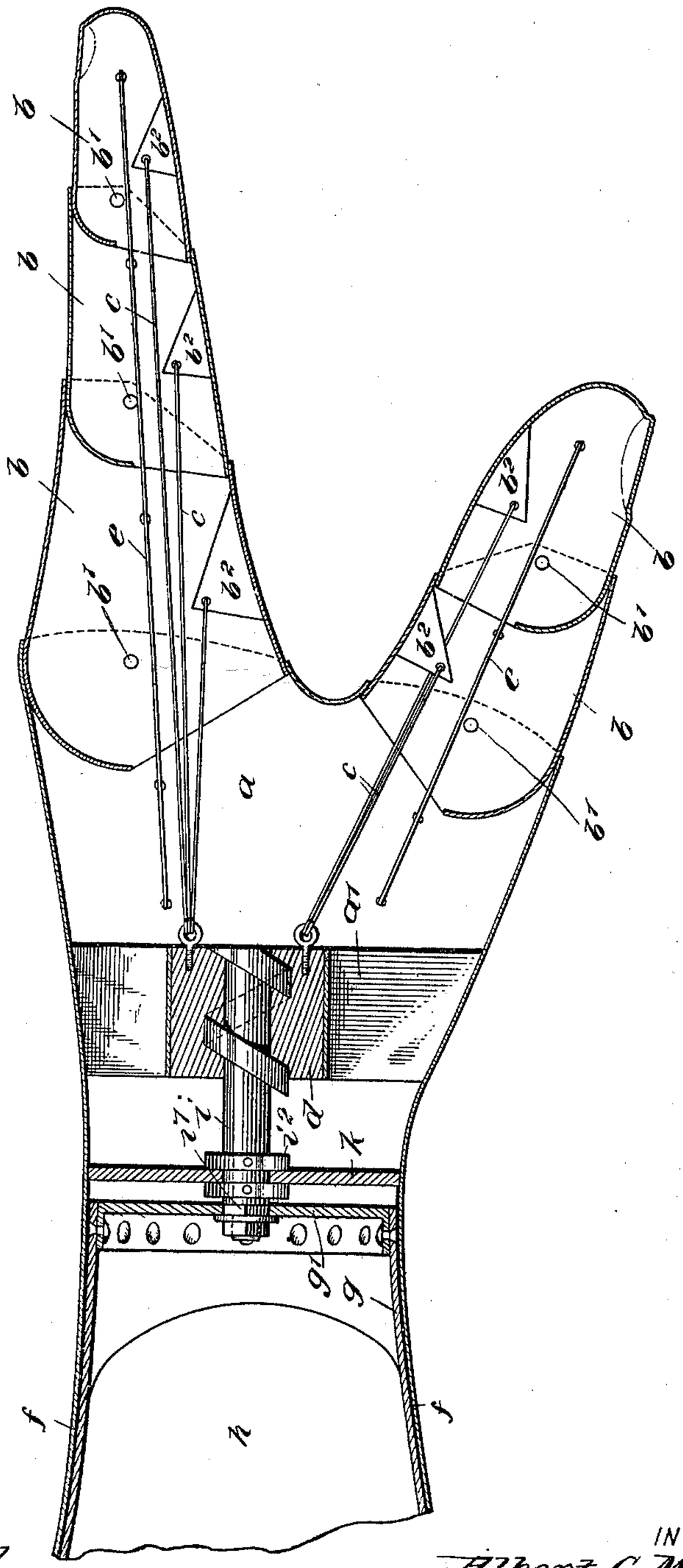
No. 670,684. Patented Mar. 26, 1901.

A. C. MUELLER.

ARTIFICIAL HAND.

(No Model.)

(Application filed Dec. 4, 1900.)



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ARTIFICIAL HAND.

SPECIFICATION forming part of Letters Patent No. 670,684, dated March 26, 1901.

Application filed December 4, 1900. Serial No. 38,678. (No model.)

To all whom it may concern:

Be it known that I, ALBERT CHARLES MUELLER, a citizen of the United States, and a resident of Wausau, in the county of Marathon and State of Wisconsin, have invented a new and Improved Artificial Hand, of which the following is a full, clear, and exact description.

