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G. E. OSBORN

2,373,045

CRUTCH

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Fig. 1

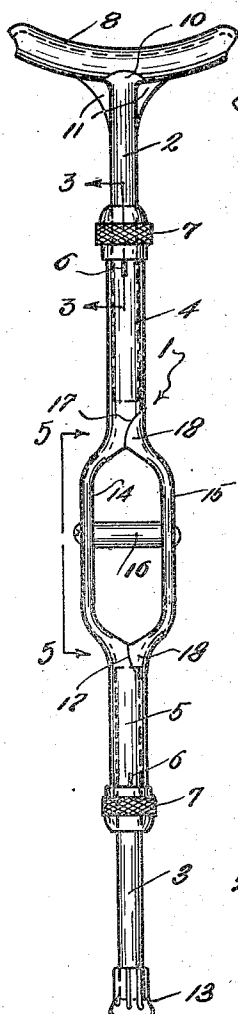


Fig. 2

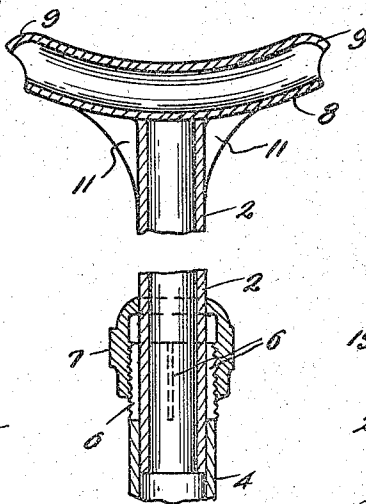


Fig. 3

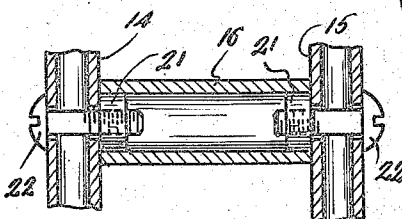


Fig. 4

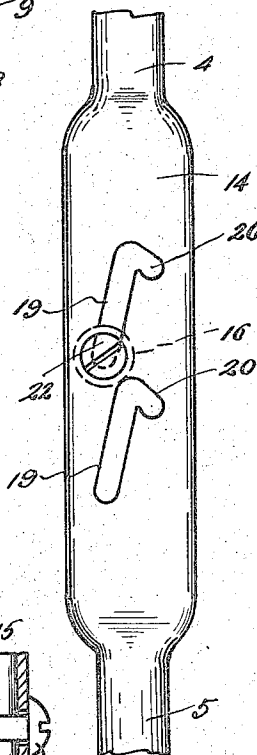


Fig. 5

Inventor
George E. Osborn
By
Glenn S. Fish
Attorney

UNITED STATES PATENT OFFICE

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CRUTCH

George E. Osborn, Spokane, Wash.

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4 Claims. (Cl. 135—50)

This invention relates to crutches and it is one object of the invention to provide a crutch formed of metal tubes or equivalent material and very strong, while light in weight.

Another object of the invention is to provide a crutch formed of companion sections so connected with each other that the crutch may be lengthened or shortened and thus permit the crutch to be used by a tall person, a short person, or a person of medium height.

Another object of the invention is to provide the sections of the crutch with joints so formed that the upper and lower sections may be slid longitudinally in tubular portions of the main section and ends of the tubular portions then constricted about the upper and lower sections and grip the same to firmly hold them in a desired position of adjustment.

Another object of the invention is to provide the main section with side rails carrying a hand grip so mounted that it may be vertically adjusted according to the length of a person's arm and then firmly secured in set position.

Another object of the invention is to provide the side rails of the main section with slots for receiving securing screws for the hand grip, the slots being so formed that the hand grip may be adjusted transversely of the side rails as well as vertically.

Another object of the invention is to provide the upper section of the crutch with a cross bar at its upper end formed of tubing to reduce its weight and open at its ends so that air may pass through the cross bar and cool the same.

In the accompanying drawing:

Fig. 1 is a side view of the improved crutch.

Fig. 2 is a view showing the upper portion of the upper section in section.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken through the hand grip longitudinally thereof.

Fig. 5 is a view on the line 5—5 of Fig. 1.

This improved crutch has a main section 1, an upper section 2, and a lower section 3. The main section is preferably formed of metal tubing, although other materials may be used, and has upper and lower tubular portions 4 and 5 into which the tubular upper and lower sections snugly fit. Ends of the tubular portions 4 and 5 are formed with longitudinally extending slits 6 and are externally threaded to receive the clamping nuts 7 which constrict the slit ends of the portions 4 and 5 when tightened, and cause them to have binding engagement with the tubular

upper and lower sections. Therefore, the upper and lower sections may be shifted longitudinally and then firmly secured to provide a crutch of predetermined length and the crutch will be of the proper length for use by a person of ascertained height.

At its upper end, the upper section 2 carries a cross bar 8 which is also formed of tubular metal and open at its ends. This cross bar is curved longitudinally so that it will fit comfortably under a person's arm, and upper portions of its ends are rounded longitudinally, as shown at 9, to prevent ends of the cross bar from having a tendency to dig into a person's armpit when the crutch is in use. The upper end of the section is welded to the crossbar midway the length thereof, as shown at 10, to form a joint, and this joint is braced by webs 11 which prevent strains from wrenching the cross bar loose from the upper section. The lower end of the lower section 3 may be plugged if desired, and this end is covered with a tip 13 of conventional formation to prevent the crutch from slipping when in use.

