(No Model.)

G. BEACOCK & T. SPARHAM.

ARTIFICIAL ARM AND HAND.

No. 329,878. Patented Nov. 10, 1885.

Fig. 2.

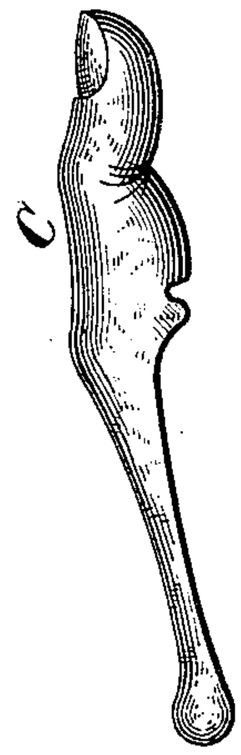


Fig. 7.

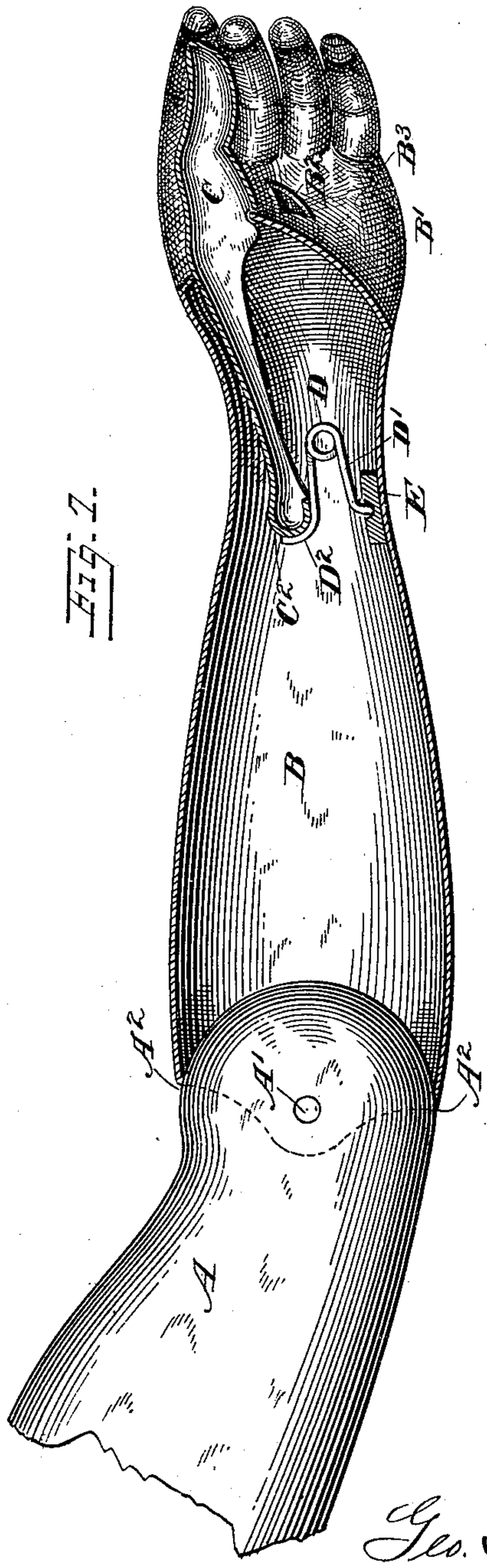


Fig. 5.

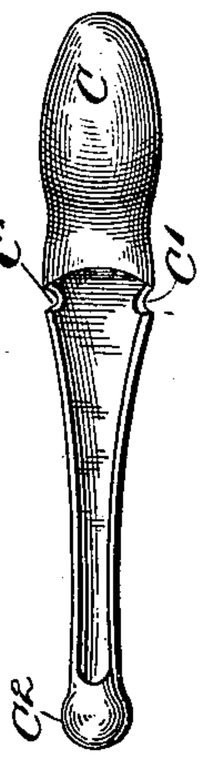
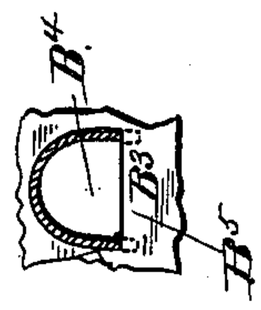


Fig. 11.



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UNITED STATES PATENT OFFICE.

