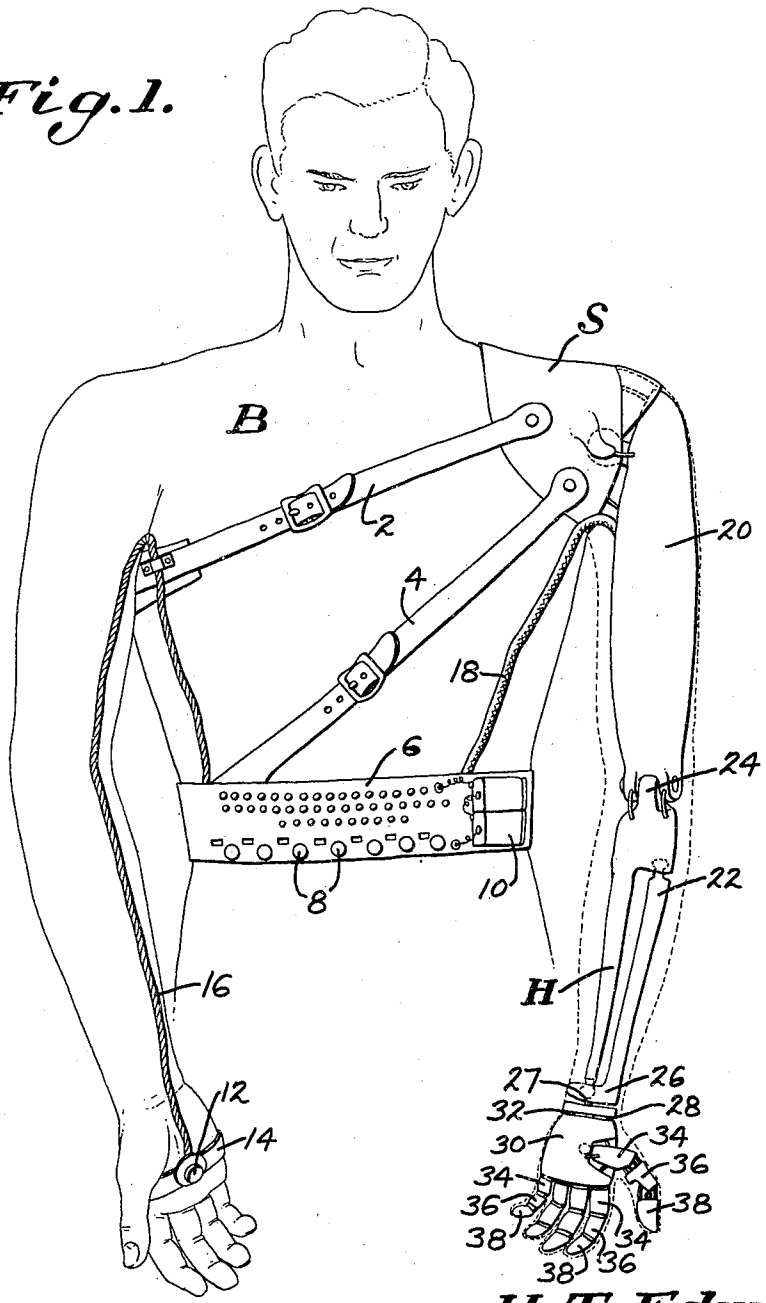
Feb. 14, 1950 H. T. EDWARDS 2,497,493

ARTIFICIAL ARM

Filed Aug. 19, 1946 2 Sheets-Sheet 1

Fig. 1.



Inventor

H. T. Edwards

By Cromwell & Co.

Attorneys.

Feb. 14, 1950 H. T. EDWARDS 2,497,493

ARTIFICIAL ARM

Filed Aug. 19, 1946 2 Sheets-Sheet 2

Fig. 2.

