June 8, 1926.

E. LAHERTY

1,587,780

ARTIFICIAL ARM

Filed April 11, 1925 2 Sheets-Sheet 1

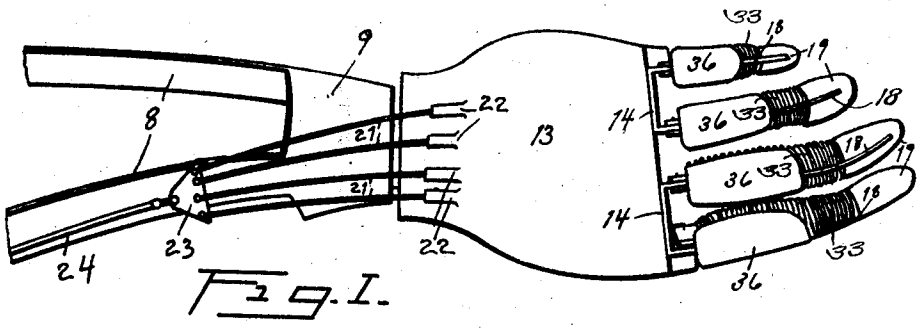


Fig. I.

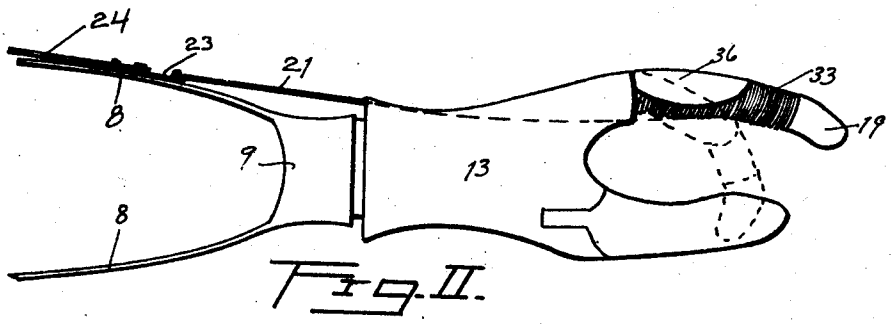


Fig. II.

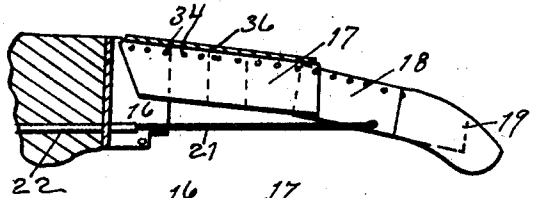


Fig. III.

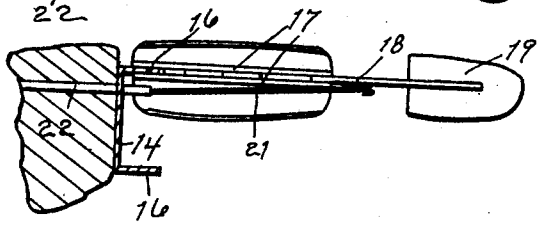


Fig. IV.

INVENTOR.

E. LAHERTY

BY Victor J. Evans

ATTORNEY.

June 8, 1926.

E. LAHERTY

1,587,780

ARTIFICIAL ARM

Filed April 11, 1925 2 Sheets-Sheet 2

Fig. V.

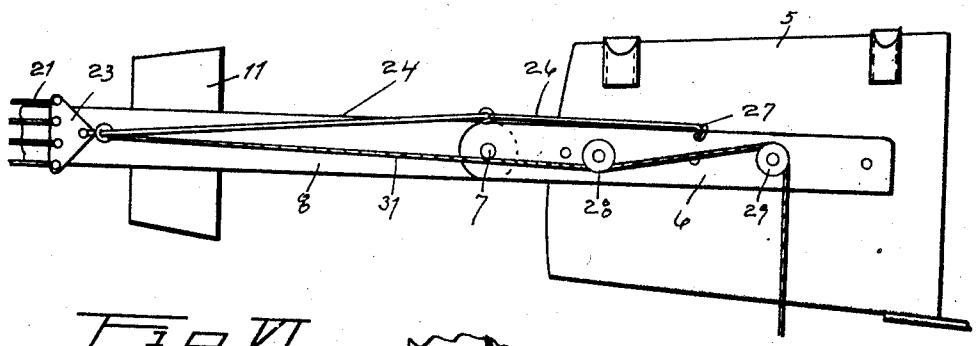


Fig. VI.

