L. F. TARBELL.

CRUTCH.

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1,332,642.

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Fig. 1.

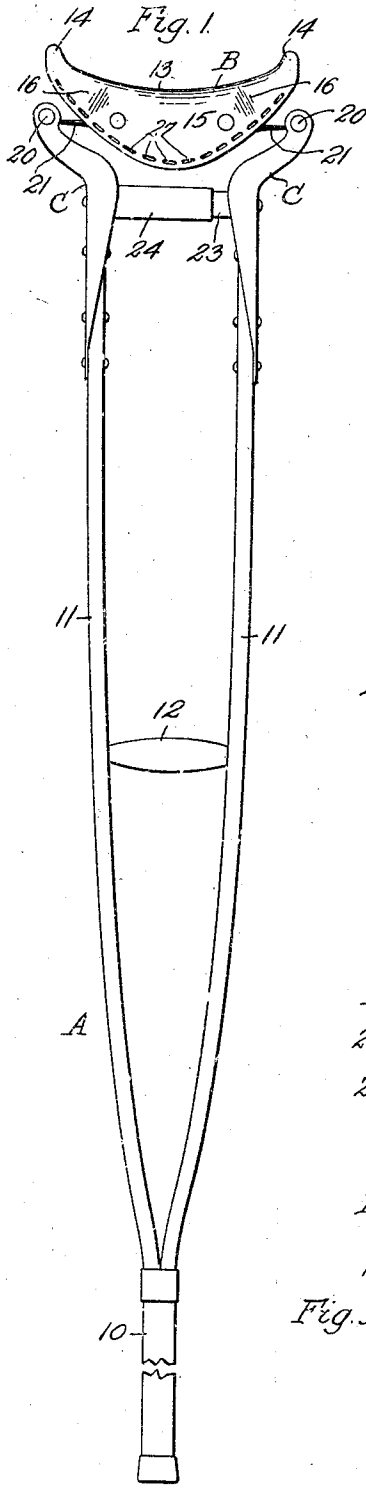


Fig. 2.

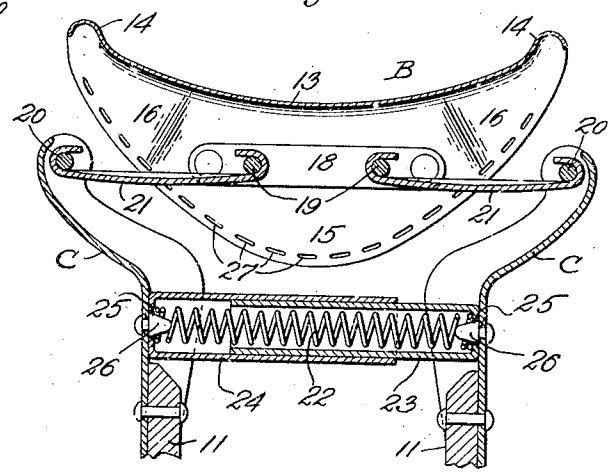


Fig. 3.

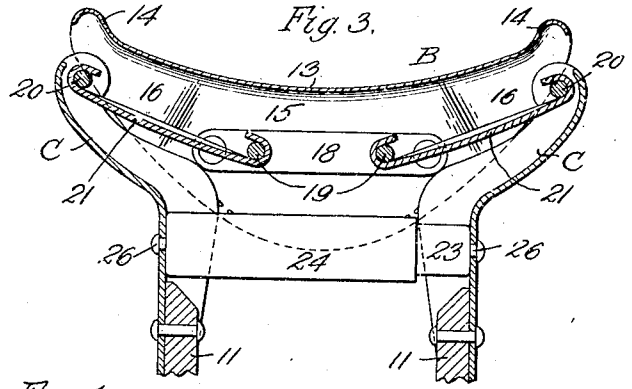
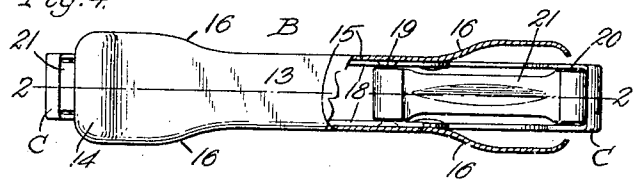


Fig. 4.



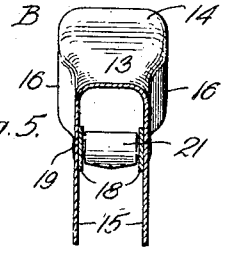


Fig. 5.