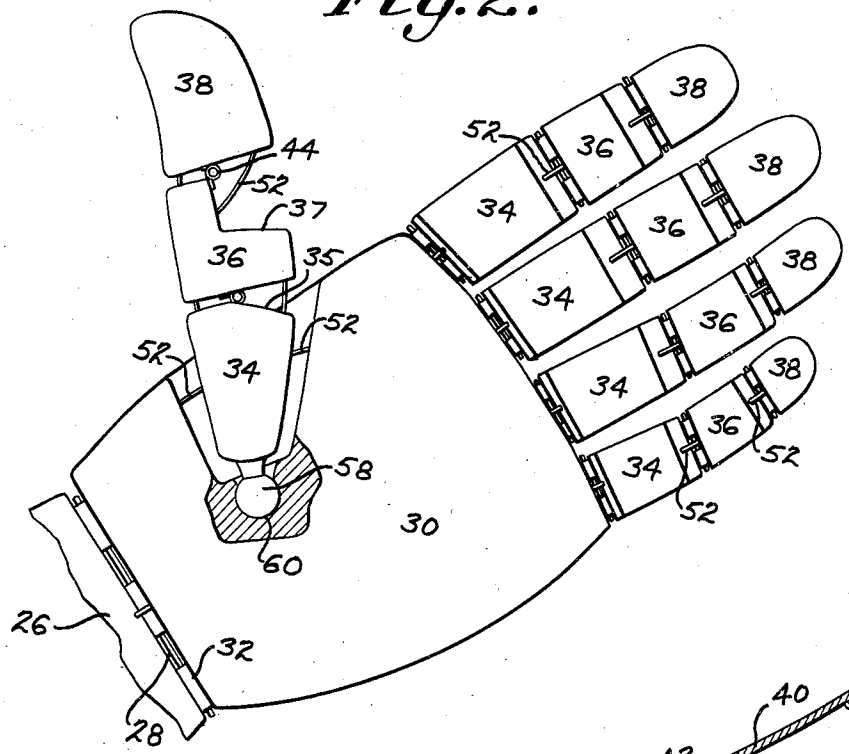
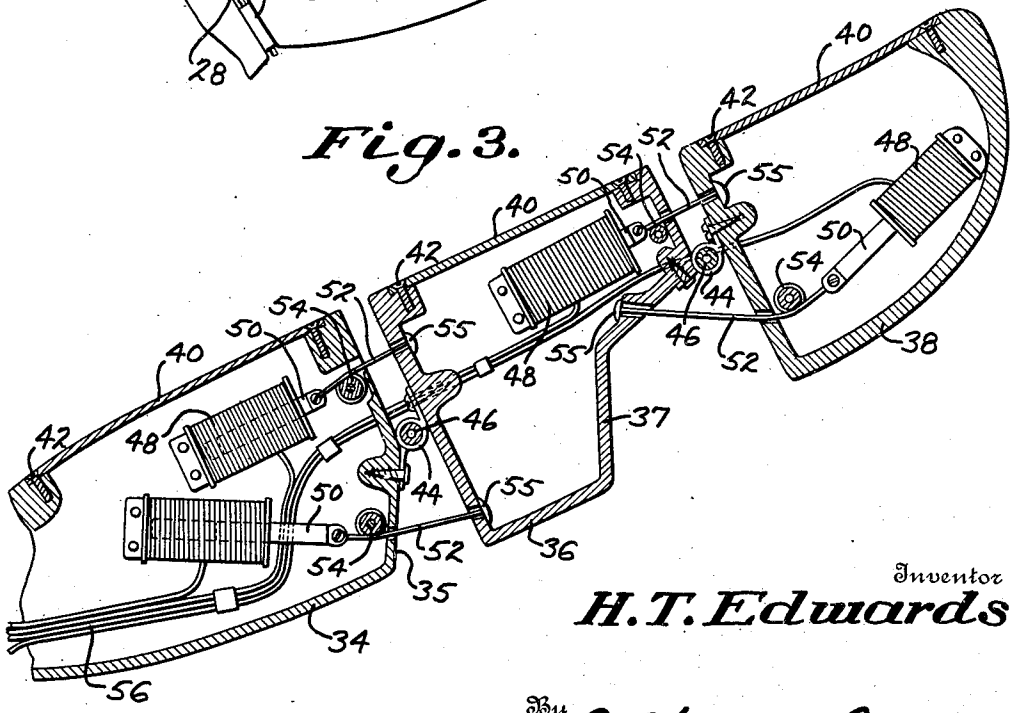


Fig. 3.



