April 19, 1927. 1,625,317

H. E. HODGSON

ARTIFICIAL HAND

Filed July 26, 1923 2 Sheets-Sheet 1

Fig. 1.

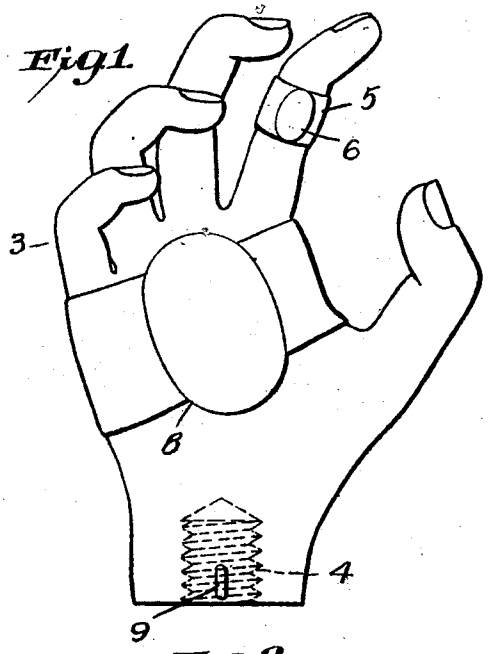


Fig. 9.

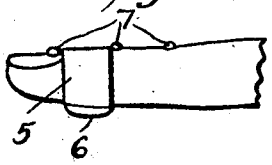


Fig. 2.

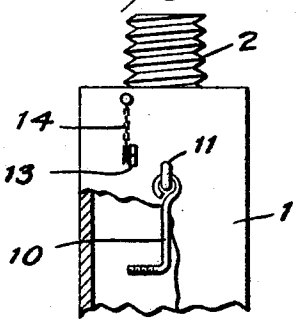


Fig. 3.

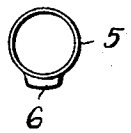
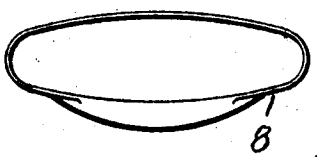


Fig. 4.



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Fig. 5.

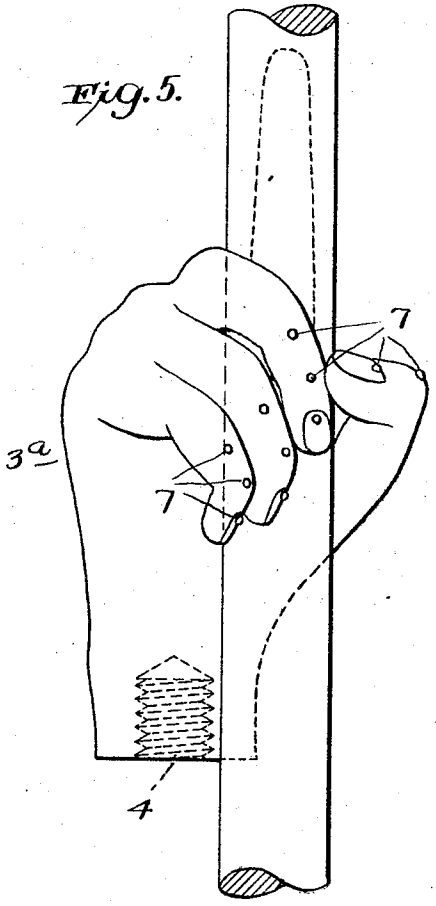


Fig. 6.

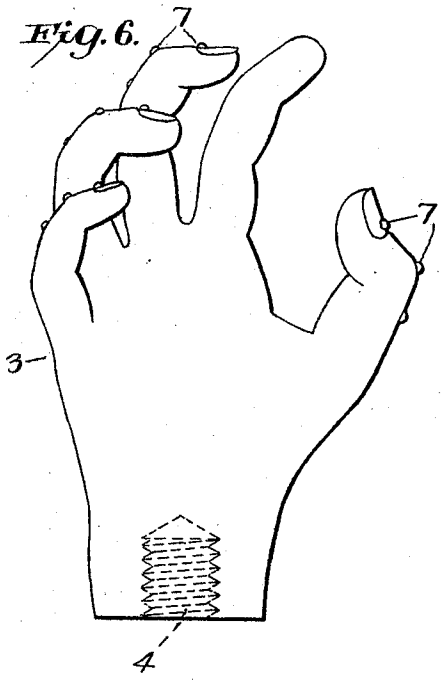


Fig. 7.

