K. B. YATES.

ADJUSTABLE CRUTCH.

APPLICATION FILED NOV. 12, 1917.

1,296,728.

Patented Mar. 11, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

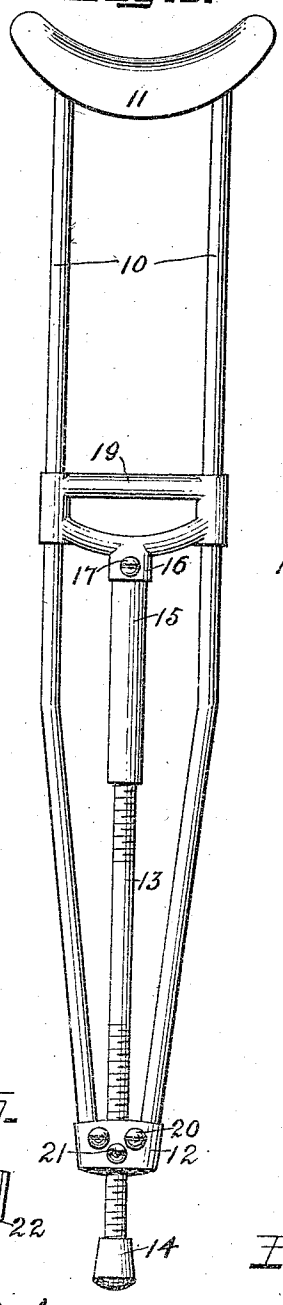


Fig. 2.

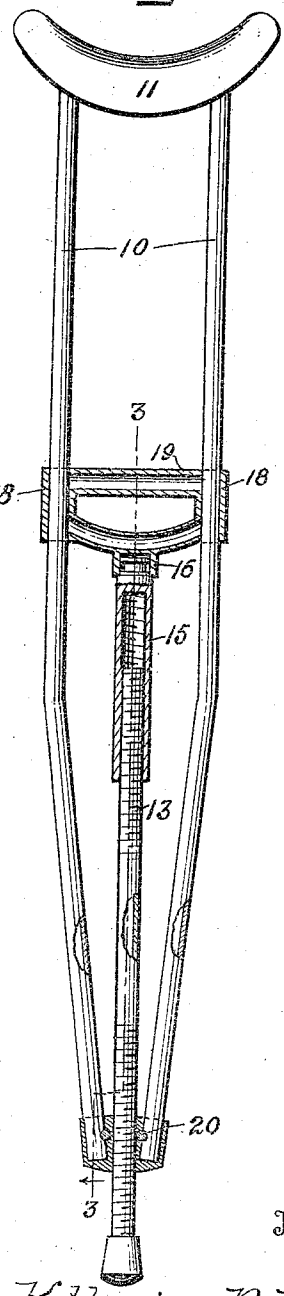


Fig. 3.

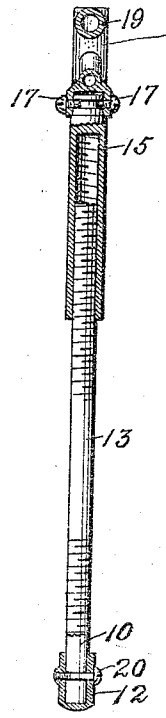


Fig. 5.

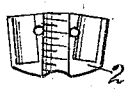
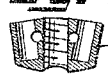


Fig. 4.



Witnesses,

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2 SHEETS—SHEET 2.

Fig. 6.

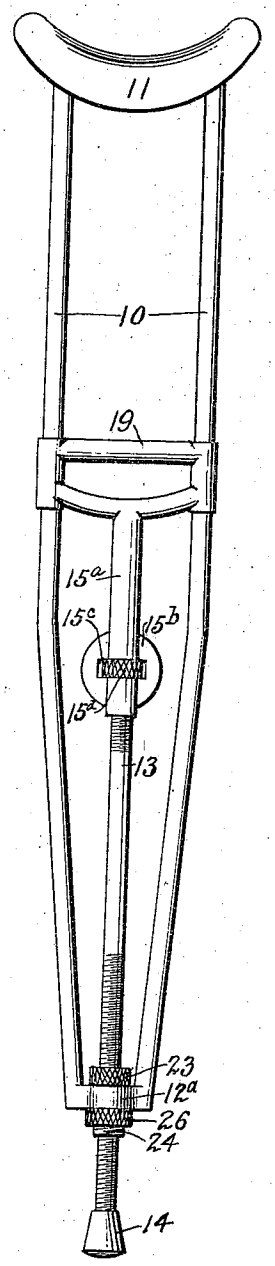
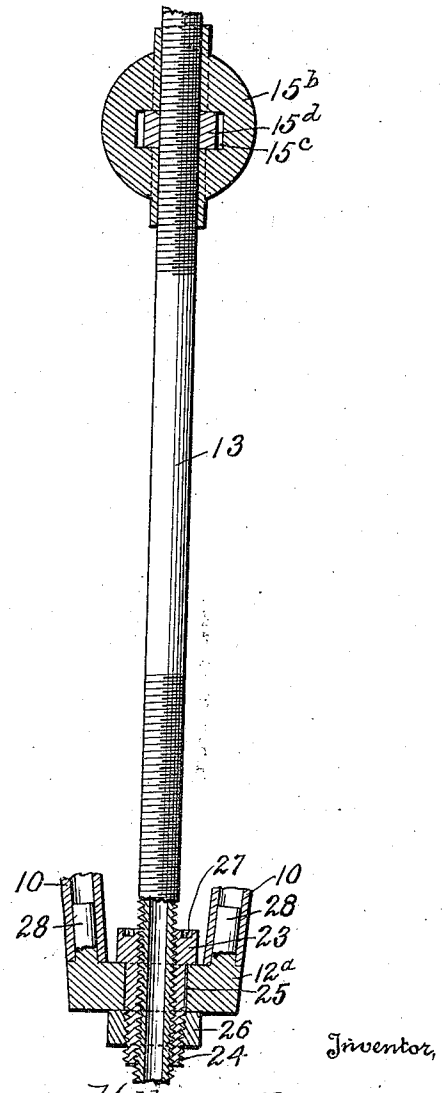