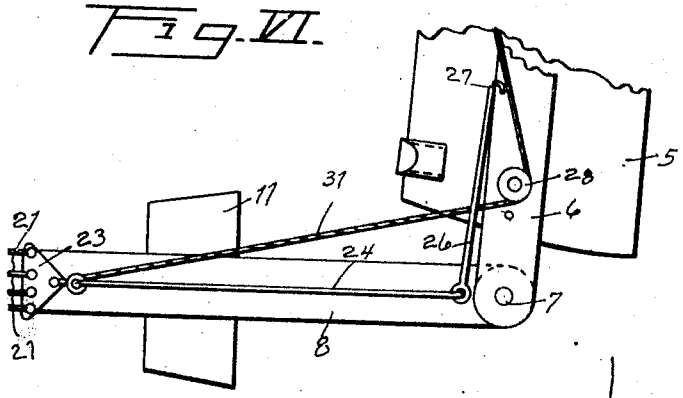
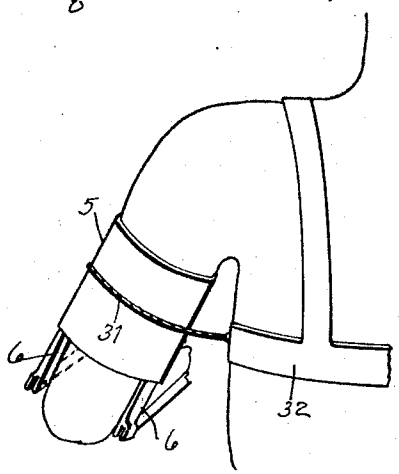


Fig. VII.



INVENTOR.

E. LAHERTY

BY Victor J. Evans

ATTORNEY.

Patented June 8, 1926. 1,587,780

UNITED STATES PATENT OFFICE.

EDWARD LAHERTY, OF SANTA CRUZ, CALIFORNIA.

ARTIFICIAL ARM.

Application filed April 11, 1925. Serial No. 22,379.

This invention relates to improvements in artificial arms and has particular reference to an artificial arm and hand through the use of which a person may simulate all of the movements of an ordinary hand.

Another object of this invention is to produce a device of this character which is simple in construction and therefore, well within the purchase price of the average user.

An additional object of this invention is to produce a device of this character which will firmly grip an object without undue effort on the part of the user.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:—

Figure 1 is a fragmentary rear elevation of the hand portion of my device,

Figure 2 is a side elevation of my device,

Figure 3 is a fragmentary detail view of the manner of constructing the fingers,

Figure 4 is a bottom plan view of Figure 3,

Figure 5 is a side elevation of the arm strap and elbow joint,

Figure 6 is a view similar to Figure 5 showing the joint in bent position, and

Figure 7 is a detail view showing the manner of operating the draw-string.

In artificial arms and hands it has been possible to produce these members so as to deceive the eye, but it has been impossible to produce these members which would function. I have, therefore, produced an artificial arm and hand which may be moved in a manner similar to the movements of the ordinary hand. In accomplishing this the customary arm strap 5 is provided, which arm strap is fastened to the stump and has downwardly extending parallel members 6 attached thereto. These members are hingedly connected as at 7 to similar parallel members 8, which terminate in a wrist ring 9.

Between these parallel members 8 is placed a band 11 through which the lower part of the stump extends. Secured to the wrist ring 9 is an artificial hand consisting of a main portion 13 and a plurality of fingers. These fingers are secured to the hand by U-shaped brackets 14 having outwardly turned ends 16.

Upon these ends are pivotally secured parallel spaced plates 17 between the opposite ends of which is pivotally secured a plate 18 carrying a finger tip 19. A wire 21 is connected to the plate 18 at a point below its pivotal connection with the parallel plate 17. This wire extends through a tube 22 terminating in the wrist and is connected to an equalizing plate 23. It is, of course, understood that a similar wire runs to each of the fingers as best shown in Figure 1, all of which are connected to the equalizing plate 23.

A controlling link 24 is connected to the plate 23 and extends upwardly to the point adjacent the hinge 7 where it is connected to a link 26 secured at 27 to one of the parallel members 6.

Pulleys 28 and 29 are secured upon the same parallel members and over which a cord 31 is reaved. This cord has one end secured to the plate 23 while its opposite end is secured to a belt 32 extending around the body of the wearer.

A coiled-spring 33 is formed and threaded through openings 34 formed in the parallel plates 17 and plate 18. These coiled-springs normally tend to keep the fingers in extended position, while cover plates 36 are attached to the back of each of the fingers so as to give a more natural appearance when a glove is upon the hand.

The manner of employing my device is as follows:—

Assuming that an arm constructed in accordance with my invention is upon a user, straightening of the arm will cause the links 24 and 26 to assume the position shown in Figure 1, with the result that tension will be placed upon the plate 23, which will pull upon the wires 21 and cause the fingers to close as shown in Figure 2. When the arm is bent as shown in Figure 6 the pivotal point between the links 24 and 26 will have moved in such a manner as to release the tension upon the plate 23, with a result that the springs 33 in the fingers will cause them to straighten out which is permitted by the plate 23 and wires 21 advancing toward the fingers.

Should the operator desire to close the fingers, while the arm is in a bent position, by moving the stump away from the body,

tension will be placed upon the cord 31 which will, in turn, pull upon the plate 23, wires 21 and cause the fingers to close, as before mentioned.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:—

In a device of the character described, a pair of parallel members, a second pair of parallel members pivoted to said first mentioned parallel members, said second mentioned parallel members having a wrist-ring attached thereto, a hand secured to said ring, a plurality of fingers secured to said hand, a plurality of wires extending through said hand and adapted to be secured to said fingers, a plate secured to said wires, a pair of links secured to said plate and to one of said first mentioned parallel members, in such a manner as to move said plate when said parallel members are pivoted about each other, and a cord secured to said plate and reaved over pulleys on one of said first mentioned parallel members, said pulley having its free end secured to a belt and fastened around the body of the user.

In testimony whereof I affix my signature.

EDWARD LAHERTY.