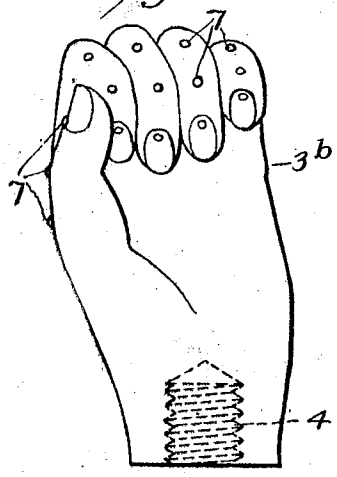
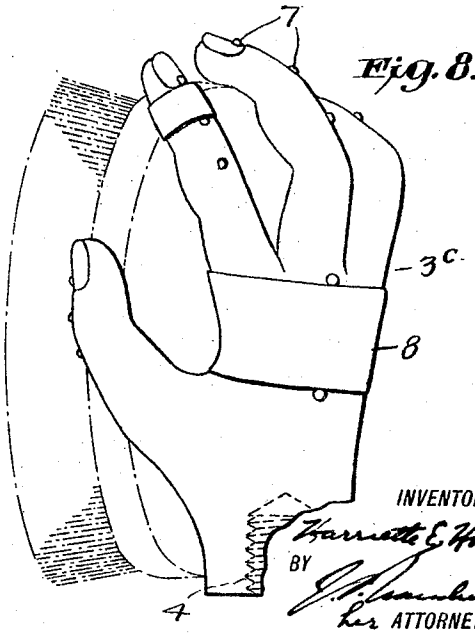


Fig. 8.



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UNITED STATES PATENT OFFICE.

HARRIETTE E. HODGSON, OF NEW YORK, N. Y.

ARTIFICIAL HAND.

Application filed July 26, 1923. Serial No. 653,865.

The object of my invention is to provide a novel kind of artificial hand for utilitarian purposes, possessing decided advantages in cheapness, strength and durability over mechanical hands. Mechanical artificial hands are expensive, and in a great many cases beyond the ability to purchase of persons who have been so unfortunate as to lose a hand, but to whom nevertheless it is of the greatest importance to be able to perform useful manual operations.

In order to fill this need the present invention supplies a system of rigid hollow hand forms capable of being made very cheaply. These forms are provided with means so that they can be readily and interchangeably applied to an artificial stump; and the several forms of the set or system are modeled after poses of the natural hand so selected as to enable the user to do a number of things with a particular form, so that with a set of the hands suited to the person's requirements and limited in number, all the necessary or desired acts can be satisfactorily accomplished. Such a set can be sold for less than the cost of a single mechanical hand, and by starting with one or two forms and adding others from time to time the expense can be initially very low and thereafter distributed according to the means of the purchaser. Manifestly, the forms will not be subject to derangement, and can be practically indestructible.

Provision for the application of movable anti-slipping pads to the fingers and palms, when and as desired by the user, materially contributes to the serviceability of the forms.

The accompanying drawings are intended to be illustrative only, and it will be understood that I do not limit the number or useful purposes of the forms, or even prescribe those shown, which are, however, deemed to be, among others, particularly desirable. In actual practice the selection, range and grouping of the poses for the forms will be matters for the judgment of the manufacturer and I shall therefore not enter into a technical description of a variety of poses or set down a classification, since these are subject to variation.

In the said drawings:

Fig. 1 is a view looking at the palm side of one of the hand forms of the invention;

Fig. 2 is a sectional elevation of the end of a stump to which this and other forms are attachable;

Fig. 3 is a view looking edgewise at one of the finger pads;

Fig. 4 is a similar view of a palm pad;

Fig. 5 is a view looking at the palm side of another illustrative form, interchangeable with that of Figs. 1, 6, 7 and 8, a portion of a broom-handle being shown;

Fig. 6 is a view looking at the palm side of another of the interchangeable rigid hand forms;

Fig. 7 is a view looking at the palm side of still another form;

Fig. 8 is a view looking at the back of the form shown in Fig. 1, the use of such a form for holding and operating a scrubbing brush being shown; and

Fig. 9 is a view of a finger with the finger-pad in place thereon.