Fig. 7.



Witnesses

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ADJUSTABLE CRUTCH.

1,296,728. Specification of Letters Patent. Patented Mar. 11, 1919.

Application filed November 12, 1917. Serial No. 201,569.

To all whom it may concern:

Be it known that I, KATHERINE B. YATES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Adjustable Crutch, of which the following is a specification.

This invention relates to crutches, and it relates especially to an improved adjustable crutch.

One of the objects of this invention is to provide a crutch of which the length and arm-reach may be quickly and easily adjusted to suit the user, and thereby to avoid the inconvenience and expense of the method heretofore employed, of cutting off or otherwise reconstructing crutches, and to avoid making crutches of different lengths and proportions.

A further object is to provide a crutch of this character that is but little if any heavier than an ordinary wooden crutch of the same size.

Another object is to provide a crutch of this character that is strong and reliable, and yet has the resiliency of an ordinary wooden crutch.

Another object is to provide a crutch of this character that is symmetrical in shape and sightly in appearance.

The invention is illustrated in the accompanying drawings in which similar reference numerals correspond to similar parts throughout the several views, and in which,—

Figure 1 is an elevation of the crutch according to one embodiment of the invention;—

Fig. 2 is a view of the same partly in elevation and partly in section;—

Fig. 3 is a fragmental, sectional, detail view, the section being taken along the line 3—3 of Fig. 2;—

Fig. 4 is a vertical sectional view through the lower nut or socket device illustrated in Figs. 1 and 2;—

Fig. 5 is one of the counterpart clamping members which when united constitute a modification of the member shown in Fig. 4;—

Fig. 6 is an elevation of a crutch which constitutes a modified form of the invention; and—

Fig. 7 is an enlarged detail view illustrating the internal construction of the crutch shown in Fig. 6.

In the embodiment shown in Figs. 1 to 5 inclusive, the main frame or body of the crutch comprises a four-sided open frame consisting of two counterpart uprights 10, an upper cross piece or arm-support 11, and the lower cross piece or socket device 12, which also comprises a lower adjusting nut. Screw-threaded into and extending through this nut 12 is a leg or lower adjusting member 13, on the lower end of which is secured a foot or ferrule 14, and on the upper end of which is screwed a nut or turnbuckle 15 which is formed with a peripheral groove in its upper end, which latter is secured in a socket 16 by means of one or more studs or screws 17, so that the member 15 is rotatable but immovable axially with relation to the element 16. The socket 17 is preferably an integral part of the upper adjusting member which also comprises a four-sided open frame on the lower side of which is formed said socket, and which lower side is connected at its opposite ends to sleeves 18. These sleeves are slidably mounted on the uprights 10 and are connected at their upper ends by the hand-rest or handle member 19.

The lower end portions of the uprights converge downwardly and are secured in the socket member or lower main frame member 12 by means of screws 20, as illustrated in Fig. 2, or by other suitable means. The member 12 may be formed in one integral piece, in which case the leg will be held in adjusted position by one or more of the set screws 21; but if the clamp (a member of which is shown in Fig. 5) is used in lieu of the member 12, then the screw 21 may be eliminated; whereupon the screws 20 become elements of the universal clamping member or device of which the two counterpart members or jaws 22 (see Fig. 5) are the other elements, so that by tightening the screws 20, the jaws 22 are drawn together for tightly clamping the leg 13 as well as both of the uprights 10. Each of the uprights 10 is notched at its lower end so as to provide a seat for the bolt 20 on the side of the leg 13 next to said notch, so that, the uprights are retained in the sockets of the member 12 even if there is no clamping effect on said uprights. However, the combined clamping effect and locking effect of the screws 20 renders the connection of the uprights and the leg more secure and safe.

