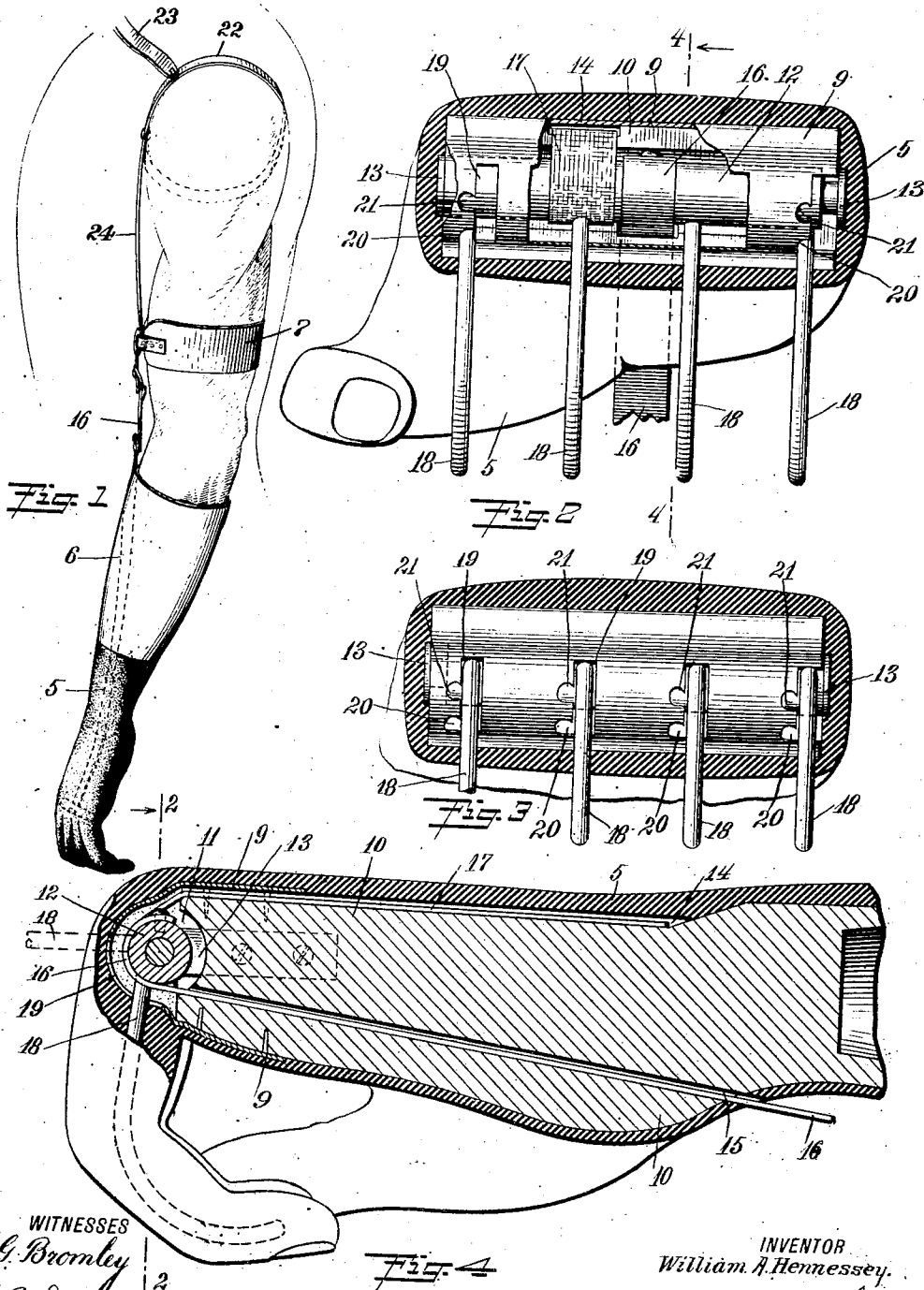


W. A. HENNESSEY.
ARTIFICIAL HAND.
APPLICATION FILED MAY 25, 1909.

941,197.

Patented Nov. 23, 1909.



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WILLIAM A. HENNESSEY, OF ASHLAND, WISCONSIN, ASSIGNOR OF ONE-HALF TO FRANK GAUTHIER, OF ASHLAND, WISCONSIN.

ARTIFICIAL HAND.

941,197.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM A. HENNESSEY, a citizen of the United States, and a resident of Ashland, in the county of Ashland and State of Wisconsin, have invented certain new and useful Improvements in Artificial Hands, of which the following is a full, clear, and exact description.

The objects which the invention has in view are: to provide means whereby the fingers of an artificial hand may be caused to fold and to grip an object, to lift the same; to provide means whereby the fingers of an artificial hand may be maintained in a relaxed position; and to simplify the construction so that the hand may be automatically operated.

One embodiment of the invention is shown in the structure illustrated in the accompanying drawings, forming a part of this specification, in which like characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the torso of a human being, showing the arm bared, and provided with the artificial hand constructed in accordance with the present invention; Fig. 2 is a cross section of the artificial hand, constructed in conformity with this invention, the view being taken on the line 2—2 in Fig. 4, the wire finger mountings being shown as engaged in what is termed the gripping position; Fig. 3 is a similar view, showing the fingers mounted in their fixed position, or the position shown in Fig. 1 of the drawings; and Fig. 4 is a longitudinal section of the hand constructed in accordance with this invention, showing the finger mountings in the gripped or folded position, this view being taken on the line 4—4 of Fig. 2.