Fig. 2 represents an artificial stump 1 having a stout, accurately formed screw 2 projecting from its end. It will be desirable to make this stump, or its end portion with the screw, of hollow metal, but I do not limit myself to the precise construction.

The hand forms selected for illustration are marked 3, 3^a, 3^b, 3^c. Each is best made of hollow metal, as cast aluminum, so as to be both light and strong, and the wrist portion of each form is provided with a screw-socket 4 to receive the screw projection of the stump. By this or equivalent means the several rigid forms can be readily applied and removed, and a change from one to another can be quickly and easily made.

The drawings of the illustrative forms speak for themselves, and it will be sufficient to indicate some of their uses. The form of Figs. 1 and 8 is designed for manipulating objects of the general shape and proportions of a scrubbing brush, or anything that may be held in the palm of the hand, in the confinement of the fingers and thumb. With the aid of this form a person can scrub floors, wash windows, manipulate a flesh brush for bathing and do a variety of other things in the way of work or personal care.

The form of Fig. 5 is suitable particularly for holding, or holding and swinging, a bar handle, such as the handle of a broom. A substantial number of work implements may be used with this form, and it may also be employed for holding a hand mirror or the like.

The form of Fig. 6 enables the user to do pulling, picking, scratching and other operations. It may be used, for example, for

drawing fish-nets, picking fruit, and grubbing in the earth, besides numerous other things.

Fig. 7 illustrates a form adapted for carrying buckets, or parcels by the cord or by carrying handles. The position is also such that it may be used for sweeping or for grasping different kinds of handles. Figs. 1 and 8 show the position for one hand and Fig. 7 the position for the other hand for the sweeping operation, for example.

Flexible finger pads, of rubber or other suitable material, in the form of rings 5 with thickened pad portions 6, can be placed upon any of the fingers, or the thumbs, in positions that may be most advantageous, to prevent slipping and thus increase the ease with which articles can be grasped and the power that can be exerted in operating them. The rings are sufficiently elastic so that they can be slipped on and off the fingers and will retain themselves in place. For further security small knobs 7 are formed upon the backs of the fingers and thumbs, spaced apart by distances approximately the width of the band. Retaining means of this character are effective for the purpose and are not unsightly. By providing the finger or thumb with a series of three or more of the knobs the pads can be put on in different positions in order to be most effective. In the case of a group of three knobs the central one may be disposed over the last joint, the terminal one may be near the base of the nail, and the third may be between the second and third joints.

Palm pads 8 of similar nature, but larger size, are slipped over the body of the hand form as required. Such a pad bearing upon the back of a scrubbing brush, for example, is a substantial aid in keeping the brush in place during vigorous to and fro movements.

As illustrated in Figs. 1 and 2, an eye 9 may be provided on the wrist-portion of the hand form, to be engaged by a hook 10 pivoted on an eye 11 on the stump or artificial arm 1. The end of the hook is straight and formed with screw threads in order that the hook may be clamped or secured to the eye 9 by a nut 13, which is retained against loss by a chain 14 fastened to the arm. In this way all possibility of the hand turning on the arm can be prevented. A lock hook of this description is disclosed and claimed in my application Serial No. 398,699, filed July 24, 1920. For simplicity the eye 9 is not shown in the other views, but it will be understood that such an eye, or eyes, may be provided upon each of the hand forms.

What I claim as new is:

An artificial hand constructed of hollow metallic form with the fingers thereof rigidly arranged in predetermined relative positions, each of the fingers being formed on their upper surfaces with a plurality of relatively small knobs, one arranged adjacent over the terminal joint indication of the finger, one arranged adjacent the base of the finger nail indication, and a third between the second and third joint indications of the finger, and resilient bands to encircle the finger between and to be held against longitudinal displacement by two of such knobs.

HARRIETTE E. HODGSON.