The general shape of the combined leg and handle devices 13 to 19 inclusive is that of a spade handle, so that the hand-hold 19

is separated from the strut thereunder (that carries the socket 16) by a space through which the fingers of the user extend without interruption, inconvenience or discomfort.

All of the parts may be of any suitable material or materials, but as illustrated herewith, the elements 10 and 13 are of metal tubing or pipe, while the hand-hold member and swivel member or turn-buckle may be made hollow and relatively light, so that the crutch will be as light as possible consistent with safety.

In order to adjust the length of the crutch, the screw 12 or the clamping screws 20, as the case may be, must be loosened until the leg 13 can be turned in the member 12 or between the clamping members 22. The leg 13 must then be screwed outward or downward until the proper length of crutch is attained, whereupon, the set screw or clamping screws must be tightened again until the parts are rigidly secured together.

In order to adjust the handle or hand-hold, the screws 17 may be loosened slightly so as to allow the member 15 to turn freely, and upon turning this member sufficiently in the right direction, the handle is slid up or down on the uprights 10 until the desired adjustment is attained, whereupon, the screws 17 may be tightened so as to secure the member 15 against accidentally turning.

The upper screw-threaded end of the leg 13 fits snugly in the member 15, so that when the screws 17, 20 and 21 are loosened and the member 15 is turned, the leg 13 turns therewith, so that the sleeve or member 15 serves as a common adjusting member for the leg and the hand-hold.

In the embodiment disclosed in Figs. 6 and 7, the main frame is substantially the same as that in Figs. 1 to 5 except that its lower member 12^a is different from the member 12, as clearly shown in the drawings. The leg member 13 is substantially the same in each of the several embodiments. In Figs. 6 and 7, the upper end of the member 13 is in screw-threaded engagement with an integral extension of the adjustable handle, which latter is substantially the same as that of Figs. 1 to 5 except for this tubular extension 15^a, which latter is broadened as at 15^b and apertured at 15^c to receive a lock nut 15^d.

The lower end portion of the leg 13 is in screw-threaded engagement with an adjusting nut 23 which has an extension or exteriorly threaded shank 24 formed integrally therewith. The lower frame member 12^a is provided with a cylindrical aperture 25 in which the cylindrical part of the shank 24 is mounted for easy rotation. A nut 26 is fitted on the shank 24 and is operable to bind against the member 12^a so as to prevent accidental turning of the nut 23, which latter may be knurled so as to be operable by hand, and may also be provided with recesses 27 to receive a spanner or other operating tool. The same is true of the lock nut 26. The frame member 12^a may be provided with cylindrical lugs or projections to extend into the lower ends of the uprights 10, as shown at 28, although my invention is not limited to this particular construction; nor is my invention limited to the other details of construction described herein, but it is susceptible of other modifications within the scope of the appended claims.

What I claim as my invention is:

1. In a crutch, a pair of uprights spaced from one another, upper and lower end members connecting the upper and lower ends of the uprights, a hand-hold between and movable along said uprights, a leg longitudinally movable between said uprights and connected thereto through the medium of said lower end member, means correlated with said lower end member for securing the leg in different adjusted positions relative to said uprights, and means correlated with said leg, but independent of movement thereof, for adjusting said hand-hold relative to said leg and uprights.

2. In a crutch, a pair of uprights spaced from one another, upper and lower end members connecting the upper and lower extremities of said uprights, a hand hold secured between and movable along said uprights, a leg extending through said lower end member and between said uprights, screw-threaded means correlated with said lower end member for securing said leg in different adjustments, and screw threaded means correlated with said leg and operable to adjust said hand-hold relative to said uprights independently of movement of said leg.

3. In a crutch, a pair of uprights spaced from one another, upper and lower end members connecting the upper and lower ends of said uprights, a hand-hold secured between and movable along said uprights, a leg having external screw threads thereon and being longitudinally movable between said uprights and connected thereto through the medium of said end member, means correlated with the lower end member for securing the leg in different adjusted positions relative to the uprights, and means comprising an internally screw-threaded element for connecting said leg to said hand-hold, said internally screw-threaded element being in screw-threaded engagement with said leg and being rotatably connected to said hand-hold but incapable of longitudinal movement relative to the latter, said screw threaded element being operable to adjust said hand-hold relative to said leg and uprights.

4. In a crutch, a pair of uprights spaced

from one another, upper and lower end members connecting the upper and lower ends of said uprights, a hand-hold secured between and movable along said uprights, a bearing element depending from said hand-hold, an externally screw-threaded leg longitudinally movable between said uprights and connected thereto through the medium of said lower end member, means correlated with said lower end member for securing said leg in different adjusted positions relative to said uprights, and an internally screw-threaded element in screw-threaded engagement with said leg and being rotatably engaged with said bearing element and operable to adjust the hand-hold relative to said leg and uprights.

KATHERINE B. YATES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."