(No Model.)

E. S. DRAKE.

CRUTCH.

No. 596,203. Patented Dec. 28, 1897.

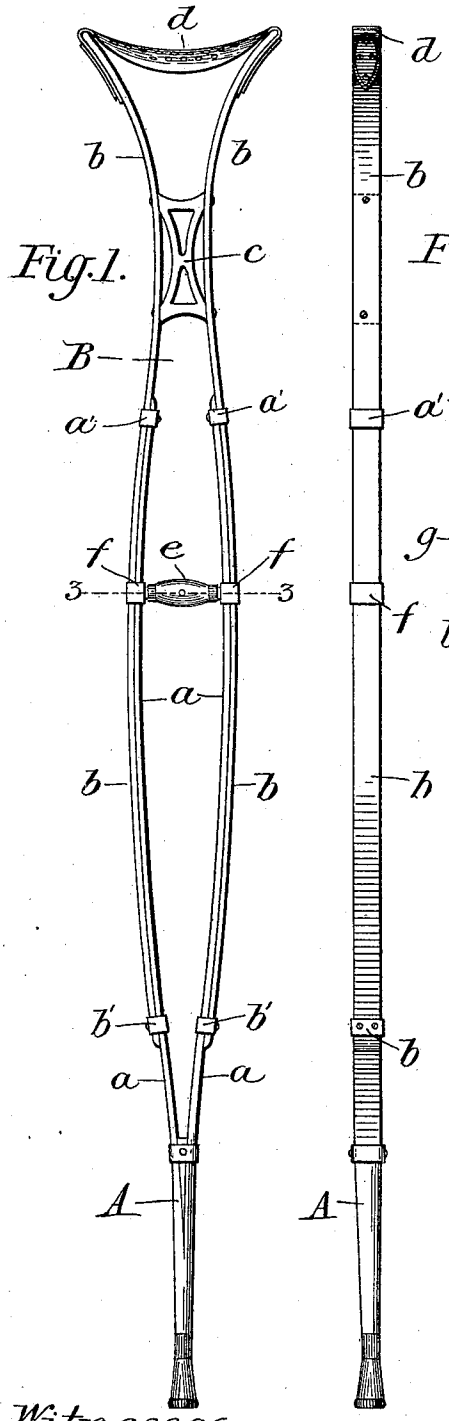


Fig. 1.

Fig. 2.

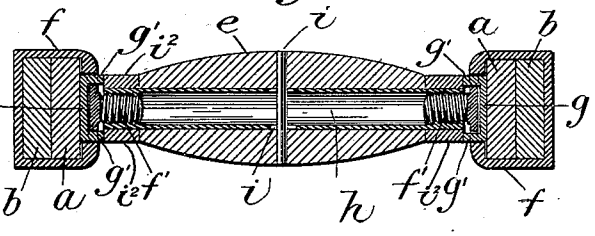


Fig. 3.

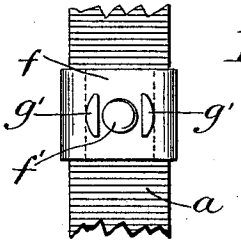


Fig. 4.

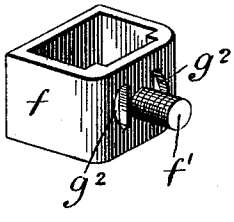


Fig. 5.

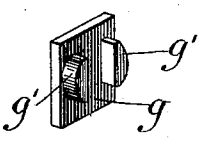


Fig. 6.

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CRUTCH.

SPECIFICATION forming part of Letters Patent No. 596,203, dated December 28, 1897.

Application filed November 19, 1897. Serial No. 659,086. (No model.)

To all whom it may concern:

Be it known that I, EDWIN S. DRAKE, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Crutches; 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.

The object of the invention is to provide a crutch that is adjustable in length, so as to accommodate persons of varying stature, and to make the handhold of the crutch adjustable either independently or together with the adjustment of the crutch itself, and also to provide an elastic and ventilated arm-rest.

With these objects in view the invention consists in the construction illustrated in the accompanying drawings and described and claimed in the following specification.

Referring to the drawings, Figure 1 is a side elevation of my crutch. Fig. 2 is an edge elevation of the same. Fig. 3 is an enlarged horizontal section through the handhold on the line 3 3 of Fig. 1. Fig. 4 is a fragment comprising an inner view of one of the handhold-clips, looking from the inside. Fig. 5 is a perspective of one of the handhold-clips, and Fig. 6 is a similar view of the clamping device which is carried by these clips and operated by the handhold.

As shown in Fig. 1, the crutch is composed of two parts or sections A and B, each of these sections being composed of side pieces, the letters $a\ a$ denoting the side pieces of the lower section and $b\ b$ the corresponding pieces of the upper section. The side pieces of the section A have secured at their upper ends metallic loops $a'\ a'$, which encircle the side pieces of the section B and permit them to slide therein with respect to the side pieces $a\ a$. In like manner the lower ends of the side pieces of the section B have secured to them metallic loops $b'\ b'$, similar in all respects to the loops $a'\ a'$ and permitting the side pieces $a\ a$ to slide therethrough with respect to the side pieces of the section B.

