

July 21, 1925.

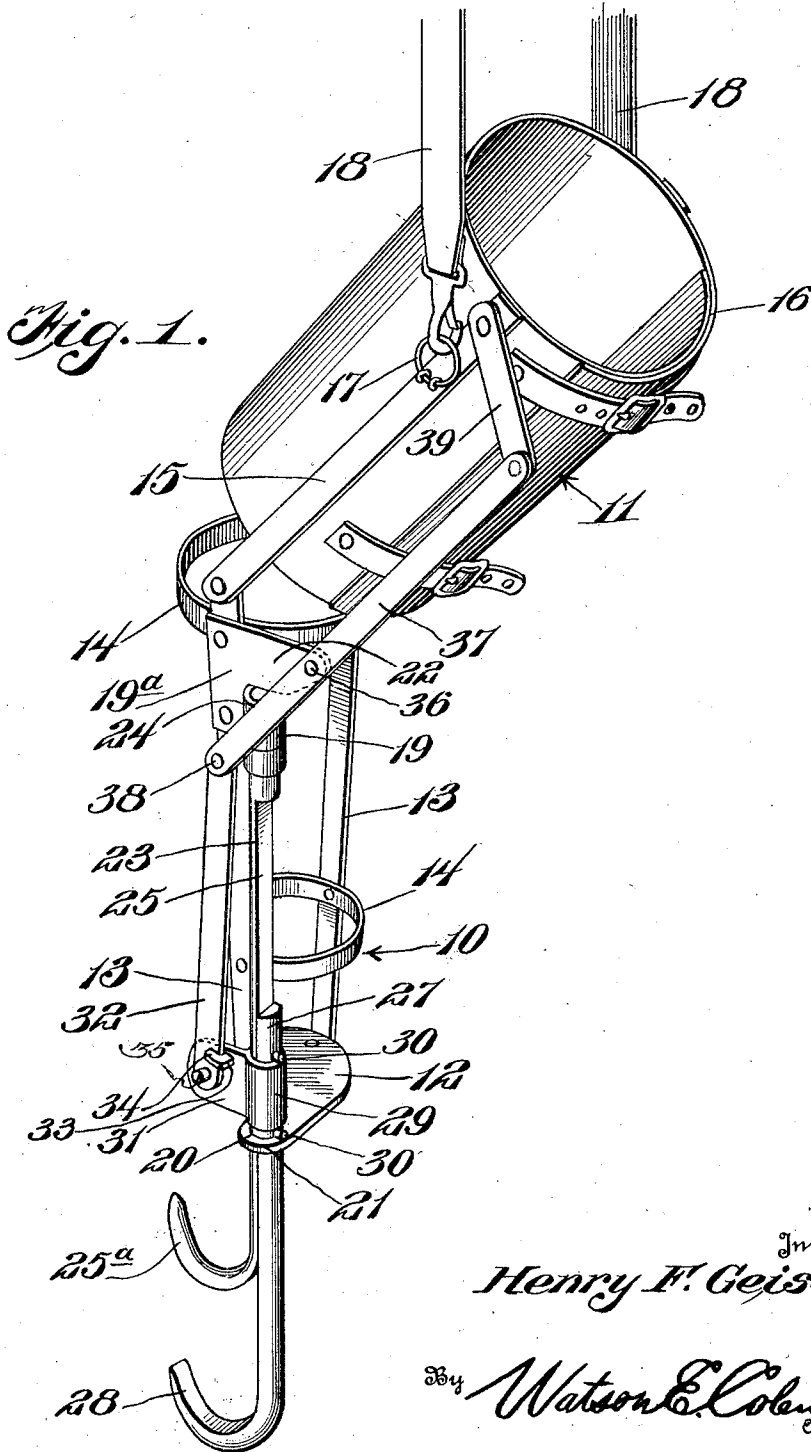
1,546,726

H. F. GEISE

ARTIFICIAL HAND

Filed Oct. 28, 1924

2 Sheets-Sheet 1



Inventor
Henry F. Geise

By *Watson E. Coleman*
Attorney

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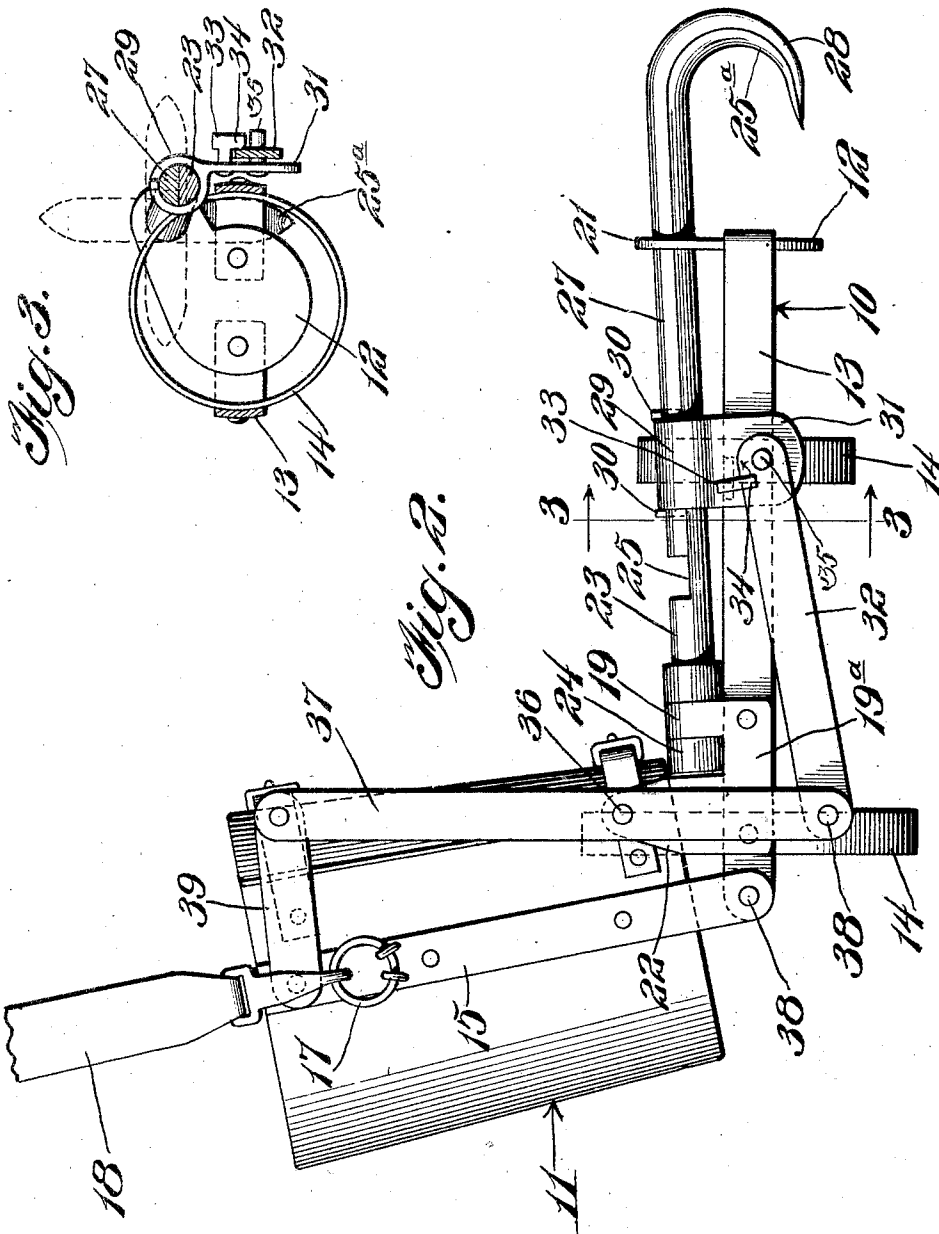
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2 Sheets-Sheet 2



Inventor

Henry F. Geise

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Attorney

UNITED STATES PATENT OFFICE.

HENRY F. GEISE, OF WHITES, WASHINGTON.

ARTIFICIAL HAND.

Application filed October 28, 1924. Serial No. 746,397.

To all whom it may concern:

Be it known that I, HENRY F. GEISE, a citizen of the United States, residing at Whites, in the county of Grays Harbor and State of Washington, have invented certain new and useful Improvements in Artificial Hands, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to artificial hands, and has for an important object thereof the provision of an artificial hand having coacting grasping elements which may be positively and firmly moved toward one another to grasp therebetween an article to be carried by relative movements of the upper and forearm of the wearer.