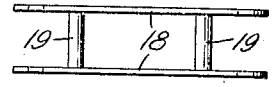


Fig. 6.

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UNITED STATES PATENT OFFICE.

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CRUTCH.

1,332,642. Specification of Letters Patent. Patented Mar. 2, 1920.

Application filed March 5, 1919. Serial No. 280,707.

To all whom it may concern:

Be it known that I, LEONARD F. TARBELL, a citizen of the United States, residing at Dayton, in the county of Cattaraugus and State of New York, have invented a new and useful Improvement in Crutches, of which the following is a specification.

This invention relates to crutches, and more particularly to that type of crutch having a bifurcated or forked standard and a yielding or movable arm-piece or saddle.

One object of the invention is to provide a crutch of this sort with an arm-piece of novel construction, which is shaped to give a great degree of comfort. Another object is to mount the arm-piece on the upper ends of the standard in a novel way, such that when in use it can yield downwardly and rock or tilt so as to give the maximum degree of comfort to the user.

Other objects are to provide cushioning means of novel construction to absorb the stress due to the depression of the arm-piece and inward movement of the ends of the standard, and to return the parts to their normal position; also to form the ends of the standard and connect the arm-piece therewith so as to permit the arm-piece to be made of generous dimensions without unduly spreading apart the fork members of the staff; and also to improve devices of this kind in other respects hereinafter specified and set forth in the claims.

In the accompanying drawings:

Figure 1 is an elevation of a crutch embodying the invention.

Fig. 2 is a fragmentary sectional elevation thereof, on an enlarged scale on line 2—2, Fig. 4.

Fig. 3 is a similar view showing the position that the parts assume when in use.

Fig. 4 is a top plan view, partly in section thereof.

Fig. 5 is a transverse sectional elevation of the arm-piece and one of the link connections.

Fig. 6 is a plan view, detached, of the pivot frame for the arm-piece.

In the crutch shown in the drawings, the standard A consists of a lower part or staff 10 and bifurcated or separated upper portions or uprights 11, 11, between which, at the proper elevation is disposed the usual hand grip or piece 12. These parts may be of any usual or suitable construction and of themselves form no part of the present invention.

Arranged adjacent the ends of the uprights 11 is an arm-piece or saddle B. This saddle is preferably made of a single piece of sheet metal and has a top 13 which is concaved lengthwise and terminates at each end in a short, rounded, retaining spur or shoulder 14. The arm rest is also provided with depending side plates or walls 14 which are preferably substantially parallel between their ends and are deepest at the middle portions thereof, their lower edges curving upwardly and terminating in the shoulders 14.

The side plates are also preferably formed with outwardly flaring, curved shoulders or abutments 16 near each end, as clearly shown in Figs. 2 and 4, thus providing the arm-pieces with laterally enlarged end portions.

The described construction of the arm-piece insures a snug, comfortable fit thereof, under the armpit of the user and the spurs 14 and shoulders 16 effectually prevent the arm-piece from slipping in either direction when in use.

The means provided for allowing a yielding and rocking or tilting motion of the arm-piece when in use are preferably constructed as follows: C, C are horns or arms which are secured by rivets or otherwise to the ends of the uprights 11, 11, and project outwardly and upwardly therefrom. These horns are preferably made of sheet metal and are U-shape in cross section so that the horns surround the outer face and both sides of each upright 11. Secured within the lower portion of the arm-piece is a pivot frame or member having side pieces or bars 18, 18, which are rigidly secured by rivets or otherwise to the inner faces of the sides 15 of the arm-piece. Rigidly connecting these side bars 18 are two cross rods or pivots 19 which are spaced apart, as shown. This frame strengthens the arm-piece and permits the same to be made of light, thin sheet metal. The horns C C are provided at their top or outer ends with cross rods or pivots 20, connected to which and to the pivots 19 are two links 21. Each link is preferably formed of a relatively wide piece of sheet metal and has bent ends which are removably hooked over the pivots 19 and 20, and

is bent lengthwise between its ends to stiffen and strengthen the link.