Where on the drawings the numeral 5 occurs, it is used to indicate the molded rubber or mastic which is formed in imitation of the human hand. The hand is provided with a sleeve or receptacle 6, employed to receive the forearm of the person. The mastic 5 is resilient or yielding, so that when the fingers are drawn to a clasped position, the said mastic will yield over the knuckle formations. The mastic 5 is formed over a metal plate 9, and a wood core 10 upon which the plate 9 is mounted. The wood core is provided in the hand with a recess 11, within which is rotatably mounted a small

roller 12, suitably journaled in plates 13, mounted at either end of the recess 11. The wooden form 10 is provided with a groove 14 on the upper side of the form, and with a slot 15 which is extended lengthwise through the said form 10. It is through this slot 13 that a strap 16 is extended.

The roller 12 is rotated upon its bearings by means of the strap 16 and an elastic strap 17, the latter being secured to extend into the slot 14 on the back of the form 10. The strap 17 maintains a constant pull on the roller 12, to rotate it in one direction to open the fingers, and the strap 16 operates to rotate the said roller in the opposite direction when the arm of the person is straightened at the elbow. The above action occurs for the reason that the strap 16 is extended along the front of the arm past the elbow of the wearer, and is secured to the bracelet 7 above the elbow. In straightening the elbow, the wearer tightens the strap 16. In tightening the strap 16 the wearer rotates the roller 12, so that the finger mounting rods 18 are drawn toward the palm of the hand. When the arm of the wearer is bent, the elastic strap 17 draws the roller 12 back to its normal position, in which the finger mountings 18 are extended, and rest against the upper edge of recesses 19 formed in the plate 9. In this position the hand assumes the relaxed position.

The operating members thus described are concealed from view, which causes the simulation of the natural movement of closing the hand, whenever the wearer moves his arm to the outstretched position. When it is desired to utilize the hand for the purpose of holding any article or for lifting, the fingers are closed as described, until the finger mountings are alined with recesses 20, 20, which position they assume when closed, as shown in Fig. 4 of the drawings. The wearer now may press upon the side of the fingers to shift the rollers 12 and the finger mountings thereon, to insert the said finger mountings in the recesses 20, it being understood that this may be accomplished by using the arm carrying the artificial hand. At the same time it will be understood that the fingers of the artificial hand may be shifted by the natural hand; in either case the hand remains immovably closed. The rubber or mastic of which the hand is constructed will yield sufficiently to cause a solid grasp upon

the article held within the closed fingers, and the article may then be lifted or otherwise manipulated as with the natural hand.

When it is desired that the hand should be unclasped, this is accomplished by pressing the opposite side of the fingers against any object, or even pressing the article held in the hand, so as to move the finger mountings 18 out of engagement with the recesses 20, 20. Immediately (if not restrained by the strap 16) the elastic strap 17 rotates the roller 12 to bring the fingers to the relaxed or open position, thereby releasing from engagement any object held in the grip of the fingers.

Attention is called to the fact that the hand, for the purpose of grasping, holding and releasing any object, may be operated entirely automatically, without depending on the assistance of the natural hand. If it is desired that the hand should remain in the relaxed position shown in Fig. 1 of the drawings, under all conditions, as for instance when the wearer desires to raise the hand without closing the fingers, this is accomplished by moving the finger mountings 18, so that they are inserted in the recesses 21, as shown in the drawings. When the finger mountings 18 are thus engaged within the recesses 21, the movement of the arm whereby the same is straightened is accommodated by the elasticity of the strap 16. The mountings 18 are held in the recesses 20 and 21, by means of the fact that they are slightly inclined, as shown in Fig. 2 of drawings. This inclination is somewhat in line with the pull of the strap 17, and the mountings are therefore held in position by the said strap.

Whenever it is desired to carry a weight in the hand, there is employed a shoulder strap 22, which encompasses the shoulder and passes under the arm as shown in Fig. 1 of the drawings, and is held in position by a further strap 22. Connected with the shoulder strap 22 is another strap 24 which is also connected to the bracelet 7 to transfer the weight therefrom to the shoulder strap 22.

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

1. An artificial hand, comprising a rigid core adapted to receive the molded form of the human hand, a cylinder mounted in the forward end of said core, finger mountings rigidly secured in said cylinder, a resilient

member to rotate the said cylinder to a position wherein the finger mountings are extended, a strap-like member extended through the said core and attached to the said cylinder to rotate the same to close the fingers toward the palm of the hand, and a locking member adapted to hold the said cylinder in a position wherein the finger mountings are closed toward the palm of the hand.

2. An artificial hand, comprising a rigid core adapted to receive the molded form of the human hand, a cylinder mounted in the forward end of said core, finger mountings rigidly secured in said cylinder, a resilient member to rotate the said cylinder to a position wherein the finger mountings are extended, a strap-like member extended through the said core and attached to the said cylinder to rotate the same to close the fingers toward the palm of the hand, a member having slots to hold and guide the said finger mountings, and locking devices disposed in said slots and adapted to retain the said finger mountings in various prearranged positions.

3. An artificial hand, comprising a rigid core adapted to receive the molded form of the human hand, a cylinder mounted in the forward end of said core, finger mountings rigidly secured in said cylinder, a resilient member to rotate the said cylinder to a position wherein the finger mountings are extended, a strap-like member extended through the said core and attached to the said cylinder to rotate the same to close the fingers toward the palm of the hand, and a locking member having slots to guide the said finger mountings the said slots having lateral extensions adapted to hold the said finger mountings in fixed position when inserted therein.

4. An artificial hand, comprising finger mounts pivotally secured upon the hand, and guide members for said mounts having laterally extended recesses adapted to receive said mounts to hold the same in fixed position.

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

WILLIAM A. HENNESSEY.

Witnesses:

FRANK GAUTHIER,
A. J. HUOTTE.