15 A further object of the invention is to provide a device of this character which may be very cheaply produced, which will be durable and efficient in service and a general improvement in the art.

20 A further object of the invention is to provide a device of this character in which the grasping elements are rotatable and so positioned that they may be placed in alignment with the end of the handleless forearm or to one side thereof, thus permitting grasping of articles which because of their bulk will lie alongside of the forearm, and at the same time under all normal circumstances permitting the strain of a carried weight to be carried in direct alignment with the end of the forearm.

25 A still further object of the invention is to produce a device of this character the parts of which in one position of the arm combine to form a single solid hook, such as often provided in lieu of a missing hand.

30 These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

35 Figure 1 is a perspective view of an artificial hand constructed in accordance with my invention showing the same with the hooks in the open position;

40 Figure 2 is a side elevation with the forearm and upper arm sockets flexed to bring the hooks into engagement with one another;

45 Figure 3 is a section on the line 3—3 of Figure 2 showing in dotted lines the various rotative positions which the hooks may assume with relation to the forearm socket.

Referring now more particularly to the drawings, the numeral 10 indicates a forearm receiving socket, and the numeral 11 a socket designed to receive the upper arm adjacent the elbow thereof. The forearm socket 10, as at present illustrated, consists of an end plate 12 to which are secured brace irons 13 extending upon opposite sides of the arm of the wearer and connected at spaced points by forearm encircling bands 14. The ends of these arms have pivotally connected thereto links 15 secured to the sides of the upper arm receiving socket 11, the socket itself being preferably in the form of a flexible band 16 adapted to be strapped about the arm as shown. The upper ends of the links 15 are provided with eyes 17 for the reception of the ends of a band 18 which may be passed about the shoulders of the wearer, so that weights suspended from the artificial hand member, hereinafter to be more fully described, will be partially supported from the shoulders.

Secured to one side member 13 and preferably the outer side member of the forearm socket 10, adjacent the inner end thereof, is a bearing 19 which aligns with an opening 20 formed in a lug 21 outstanding from the side of the end plate 12 and providing a second bearing. The side member engaging portion 19^a of the bearing 19 is provided at its inner end with a lug 22 opposing the inner end of the bearing. Directed through the bearing 19 is a shaft 23, the inner end of which has secured thereto a collar 24 disposed between the inner end of the bearing and the lug 22. The end of the shaft abuts the lug 22, while the collar 24 abuts the bearing, and movement of the shaft in either direction longitudinally of the forearm is accordingly prevented while rotation of the shaft is permitted. The outer end of the shaft is reduced to an extension semicircular in cross section, generally indicated at 25, the outer end of which is directed through the opening 20 of the lug 21 and formed beyond the end plate 12 with a hook 25^a. Likewise directed through the opening 20 is a second semicircular shaft section 27, the outer end of which is provided with a hook 28 which when in engagement with the hook 25^a combines therewith to form a single hook. The shaft sections 25 and 27 when combined fit the opening 20 and are held in combined relation by means of a sleeve 29 surrounding the shaft sections

and held against movement with relation to the shaft section 27 adjacent the inner end thereof by means of stop pins 30 mounted in the shaft section 27.

5 The sleeve 29 is provided with an ear 31 to which is pivoted a link 32. This ear has a lug 33, an extension 34 of which overlies the link in parallel relation to the ear and serves to maintain the link in engagement with its
10 pivot 35, while at the same time permitting free movement thereof. Pivotaly connected to the lug 22 of the bearing attaching plate, as at 36, is a lever 37, the outer end of which is pivotaly connected to the link 32, as at
15 38, and the inner end of which is connected by a short link 39 to the inner end of the adjacent side brace 15 of the upper arm socket 11. It will be seen that upon relative angular movement of the upper arm socket
20 and forearm socket, the lever 37 will be caused to shift about its pivot and in this shifting will operate, through the link 32, to shift the shaft section 27 upon the shaft section 25. The flat faces of these shaft sections being in engagement with one another, the hook portions 25 and 28 are at all times maintained in alignment with one another.
25 It is furthermore pointed out that since the shaft 23 is rotatable in the bearing 19 and the shaft sections 25 and 27 are rotatable within the bearing opening 20 and sleeve 29, the compound hook may be rotated so as to place the same at any desired position with relation to the forearm socket without
30 in any manner interfering with the relative operation of the shaft sections 25 and 27. It will furthermore be obvious that a device of this character may be very cheaply produced and being simple in its operation will be comparatively long in life.
35

