankle section, and a main foot-section, a joint connecting said sections and including a plate secured to each section having a substantially semicylindrical bearing portion and attaching-flanges connected therewith of less width than said bearing portion, bearing-rollers interposed between the bearing portions of said plates, a bolt extending through said rollers transversely of the foot and ankle sections, hinge members pivotally connected to said bolt, and connected to said foot and ankle sections respectively and safety-rings engaging the end portions of the substantially semicylindrical bearing portions of said plates, substantially as described. 110 115 120 125

17. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto

and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint, at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, and a crutch detachably connected to said attaching-bar and extending upward therefrom, substantially as described.

18. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar forming an artificial hip-joint, at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, a crutch detachably connected to said attaching-bar, and extending upward therefrom, and means for adjusting said crutch vertically with respect to said attaching-bar, substantially as described.

19. In an artificial leg, the combination with the body-belt, provided with a vertically-disposed attaching-bar secured thereto

and depending therefrom, of the thigh-section comprising the flexible side portions, and lateral stiffening-bars, the outer of said bars being pivotally connected to said attaching-bar, forming an artificial hip-joint at a point directly over the hip-joint of the wearer, a calf-section pivotally connected to the thigh-section by artificial knee-joints, and provided with a foot-section, a crutch rigidly connected to said attaching-bar, and a lock for said artificial hip-joint for rigidly connecting said attaching-bar, and said outer stiffening-bar and holding them in alinement, substantially as described.

20. In an artificial leg, the combination with the thigh-section, a lower leg-section and foot-section, of a vertically-disposed attaching-bar pivotally connected at its lower end to the thigh-section at a point adapted to correspond to the hip-joint of the natural member, a detachable crutch secured to said attaching-bar, means for adjusting said crutch and bar longitudinally with respect to each other, and a belt secured to said attaching-bar, substantially as described.

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

JOHN A. PEER.

Witnesses:

L. P. WHITAKER,
J. K. MOORE.