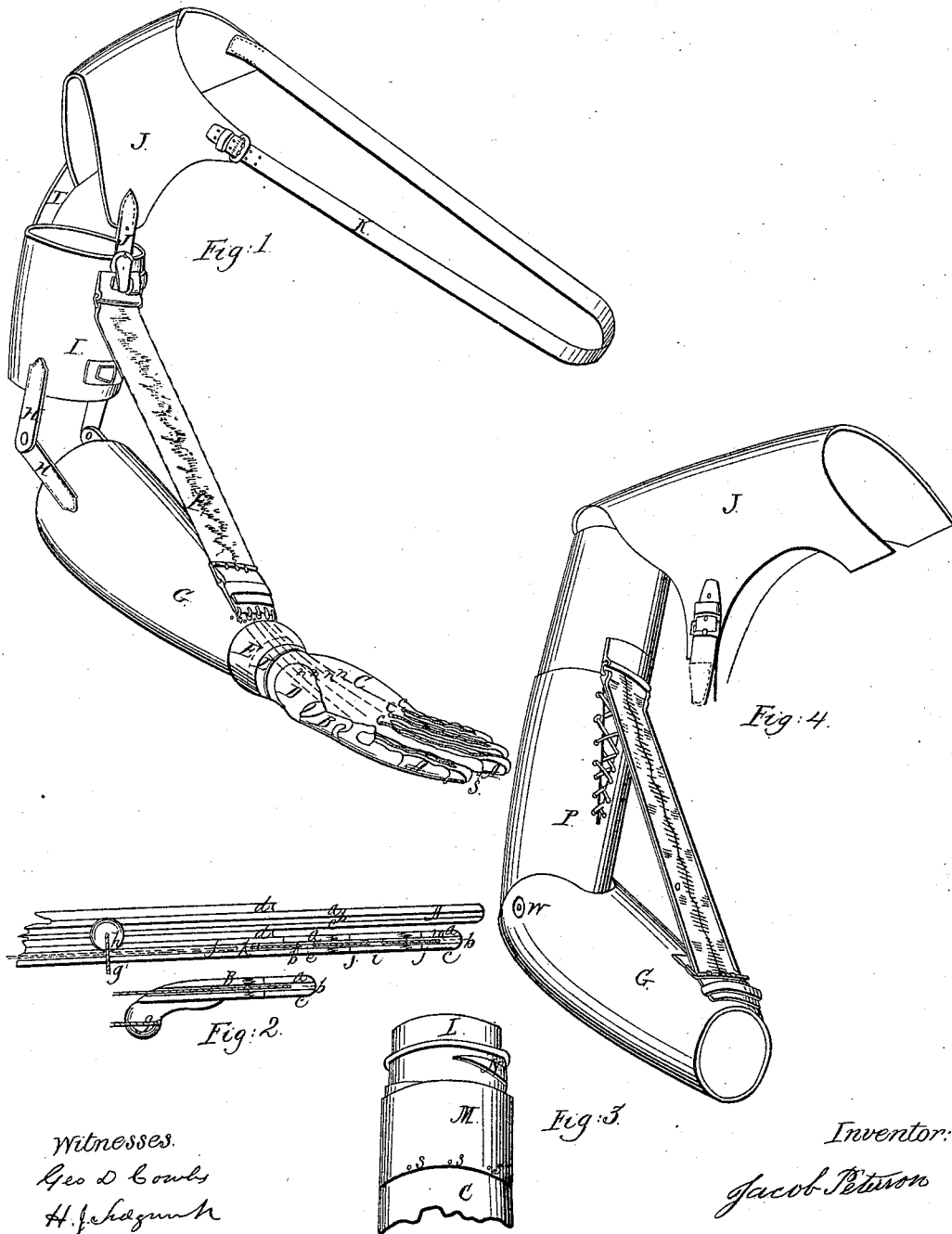


2 Sheets-Sheet 1.

J. Peterson,
Artificial Arm.

No 46,696.

Patented Mar. 7, 1865.



Witnesses.
Geo D Cowles
H. J. Hagnum

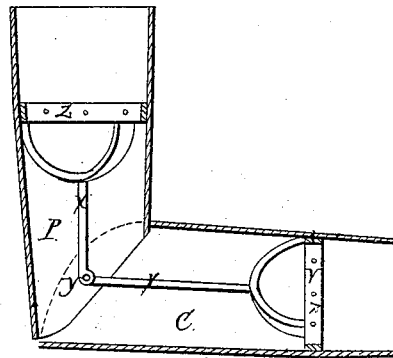
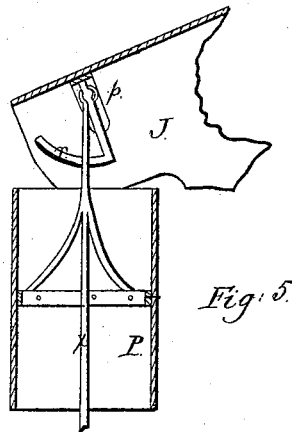
Inventor:
Jacob Peterson

2 Sheets-Sheet 2.

J. Peterson,
Artificial Arm.

Patented Mar. 7, 1865.