GEORGE BEACOCK AND TERENCE SPARHAM, OF BROCKVILLE, ONTARIO, CANADA.

ARTIFICIAL ARM AND HAND.

SPECIFICATION forming part of Letters Patent No. 329,878, dated November 10, 1885.

Application filed April 3, 1885. Serial No. 161,114. (No model.)

To all whom it may concern:

Be it known that we, GEORGE BEACOCK and TERENCE SPARHAM, citizens of Canada, residing at Brockville, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Artificial Arms and Hands, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to artificial arms of that class which are made of rawhide; and it consists of certain features of construction hereinafter described, and specifically set forth in the claims.

Referring to the drawings, Figure 1 is a side elevation and partial longitudinal vertical section of an arm constructed in accordance with our invention. Fig. 2 is a side elevation of the thumb. Fig. 3 is a plan of the thumb inverted. Fig. 4 is a detail, hereinafter described.

Like letters indicate like parts in all the figures.

A represents a socket conforming in outline to an arm, and of any desired length, and, being made of rawhide and hollow, may be adapted in any desired usual manner for the reception of the stump of the wearer. The lower end of the part A is substantially cylindrical, and is provided with a suitable pivot or rod, A′, for the connection therewith of the forearm B. The joint between the part A and the forearm is substantially of the same character as that disclosed in a companion application pending herewith, in that the contour of the part A at the point where the edges of the forearm come in contact therewith is formed, as at A^2, on a circle the center of which coincides with the center of the pivot bolt or rod A′, whereby a close, firm, and serviceable joint is secured, and in that the pivot A′ may also be constructed of rawhide. The forearm B and hand B′ are formed of a single piece of rawhide over any suitable mold, and, having a single seam which may extend along the lower side of the arm, wrist, palm of the hand, little finger, and about each of the other fingers after the manner of locating the seams in gloves.

Within the palm of the hand, as at B^2, we form an aperture, preferably angular in outline, to serve as a rest for the ends of knives, forks, or other articles which are to be held by the hand in a manner hereinafter described.

Within the palm B^3 of the hand, and at the natural location of the thumb, we form an opening, B^4, for the thumb C, the upper outline of said opening being arch-shaped and the lower outline being straight, as shown at B^5, Fig. 4.

The thumb C is made hollow, as clearly shown in Fig. 1, and at the point where it joins the palm of the hand is provided with notches C′, from which the thumb extends backward and terminates in a rounded end, C^2. While the hide of which the forearm, wrist, and hand are formed is dampened for the purpose, the thumb is forced through the opening B^4, and the palm of the hand is then allowed to dry, when, by reason of the inward shrinkage thereof, the straight edge B^5 of the opening B^4 is embraced by the notches C′ of the thumb, and in this manner we secure a serviceable, strong, snug, and simple joint, one that is not liable to become loose by use, and one in which sufficient freedom of action of the thumb is secured without danger of rattling or squeaking.

In order to give the thumb a holding or gripping function upon articles held between the first and second fingers and the thumb, and in order to hold the thumb projected, we provide a coiled spring, D, having action in two directions by resting one of its arms, D′, in a depression formed in a block of leather, E, secured in any desired manner within the wrist or forearm, while the opposite arm, D^2, of the spring is curved to embrace the round head C^2 of the tail piece or extension of the thumb, so that the resiliency of the spring serves to force the head C^2 upwardly and toward the palm of the hand, thereby allowing freedom of movement of the end of the thumb upwardly away from the fingers, and to cause said end of the thumb to return toward said fingers when pressure is removed therefrom.

Having described our invention and its operation, what we claim is—

1. A forearm, wrist, and hand made of one piece of rawhide, substantially as specified.

2. A forearm, wrist, and hand made of one piece of rawhide and provided with a thumb passed through the palm of the hand and piv-

oted on the edge thereof, substantially as specified.

3. In an artificial hand, a thumb held in position by the shrinkage of the material of which the hand portion is made, substantially as specified.

4. The combination of the thumb C, having the notches C′ and the head C^2, the forearm B, and the spring curved to fit the head of the thumb, substantially as specified.

5. The combination of the socket A, pivot A′, forearm B, and thumb C, the whole being made of rawhide, substantially as shown and described.

6. The thumb C, made of a single piece of rawhide cut away, as at C′, and provided with the head C^2, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE BEACOCK.
TERENCE SPARHAM.

Witnesses:
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