This invention relates to an artificial hand the thumb and fingers of which are operated by certain devices controlled by a turning movement of the forearm. To this end I employ a screw arranged to be turned upon the turning of the forearm of a person, this screw serving to actuate the finger-closing devices, springs being employed to return the fingers to their normal or open positions.

This specification is a specific description of one form of my invention, while the claims are definitions of the actual scope thereof.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure represents a sectional view of an artificial hand embodying my invention, the view illustrating the thumb and the index-finger, the other fingers not being shown in the drawing, since they are essentially duplicates of the index-finger.

a represents the body of the device, which takes the place of the main part of the hand. This part *a* carries the fingers and the thumb. These are formed of a number of hollow sections *b*, joined together by knuckle-joints at the points *b'* and arranged as nearly as possible like the ordinary hand. Following this, therefore, the sections *b* are incapable of moving outward farther than the position at which they are indicated in the drawing; but they may, however, bend inward on their joints, so as to grasp even a minute article. Each section *b* is provided at its inner side wall with a projection b^2, to which projections are attached wires or cords *c*, these cords passing to a nut *d*, which is held to slide but not to turn in a suitable guide-framing *a'*, held rigidly in the main part *a* of the hand. The projections b^2 serve not only to afford a connection with the cords *c*, so that they will properly act on the sections *b*, but they also serve to strengthen these sections at their working faces, which are, as will be understood, the inner faces of the sections. When the nut *d* is moved back and forth in the guide *a'*, the cords *c* are strained or relaxed upon straining on the cords—that is, drawing them toward the left in the drawing the various sections *b* of the fingers and thumb will be turned on their joints *b'* and the hand will be closed. For returning the hand to its open position each digit is provided with a slight spring *e*. These springs are attached at their inner ends to the main part *a* of the hand, as shown, and extend through the digits in connection with each section thereof, so that when superior pressure is relaxed the springs *e* assert themselves and the hand is opened.

Attached to the body part *a* are two plates or bars *f*, which are adapted to extend alongside of the forearm and to be fastened by any suitable means to the upper arm and shoulder, so that by these plates or bars *f* the hand is supported securely in place. A leather or other casing or sleeve *g* is provided and adapted to be secured by lacing or otherwise to the stump of the forearm, which is indicated at *h* in the drawing. This sleeve *g* carries at its front end a plate *g'*, which is adapted to turn freely between the bars *f*. When the sleeve *g* is fastened to the stump of the forearm of a person and this stump is turned on the upper arm, the sleeve *g* and plate *g'* will be also turned. Engaged with the plate *g* is the squared end *i'* of a screw *i*, the thread of which is prominent and is given a quick pitch. This thread is engaged with the nut *d*. A bearing plate or bar *k* is held rigidly at the inner end of the main part *a* of the hand, and in this bearing is mounted the screw *i*, collars i^2 being provided to hold the screw properly in place. Now it is clear that when the sleeve *g*, with the plate *g'*, is turned by the turning movement of the forearm the screw *i* will be operated, and by the action of the screw on the nut *d* the nut will be moved. As the nut moves to the left the hand will be closed, and as the nut moves oppositely the hand will be permitted to open under the action of the springs *e*.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An artificial hand, comprising a main part with a movable digit thereon, means for

supporting the hand on the upper arm of a person, and means connected with the forearm for operating the digit by a turning movement of the forearm, such means comprising a screw and nut for transmitting the movement of the forearm to the digit.

2. An artificial hand, having a main part with a movable digit thereon, means for mounting said main part on the upper arm of a person, a nut arranged to slide in the main part of the hand, a connection between the nut and the digit, a screw held to turn in the main part of the hand and engaged with the nut, and a sleeve or casing adapted to be fastened to the forearm of a person and connected with the screw to impart a turning movement to the screw by the turning of the forearm of the person.

3. An artificial hand, comprising a main part with a movable digit thereon, and means for operating the digit, said means being connected to the forearm to be actuated by a turning movement thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT CHARLES MUELLER.

Witnesses:

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