N^o 46,696.



Witnesses:
Geo. D. Cowley
H. J. Frey

Inventor:
Jacob Peterson

UNITED STATES PATENT OFFICE.

JACOB PETERSON, OF CANOGA, NEW YORK.

IMPROVEMENT IN ARTIFICIAL ARMS.

Specification forming part of Letters Patent No. 46,696, dated March 7, 1865.

To all whom it may concern:

Be it known that I, JACOB PETERSON, of the village of Canoga, in the county of Seneca and State of New York, have invented a new and improved artificial hand and arm, and a new and improved mode of constructing and operating the same; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct my arm and hand of heavy, solid leather, mainly with the natural number of joints to the thumb, fingers, and arm.

In commencing the construction of my hand and arm I take well-tanned sole leather of sufficient weight that three thicknesses will give sufficient width to form one of the fingers or the thumb, and long enough to reach from the wrist-joint *E*, Figure 1, to the end of the finger, and this I cut into strips wide enough to form the thickness of the body of the hand. I then take three of these strips of sole-leather and form a bow-top joint at each of the finger-joints, by placing the strips side by side, stitching them firmly together, except at the joints, which are fastened with rivets. (More clearly shown in Fig. 2, where *a b c* represent the three strips of leather placed side by side and *j j j* the bow-top joints of the finger. These bow-top joints are also shown by *j j j*, Fig. 1.) The other fingers I construct in the same manner. I then place these four fingers side by side and put one or more strips of the same leather between each of them, of suitable thickness to form the body of the hand and the wrist, as shown by *d d*, Fig. 2, and then I fasten the whole together in some secure way, generally by two rivets through the entire hand in the direction of greatest width, one near the knuckle-joint and the other a little below the wrist. I then make the thumb *B*, Fig. 2, in substantially the same manner as the fingers, and attach it to the other part of the hand, by a ball-and-socket joint, the ball being constructed upon the thumb, and secure the same in place by a strong pliable cord, (shown at *g g'*, Fig. 2,) one end of which is fastened to the ball of the thumb, (marked *g*, Fig.

2,) and the other end, after passing through the socket, (marked *h*, Fig. 2,) is fastened to the back of the hand. I then cover this ball-and-socket joint with an elastic covering, to give it a more natural appearance and prevent too great motion of the joint, as shown at *D*, Fig. 1.

I close the joints of the thumb and fingers by a strong cord to each, of catgut or other suitable material, (marked *f f f*, Fig. 1,) and as the operation of each finger is alike, I will describe one of them. I fasten one end of this cord (marked *f*, Fig. 2) near the end of the finger, generally by passing it through the finger at the place marked *m*, Fig. 2, and fastening it near the bottom of the nail on the back of the finger. The other end of this cord is then carried along on the inner surface of the finger, in a groove made for the purpose, under two rollers, one placed midway between each of the two upper joints of the finger, (marked *e e*, Fig. 2,) and entering the body of the hand just above the knuckle-joint at *l l l*, Fig. 1, where it passes under a third roller, (shown at *k*, Fig. 2,) is carried entirely through the length of the hand, as indicated by the dotted lines *n n*, Fig. 1, in holes made for the purpose, and through the wrist, and is brought up through holes in the forearm, (marked *o o o*, Fig. 1,) just above the wrist, to the outside of the arm, where it is firmly attached to the strap *F*, Fig. 1.

It will readily be seen that if the strap *F* be drawn upward it will draw up the cords *f f f*, Fig. 1, and that by the tension of these cords the joints of the fingers and thumb will be moved and the hand closed.

I construct the wrist of two brass or other metal tubes, of slightly different sizes, the one having a coarse thread cut upon the outside, and the other a corresponding thread upon the inside, so that they can be readily secured together, and these brass or other metal tubes I attach by their other ends, the one to the wrist and the other to the lower part of the forearm, by rivets. These two brass or other metal tubes are marked *E* and *L*, Fig. 1, and also in Fig. 3, where they are partly unscrewed, showing the coarse thread *N*, and the tube *M* is there shown riveted to the part of the forearm *G* which is shown broken off below the tube *M*. By means of this screw the wrist

can be turned, and at the same time the hand is somewhat thrown down by the action of the screw in unscrewing, and thus the strain upon the flexor cords *fff*, Fig. 1, increased.