Inventor

H. T. Edwards

By Albert Lee. Attorneys.

Patented Feb. 14, 1950 2,497,493

UNITED STATES PATENT OFFICE

2,497,493

ARTIFICIAL ARM

Harold Theodore Edwards, Los Angeles, Calif.

Application August 19, 1946, Serial No. 691,543

2 Claims. (Cl. 3—12)

1

My present invention relates to an improved artificial limb and more particularly to the novel and unique means employed in conjunction with the limb for moving the extremities to effect a natural solenoid control of the fingers and hand so that the person using the limb of my invention may be simply closing various switches located on a belt actuate selected solenoids to control the movement of the hand and fingers.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claims.

In the drawings:

Figure 1 is an assembly view in elevation of the device constituting my invention showing the operating controls therefor carried upon the body of the wearer.

Figure 2 is a plan view of the artificial hand; and

Figure 3 is a vertical longitudinal sectional view through one of the fingers.

Referring now to the drawings wherein like characters indicate like parts I have illustrated the present preferred embodiment of my invention as comprising a harness including the securing straps 2 and 4 adapted to be worn about the upper part of the body B and the shoulder plate S of the limb covers the shoulder of the wearer. A belt 6 being a part of the harness has thereon a multiplicity of switches 8 in circuit with the battery 10.

A remote control switch 12 may be positioned about the natural hand by band 14, and the wire 16 leads from this switch to the switch control belt.

The wire 18 from the belt passes over the shoulder harness along the upper arm 20 and the forearm 22 of the artificial limb, said radius or forearm 22 being connected to the artificial ulna H. A pivot 24 connects the upper and fore arms, and the lower end 26 of the forearm or artificial radius 22 is movably connected at 27 to a wrist portion that is pivotally connected at 28 to the hand 30, through the journals 32.

To the hand 30 are secured fingers comprising housing sections 34, 36, and 38, the two sections 34 and 36 being beveled at 35 and 37 to permit flexing thereof. These housings which are identical except as to size of the several fingers and thumb are hollow and are provided with detachable covers 40 secured by screws 42.

The sections have hinge ears 44 through which the hinge pins 46 pass permitting relative pivotal

2

movement of the finger sections, and the movement thereof is controlled by the solenoids 48 located within the housing sections. The armatures 50 of the solenoids are attached to links 52 moving on bearings 54, and the links pass through the adjoining housing section and the heads 55 secure the links therein. The wires 56 from the respective solenoids lead to the belt and through the appropriate switch to the battery. The thumb is attached to the hand 30 through the ball 58 and the socket 60, the thumb sections being identical in construction and operation to the fingers.

Thus with the arm positioned on the body of the wearer and the electrical connections properly set, the wearer may control the fingers by closing the desired switch or switches on the belt. By actuating one set of solenoids the fingers will be flexed as when closing the fist, and upon actuation of the opposite set of solenoids, the fingers will be returned to extended position.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. An artificial hand including digits each of which comprises flexibly connected sections, and electro-magnetic means for controlling movement of the sections, said means including a separate pair of electro-magnets for each pair of adjacent sections, one electro-magnet of each pair adapted when energized for flexing of the sections, the other electro-magnet of each pair adapted when energized to return the sections to extended position.

2. An artificial hand including digits each of which comprises sections pivotally secured to each other, and alternately energizable electro-magnets on opposite sides of each pivotal connection, said electro-magnets respectively adapted to move the sections in selected directions, the electro-magnets comprising electrical means for positive control of movement of a selected section in opposite directions.

HAROLD THEODORE EDWARDS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,507,683	Pecorella	Sept. 9, 1924

FOREIGN PATENTS

Number	Country	Date
116,054	Sweden	Mar. 26, 1943
311,455	Germany	Mar. 17, 1919