40 The lug 33, as more clearly shown in Figure 2, is rotatably mounted and may be so positioned that the link 32 may be disengaged from its pivot, thus permitting the
45 shaft section 27 to be shifted upon the shaft section 25 independently of any relative movement of the forearm and upper arm sockets. It will be obvious that when these sections are disengaged they may be positioned as in Figure 1 and different articles
50 suspended from the two hooks thus provided, and these articles supported without relative movement of the hooks as the forearm and upper arm are relatively moved.
55 With the link removed, the sleeve 29 may be rotated so that this lug overlies the upper end of the intermediate forearm encircling band 14, and in this position separation of the hooks 25^a and 28 is prevented and at the
60 same time relative movement of the arm sections is permitted.

65 Certain changes and modifications of the structure hereinbefore set forth being possible without in any manner departing from the spirit of my invention, I do not limit

myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a device of the character described, a socket adapted to receive a handleless arm, 70 a bearing carried by said socket, a pair of members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being
75 fixed against longitudinal movement, an upper arm socket, and connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second
80 named member.

2. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of
85 members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an
90 upper arm socket, and connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, said members having flat-
95 tened opposed faces preventing relative rotation thereof and being provided upon their ends with aligned hooks.

3. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of
100 members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an
105 upper arm socket, and connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, said members having flat-
110 tened opposed faces preventing relative rotation thereof and being provided upon their ends with aligned hooks, said hooks in one position of the members combining to form
115 a single hook.

4. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of
120 members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an upper arm socket, connections between the upper
125 arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, including a lever pivoted to the forearm socket and having one end thereof
130 connected with the upper arm socket, a link

connected with the other end of the lever, a sleeve surrounding said members and held against longitudinal movement with relation to the first named member, and a pivotal connection between said link and sleeve.

5. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an upper arm socket, connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, including a lever pivoted to the forearm socket and having one end thereof connected with the upper arm socket, a link connected with the other end of the lever, a sleeve surrounding said members and held against longitudinal movement with relation to the first named member, and a pivotal connection between said link and sleeve disengageable to permit relative movement of the upper arm and forearm sockets without operation of the first named member.

6. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an upper arm socket, connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, including a lever pivoted to the forearm socket and having one end thereof connected with the upper arm socket, a link connected with the other end of the lever, a sleeve surrounding said members and held against longitudinal movement with relation to the first named member, and a pivotal connection between said link and sleeve, said members having flattened opposed faces preventing relative rotation thereof and being provided upon their ends with aligned hooks, said hooks in one position of the members combining to form a single hook.

7. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of members rotatable within the bearing, one of said members being longitudinally shift-

able upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an upper arm socket, connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, including a lever pivoted to the forearm socket and having one end thereof connected with the upper arm socket, a link connected with the other end of the lever, a sleeve surrounding said members and held against longitudinal movement with relation to the first named member, and a pivotal connection between said link and sleeve, said members having flattened opposed faces preventing relative rotation thereof and being provided upon their ends with aligned hooks, said hooks in one position of the members combining to form a single hook, the pivotal connection between the sleeve and link being disconnectible to permit relative movement of the forearm and upper arm sockets without operation of the first named member.

8. In a device of the character described, a socket adapted to receive a handleless arm, a bearing carried by said socket, a pair of members rotatable within the bearing, one of said members being longitudinally shiftable upon the other thereof through the bearing, the other of said members being fixed against longitudinal movement, an upper arm socket, connections between the upper arm socket and the first named member whereby the first named member can be shifted longitudinally of the second named member, including a lever pivoted to the forearm socket and having one end thereof connected with the upper arm socket, a link connected with the other end of the lever, a sleeve surrounding said members and held against longitudinal movement with relation to the first named member, a pivotal connection between said link and sleeve, said members having flattened opposed faces preventing relative rotation thereof and being provided upon their ends with aligned hooks, said hooks in one position of the members combining to form a single hook, the pivotal connection between the sleeve and link being disconnectible to permit relative movement of the forearm and upper arm sockets without operation of the first named member, and means for maintaining the members in the position where they combine to form a single hook while said link is disengaged.

In testimony whereof I hereunto affix my signature.

HENRY F. GEISE.