

1,056,499.

Fig. 1. Front

Fig. 2. Back

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UNITED STATES PATENT OFFICE.

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SUPPORTING-HARNESS FOR ARTIFICIAL ARMS.

1,056,499.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed June 7, 1911. Serial No. 631,806.

To all whom it may concern:

Be it known that I, WILLIAM T. CARNES, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Supporting-Harness for Artificial Arms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

This invention relates to artificial limbs, and consists in the construction and arrangement of supporting harness for artificial arms hereinafter fully set forth and described, and illustrated in the accompanying drawings in which:

Figure 1 is a front view of my improved artificial arm harness. Fig. 2 is a back view of the same.

This harness is an amplification of the artificial arm harness illustrated in Figs. 16 and 17 of my application for a patent for artificial arm and hand, filed in the U. S. Patent Office August 1, 1910, Serial No. 574,964, and allowed March 9, 1911, but not claimed therein, with such additions thereto as are necessary to support an entire artificial arm in cases where the amputation is above the elbow joint.

In these drawings, A, indicates the lower portion of an artificial arm, and A', the upper portion thereof, which portions are hinged together at, a, a, to form an elbow joint. The upper portion A', is adapted to receive the stump in the usual manner. To support the arm upon the stump a broad strap or pad, B, is placed over the shoulder of the wearer and a short strap, b, is secured thereto, preferably by stitching, which strap, b, reaches downward over the point of the shoulder and is secured to the upper portion, A', of the artificial arm. From the front side of the pad, B, a strap, C, extends over the shoulder of the wearer across the back of the shoulders and through under the opposite arm and up over the front of the shoulder, and diagonally downward across the back of the shoulders, and terminates in an adjustable loop, c, to which is attached the elbow-joint operating cord, C',

of the artificial arm. To the intermediate portion of the strap, C, before going under the arm of the wearer, I secure a strap, D, at, d, (see Fig. 2) which is also secured to the diagonal portion of the strap, C, at, c', and passes over the shoulder of the maimed arm and terminates in a loop, d', to which a cord, D', for operating the hand mechanism of the artificial arm is attached. To the strap, C, at c², see Fig. 1, I secure a strap, E, which extends across the chest of the wearer and terminates in a loop, e, to which another cord, E', for operating the finger mechanism of the artificial hand is secured. These two cords, D' and E', are operated alternately to open and close the fingers of the artificial hand, which hand, and the mechanism therein are fully set forth, described and claimed in the above mentioned application.

To the front of the member, A', of the artificial arm, I secure a strap, F, which extends over the maimed shoulder and is secured to the front end of the pad, B, at f, and extends across the back of the neck of the wearer (see Fig. 2) and is secured to the straps, F and C back of the wearer's neck at f' and f². To the strap, D, at the point, d², I secure a strap, G, which extends across the wearer's back and is secured to the rear end of the pad, B, and to the member A', of the artificial arm.

From the drawings and foregoing description it will be apparent that the supporting pad, B, will be securely held in place over the maimed shoulder by the straps, C, F, and G, by reason of the strap, C, passing around the opposite shoulder, as shown, and that the pad, B, will hold the member, A', of the artificial arm securely in place in the stump.

In operation when the harness and arm have been secured in place as hereinbefore described, and the elbow operating cord, C', secured to the loop, c, (see Fig. 2) and the cords, D' and E', secured to the loops, d', and e, of the straps, D and E, (see Fig. 1) if the wearer will swing the stump having the artificial arm thereon, forward, tension will be put upon the cord, C', which will cause the elbow joint of the artificial arm to bend and raise its hand upward. Likewise a thrusting forward of the opposite shoulder or a dropping of the maimed shoulder will cause a tension on the cord, D',

to operate the fingers of the hand, while a throwing backward of the maimed shoulder will cause a tension on the cord, E', to operate the wrist lock of the hand.

5 Some of the features of this invention are incidentally shown and described in my co-pending application filed August 10, 1910, Serial No. 574,964, but the same are not claimed in said application.

10 Having thus shown and described my invention so as to enable others to construct and operate the same, what I claim as new and desire to secure by Letters-Patent is:

1. In an artificial arm the combination
15 of a strap member extending from an operating cord in the front of such arm over the shoulder above said arm and diagonally across the back thence forward under the opposite arm, thence upward in front of and
20 backward over said opposite shoulder, and thence diagonally downward across the back to an operating cord in the back of said artificial arm, substantially as set forth.

2. In an artificial arm the combination
25 of a strap member leading from an operating cord in the front of the artificial arm up over the shoulder above said arm thence down across the back and forward under the opposite arm, thence upwardly in front
30 of and backward over said shoulder, thence diagonally across the back of the wearer to an operating cord in the back of said arm, and a branch strap secured to the first named strap at a point where it passes up-
35 wardly in front of the shoulder opposite to the maimed arm, and extending from said point across the chest of the wearer to an operating cord in the front of the artificial arm, substantially as and for the purpose
40 set forth.

3. In an artificial arm the combination of a pad on the shoulder of the wearer above said arm, a strap member having a bifurcated end, one branch of which is secured to
45 said pad and the other branch leading forwardly over the shoulder above and downwardly to an operating cord in the front of said artificial arm, and the main stem of said strap member passing forwardly under
50 the shoulder opposite to said artificial arm, thence upwardly in front of, thence backwardly over said shoulder and diagonally downwardly across the back to an operating
55 cord in the back of the artificial arm, substantially as and for the purpose set forth.

4. In an artificial arm the combination of

a shoulder-pad above said arm, a strap member having a bifurcated end, one branch of which is secured to said pad and the other branch leading forwardly over the
60 shoulder above and downwardly to an operating cord in the front of said artificial arm, and the main stem of said strap member leading across the back and forwardly under the arm opposite to the maimed arm,
65 and upwardly in front of and backwardly over the shoulder opposite the maimed arm, and diagonally across the back of the wearer to an operating cord in the back of the arm, and a strap member secured to the first
70 named strap member in front of the shoulder opposite the maimed arm and extending thence across the breast of the wearer to an operating cord in the front of the artificial arm, substantially as and for the purpose
75 set forth.

5. In an artificial arm the combination of a shoulder-pad, means to connect said pad with said artificial arm, a bifurcated strap member one branch of which is secured to
80 said pad, and the other branch of which passes forwardly over the shoulder of the maimed arm and is connected to an operating cord in the front of the artificial arm, and the main stem of which strap member
85 passes forwardly under the arm opposite to the artificial arm, and thence upwardly in front of and backward over the shoulder opposite the artificial arm and diagonally downward across the back to an operating
90 cord in the back of the artificial arm, a second strap member secured to the first named strap member in front of the shoulder and extending diagonally across the breast and secured to an operating cord in the front of
95 the artificial arm, a brace-strap F, secured to the first named strap member at the back of the wearer, and to the front end of said shoulder-pad, means to connect said brace-
100 strap F, with said artificial arm, and a second brace-strap G, secured to the first named strap-member and extending across the back and secured to the rear end of said shoulder-pad, and means to connect the same with said artificial arm, substantially
105 as and for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM T. CARNES.

Witnesses:

LANDRY HARWOOD,
FANNIE O. RUPERT.