Mounted between the lower ends of the horns C C is a spring 22 which yieldingly resists inward deflection of the uprights 11, 11. This spring is preferably inclosed in a barrel or casing consisting of two cylindrical tubular sections 23, 24, one within the other, and against the outer ends of which the coil spring 22 bears. The end wall of each section of the casing has a central hole 25 surrounding a retaining stud 26 secured to the vertical outer wall of each horn C. The spring barrel is thus removably secured between the horns and is held in place by the expanding action of the spring 22.

By the above described arrangement of the horns C, C links 21 and spring 22, the arm-piece is so mounted as to permit of a downward and upward and rocking or tilted motion.

When the arm-piece receives the weight of a person using the crutch, it will be depressed, as shown in Fig. 3, the pivots 20 carrying with them the inner ends of the links 21.

This section draws the upper ends of the uprights inwardly toward each other through the pull of the links 21, the uprights 11, 11 being formed of the usual more or less elastic material, thus compressing the spring 22.

When the downward pressure on the arm-piece is removed the parts will at once resume the normal positions shown in Fig. 2, due to the elasticity of the uprights 11, 11, aided by the expansion of the spring 22.

By means of the link connections and the relative movability of the uprights, the arm-piece is capable of a limited rocking, tilting or end to end motion, as the center of gravity of the user changes in walking with the crutch.

If desired, perforations or slots 27 may be formed around the lower edges of the arm-piece for the purpose of attaching a pad or covering thereto.

The above described construction produces a very strong and desirable crutch, which is light and comfortable in use, having few parts, all of which are inexpensive to manufacture. Also the shape of the horns is such that the uprights 11 do not have to be spaced apart to accommodate the relatively long arm-piece to such a degree as to weaken the crutch, or make it clumsy in appearance.

I claim as my invention:

1. A crutch comprising a standard having oppositely disposed relatively movable supporting members, an arm-piece, and links connecting said arm-piece with said oppositely disposed supporting members, whereby the arm-piece is adapted to yield vertically and rock or oscillate.

2. A crutch comprising uprights relatively movable toward and from each other, an arm-piece, supporting means for said arm-piece secured on said uprights, and including oppositely disposed horns, and links attached thereto and to said arm-piece for permitting vertical and lateral oscillating motions of said arm-piece when in use.

3. A crutch comprising oppositely disposed flexible uprights, means disposed between said uprights which normally tends to separate said uprights, said uprights being adapted to yield toward each other, an arm-piece, and links pivoted to said arm-piece and to said uprights and movably suspending said arm-piece from said uprights.

4. A crutch comprising uprights relatively movable toward and from each other, upwardly and outwardly curved horns secured thereto, an arm-piece disposed between said horns, and links pivoted to said arm-piece and to said horns, whereby said arm-piece is capable of upward and downward and oscillating motions relatively to said uprights.

5. A crutch comprising uprights relatively movable toward and from each other, upwardly and outwardly curved horns secured thereto, an arm-piece disposed between said horns, links pivoted to said arm-piece and to said horns, and means below said arm-piece to return said uprights, arm-piece and links to their normal positions.

6. A crutch comprising uprights relatively movable toward and from each other, upwardly and outwardly curved horns secured thereto, an arm-piece disposed between said horns, links pivoted to said arm-piece and to said horns, and a horizontal telescoping member having a coil spring arranged therein to return said uprights, arm-piece and links to their normal position.

7. A crutch comprising oppositely disposed relatively movable supporting members, and an arm-piece consisting of a single piece of thin metal of substantially U-shape cross section, a pivot frame rigidly secured between the sides of said arm-piece, and links pivoted to said supporting members and to said pivot frame.

8. A crutch comprising oppositely disposed relatively movable supporting members, and an arm-piece supported from said supporting members, said arm-piece being of substantially U-shape cross section, with its top curving upwardly toward each end and its sides depending, a pivot frame secured between said sides, and link connections between said pivot frame and said supporting members.

9. A crutch comprising relatively movable uprights, an arm-piece, links pivoted to said uprights and pivoted to said arm-piece close to the vertical axis of said arm-piece, said close arrangement of said last

mentioned pivots permitting an oscillating or rocking motion of said arm-piece relatively to said supporting members.

10. A crutch having supporting horns for an arm-piece, said horns having a limited movement toward and from each other, an arm-piece, links connecting said arm-piece to said horns, and a telescopic barrel having a spring therein disposed between said horns for yieldingly resisting movement of the horns toward each other.

Witness my hand this 3rd day of March, 1919.

LEONARD F. TARBELL.

Witnesses:
M. J. PITMAN,
C. W. PARKER.