I construct the forearm of leather, made into an irregular-shaped tube corresponding substantially to the shape of the natural arm, and so made as to be easily fastened to the stump, when the amputation is below the elbow, by a lacing or by straps, and this forearm is marked G, Fig. 1. I also place around the arm, above the elbow, a band of leather fastened with straps, (marked I, Fig. 1,) connected with the upper part of the forearm by hinged straps of leather or other material, at the elbow-joint, (marked H H, Fig. 1.) To this leather band I, Fig. 1, above the elbow, I also firmly fasten the strap F, Fig. 1, by its upper end, its lower end being fastened to the flexor cords *fff*, Fig. 1. Now, if this strap F, Fig. 1, is tight when the arm is bent at the elbow, as shown in Fig. 1, and the arm be then straightened, this strap, F, Fig. 1, will draw up the flexor cords *fff*, Fig. 1, and thus close the fingers, and they will remain closed while the arm is straight, unless so great a weight is placed upon the fingers as to break the flexor cords or the strap F, Fig. 1. I also connect this band I, Fig. 1, to a flat pad, (marked J, Fig. 1,) by the straps T T, Fig. 1. This pad J, I place upon the top of the shoulder, and hold it in place by the strap K, which passes around the body and under the opposite arm, and is secured by a buckle in the ordinary way. The object of this pad J, so secured, is to prevent the leather band I, Fig. 1, from slipping down when the hand is sustaining a heavy weight, by transferring the strain caused by the weight from the arm to the shoulder.

When the amputation has been performed above the elbow, I fasten firmly and rigidly to the forearm an iron rod or shaft, by means of a circular metal band riveted to the inside of the forearm, as shown at *v*, Fig. 5. This rod or shaft (marked *x*, Fig. 5) I make of sufficient length to sustain the portion of the arm lost, hinged at the elbow, as shown at *y*, Fig. 5, and fastened at its upper end to a circular metal band, (marked *z*, Fig. 5,) which is also riveted to the inside of the leather casing, above the elbow. This leather casing is marked P, Fig. 5, and is about the form of the natural arm, and is fastened to the stump by straps or a lacing, as shown in Fig. 4, at its upper end, and is hinged to the forearm by the rivet *w*, Fig. 4, at its lower end. I also attach to the upper end of this leather casing P, Fig. 4, one end of the elastic band or strap marked *o*, Fig. 4, and the other end I fasten with an ordinary

buckle to the forearm, about midway between the elbow and wrist, and I make this strap *o*, Fig. 4, strong enough to hold the arm partly bent, as shown in Fig. 4, when it is sustaining no weight, and still elastic enough to allow the arm to straighten when it is sustaining any considerable weight. In connection with this strap *o*, Fig. 4, I also use the strap F, Fig. 1, attached to the flexor cords *fff*, Fig. 1.

It will be seen that the strap *o*, Fig. 4, by its strength holds the arm bent, as shown in Fig. 4, and that when in that position the fingers can be opened, as shown in Fig. 1, but that when a weight is placed in the hand the strap *o*, Fig. 4, by its elasticity will allow the arm to straighten, and when the arm is straightened the strap F, Fig. 1, draws up the flexor cords *fff*, Fig. 1, and thus closes the fingers, and when the weight is removed the strength of strap *o*, Fig. 4, brings up the arm, so that the fingers may be opened again.

When the entire arm has been removed, I carry the rod or shaft *x*, Fig. 5, to the shoulder, attaching to it as many circular bands as may be necessary to keep the leather casing P, Fig. 5, in shape above the elbow. The upper end of this rod or shaft *x*, Fig. 5, I fasten by a hook to an eye riveted to the shoulder-pad J, Fig. 5, at *p*, Fig. 5, and I attach to the eye a small cross-piece, (marked *r*, Fig. 5,) to prevent the arm from swinging backward in walking, or otherwise.

I do not claim as my invention the elbow-joint, or the use of the band or leather casing above the elbow, or the shoulder-pad; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The use of the flexor cords *fff*, Fig. 1, and the strap F, for the purpose of closing the fingers and thumb, essentially as above described.

2. The use of the elastic strap *o*, Fig. 4, in combination with the strap F and the flexor cords *fff*, Fig. 1, for the purpose essentially as above described.

3. The use of the hook and eye marked *p*, Fig. 5, and cross piece *r*, Fig. 5, in combination with the elastic strap *o*, Fig. 4, and the flexor cords *fff* and strap F, Fig. 1, and rod or shaft *x*, Fig. 5, essentially as above described.

4. The wrist-joint, constructed essentially as above described, in combination with the flexor cords *fff* and strap F, Fig. 1, as above described.

JACOB PETERSON.

Witnesses:

GEO. D. COWLES,
H. J. SEDGWICK.