For the purpose of securing the crutch-sections in various positions of adjustment with respect to each other, and thereby altering the height or length of the device as a whole, I provide clips $f\ f$, which encircle the side pieces of both sections, but are not secured to either, except as it is desired to clamp said side pieces together for the purpose of making the desired adjustment. These clips are preferably of the form shown in Fig. 5 and have projecting from their inner faces toward each other threaded studs $f'\ f'$, the threads of one of said studs being left-hand threads and those of the opposite stud being right-hand threads. Seated in a recess in the inner side of the clips $f\ f$, so as to bear against the side pieces of the crutch-section A, are rectangular clamping-plates $g\ g$, said plates having projections $g'\ g'$, which extend through openings $g^2\ g^2$ in the side of the clips.

The handhold e consists of a wooden grip of the ordinary description, but having a central bore longitudinally of its length, in which is mounted a metallic tube or sleeve h. The ends of this handhold-tube are interiorly threaded, so as to screw upon the threaded studs $f'\ f'$ of the clips $f\ f$, and to permit this the threads in the tube ends must be right and left, as already explained in connection with the studs. The ends of the tube h are encircled by metallic ferrules $i^2\ i^2$, and the tube itself is connected with the wooden grip by a pin i, passing through the grip and through a slot i' in the walls of the tube, which permits of a slight play of the tube lengthwise in the grip, for a purpose that will presently be explained. One of the objects of the invention being to adjust the position of the handhold independently of any adjustment in the length of the crutch, the construction of clamping devices just described is also applicable to crutches that are not adjustable; but when employed in crutches that are adjustable it enables the two results—viz., the adjustment of the position of the handhold and the alteration in the length of the crutch—to be performed by the one device.

The operation of this clamping device is as follows: The side pieces of each member of the crutch slide freely through the clips f, as already described, except when the clamping-plates g are forced outwardly so as to clamp the side pieces tightly together within the clip. This is performed by screwing up the handhold upon the studs until the ends of the ferrules i^2 contact with the projections g'

in the clips, when by further screwing up the handhold the clamping-plates *g* are forced outwardly against the inner side pieces *a* and the outer sides of the clips are simultaneously drawn forwardly against the outer side pieces *b*, the result being to clamp both the pieces *a* and *b* tightly together and also to clamp the handhold securely in position thereon. The purpose of permitting the tube *h* to move longitudinally in the grip *e* is to obtain an even bearing and pressure upon each of the clamping-plates by allowing the tube, in case one end contacts with one of the clamping-plates before the other engages the opposite plate, to move with respect to the grip, so as to bear equally on both plates before the clamping effect begins.

The side pieces of the crutch members are preferably bowed outwardly, as shown in Fig. 1, the object being to obtain sufficient space between for the handhold, as well as to give the crutch a truss-like form, which greatly increases its strength and which enables me to lighten the construction of the device without appreciably weakening it. Incidentally to this construction I am enabled to obtain an elastic cushion or arm rest for the upper end of the crutch, there being sufficient elasticity or resilience in the side pieces themselves to obviate the necessity for specially-constructed cushions. To this end I secure between the side pieces of the upper section B a spacing-block *c*, and above this block the pieces *b b* are flared outwardly away from each other, as shown in Fig. 1. Secured to the extremities of these pieces and suspended between them is the leather strip *d*, which is preferably provided with ventilating-openings and of a width to afford the necessary bearing-surface. This strip is suspended hammock-like from the ends of the side pieces and the resilience of the pieces themselves gives the desired cushion effect.

As already explained, the device for adjusting the hand-hold itself is applicable to crutches that are not extensible in length, as also is the elastic cushion-rest at the top, and although I prefer to employ both parts in a crutch that is extensible I do not wish to be understood as limiting myself to such crutches.

What I claim and desire to secure is—

1. In a crutch, the combination of clips encircling the side pieces, oppositely-threaded studs projecting inwardly from each of said clips, a handhold having oppositely-threaded ends screwing upon said studs, and clamping-plates inclosed between the inner side of the clips and the side pieces of the crutch and having projections extending through the clip and adapted to be thrust outward by the ends of the handhold as it is screwed upon the studs.

2. In a crutch, the combination of the side pieces *b*, *b*, bowed outwardly at their middle portion, and converging upwardly above such point, the handle *e*, the spacing-block *c*, secured between the side pieces above the handle and at the point below the upper ends of said side pieces where they approach each other, and the flexible strap *d*, suspended between said ends, the side pieces being elastic and flared outwardly above the spacing-block.

3. In an extensible crutch, the combination with the side pieces of the upper portion, and the side pieces of the lower portion, of guide-loops secured to the side pieces of each portion through which the corresponding pieces of the other portion slide, clips inclosing both side pieces and adjustable lengthwise as to both, said clips having oppositely-threaded studs projecting inwardly from each side of the crutch, a handhold having oppositely-threaded ends screwing upon said studs, and clamping-plates inclosed in the clips and having projections extending through the walls of the same and operated by the handle ends.

4. In an extensible crutch, the combination with the side pieces of the upper portion, and the side pieces of the lower portion, of guide-loops secured to the side pieces of each portion through which the corresponding pieces of the other portion slide, clips inclosing both side pieces and adjustable lengthwise as to both, said clips having oppositely-threaded studs projecting inwardly from each side of the crutch, a handhold inclosing a tube having oppositely-threaded ends screwing upon said studs, clamping-plates inclosed in the clips and operated by the ends of the tube, and a slot-and-pin connection between the tube and the handhold.

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

EDWIN S. DRAKE.

Witnesses:
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JOHN C. PENNIE.