Midway its length, the main section is provided with side rails 14 and 15 between which extends a hand grip 16. The side rail 14 is formed integral with the upper and lower portions 4 and 5 of the main section and is formed by flattening the intermediate portion of the tube from which this section is formed. This flattened portion is bent to dispose it in offset relation to the upper and lower portions 4 and 5 and, at their inner ends, the portions 4 and 5 are formed with diagonally extending shoulders 17 to which the flared ends 18 of the side rail 15 are fitted and firmly secured by welding. It will thus be seen that the side rails will have flat inner and outer side faces of greater width than the diameter of the tubular upper and lower portions 4 and 5. This added width is desirable in order that the rails may be formed with slots 19 which extend longitudinally thereof but are disposed diagonally, as shown in Fig. 5. While two slots have been shown in Fig. 5, it will be understood that any number desired may be formed in the side rails. Ends of the slots terminate close to each other and, at their upper ends, the slots are formed with laterally extending downwardly inclined portions 20 forming offset seats at upper ends of the slots. Blocks or lugs 21 are provided in ends of the tubular hand grips and formed with threaded openings to receive screws 22 which pass through the slots 19 and have heads at their outer ends. When the screws are tightened, their heads have binding engagement with outer faces

of the side rails and firmly hold the hand grip in a vertically adjusted position where it may be conveniently grasped by the person using the crutch. When the screws are at upper ends of the slots, they may be disposed in the seats 20 and the hand grip will be prevented from moving downwardly, even if the screws should work loose. Since the slots extend diagonally, the hand grip will be shifted transversely of the side rails, as it is shifted vertically and thus adjusted inwardly or outwardly of the side rails, as well as vertically.

I have, therefore, produced a crutch which can be adjusted for length to accommodate it to the height of a person and have also provided the crutch with a hand grip which may be adjusted vertically according to the length of the user's arm.

Having thus described the invention, what is claimed is:

1. A crutch comprising a main section having tubular upper and lower portions and transversely spaced rails between its upper and lower portions, said rails being flattened in cross section and of greater width than the diameter of the upper and lower portions and formed with longitudinally extending diagonally disposed slots having lateral extensions at their upper ends extending at a downward incline, a tubular hand grip extending between said rails and having blocks in its ends formed with threaded openings, screws passing through the slots of said rails and engaged in the openings of the hand grips, said screws having heads at their outer ends for gripping outer faces of the rails when the screws are tightened and holding the hand grip in a vertically adjusted position, tubular upper and lower sections fitting snugly within the tubular upper and lower portions of the main section and shiftable vertically therein to adjust the length of the crutch, outer ends of said upper and lower portions of the main section being slit longitudinally and externally threaded, clamping nuts screwed upon the slit ends of said upper and lower portions to constrict same about the upper and lower sections and secure the upper and lower sections in adjusted positions, a tubular cross bar at the upper end of the upper section curved longitudinally and open at its ends, ends of said cross bar having upper portions rounded, and webs extending from opposite sides of the upper end portion of the upper section and secured to the under surface of portions of the cross bar protruding from the upper section to brace the cross bar.

2. A crutch comprising a main section, an upper section and a lower section, said main section having tubular upper and lower portions and two side rails between its upper and lower portions, one side rail being formed integral with the said upper and lower portions and flattened and bent to dispose it offset with respect to said upper and lower portions, inner ends of said upper and lower portions having diagonal shoulders at opposite sides thereof from said side rail, the other side rail having its upper and lower ends bent to dispose it in offset relation to said upper and lower portions and terminating in flared ends fixed to said shoulders, said side rails having vertical slots formed therein, a tubular hand grip extending between the side rails, blocks in ends of said hand grip formed with threaded openings, and screws passed through said slots and screwed into the openings of said blocks and having heads at their outer ends for gripping the side rails and holding the hand grip in a vertically adjusted position.

3. A crutch comprising a main section, an upper section and a lower section, said main section having tubular upper and lower portions and side rails between its upper and lower portions, a hand grip extending between said side rails, said upper and lower sections fitting snugly within the tubular upper and lower portions of the main section and shiftable longitudinally therein, outer ends of said upper and lower portions being slit longitudinally and externally threaded, clamping nuts fitting snugly about the upper and lower sections and screwed upon the slit end portions of said upper and lower portions to constrict same about the upper and lower portions and secure the upper and lower portions in vertically adjusted positions, and a cross bar at the upper end of the upper section.

4. A crutch comprising a main section having tubular upper and lower portions and side rails between its upper and lower portions, a hand grip mounted transversely between said side rails, upper and lower sections fitting snugly within the upper and lower sections and shiftable longitudinally therein, the outer ends of said upper and lower portions being slit longitudinally, clamps for constricting the slit ends of said upper and lower portions and securing said upper and lower sections in adjusted positions, and a cross bar mounted across the upper end of said upper section.

GEORGE E. OSBORN.