May 15, 1951 M. A. MILEY ET AL 2,552,902

ADJUSTABLE CONTOUR CRUTCH

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Fig. 1.

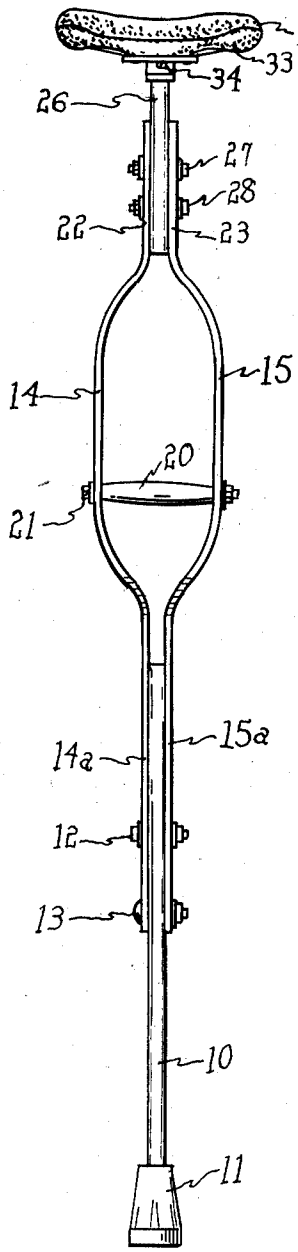


Fig. 2.

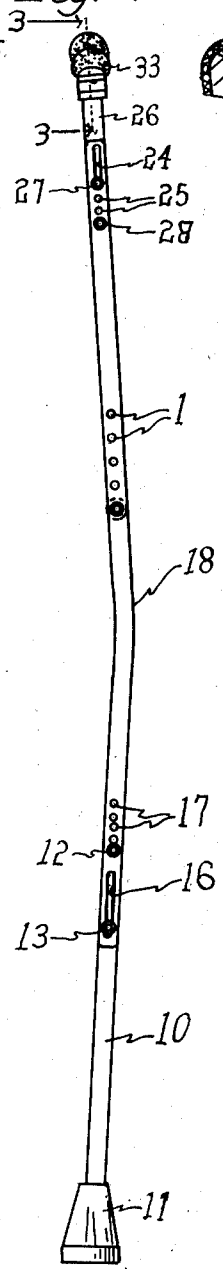


Fig. 3.

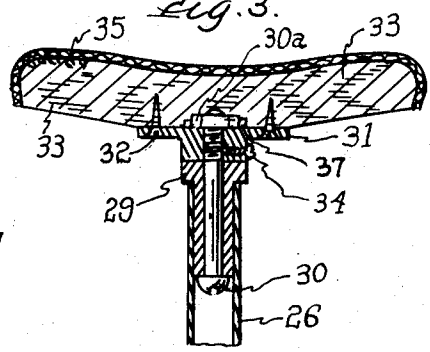
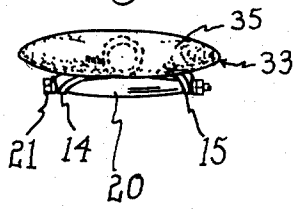


Fig. 4.



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ADJUSTABLE CONTOUR CRUTCH

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3 Claims. (Cl. 135—52)

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This invention is directed to novel improvements in contour or arched adjustable crutches.

One of the principal objects of our invention is to provide an adjustable contour crutch composed of a plurality of separately formed and assemblable sections, which are constructed so that they may be quickly and easily assembled and dis-assembled, and easily adjusted or changed as to length thereof and as to the position of the central portion or apex of the bow or arch to meet different and varied requirements, and to provide more than adequate clearance for passage of the patient's body as it is swung forward and backward, and at the same time provide for a more perfect stature and stability in the patient's balance.

A further object of our invention is the provision of an adjustable crutch having an outward curve which is composed of a plurality of separately formed sections and releasable fastening means for securing such sections, whereby the relative positions of said respective sections may be changed to meet varied requirements, and wherein the under arm support is swivelly mounted to permit pivoting and rocking movement, which, in turn, provides for the swivelly mounted yoke following the muscular and body movement of the patient, and providing for greater comfort to the armpits and shoulders and preventing undue pressure on the muscles of the shoulders and of the armpits when the patient swings on the crutches.

A further object and accomplishment of our invention is the provision of off-set or contour crutches having outward curves in the bows of the crutches to provide for bringing the crutches closer to the body because of such off-set conforming to the middle portion of the user's body, and providing for a substantially vertical lift, (as between points of engagement of the crutch shoes and the armpits) thus eliminating undesirable and uncomfortable diagonal and inclined pressure against the armpits and shoulders, such as is effected by straight crutches. Another advantage is that, in use, the portion of the crutches below the apex or curve in the bows may be maintained in almost perpendicular position in relation to the floor to maintain a substantially vertical lift or pressure at the armpits, while, at the same time, providing ample space between the crutches for the patient's body and hips to pass through.

With the foregoing and various other novel features and advantages and other objects of our invention as will become more apparent as the description proceeds, the invention consists in

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certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in the accompanying drawing.

On the drawings:

Fig. 1 is a side elevational view, embodying the novel features of our contour crutch.

Fig. 2 is a front or edge elevational view of our novel adjustable crutch.

Fig. 3 is an enlarged cross-sectional view, taken on a plane connected by lines 3—3 of Fig. 2 and illustrating the means for swivelly mounting the arm rest or arm support.

Fig. 4 is a view looking at the upper end of said crutch.

As shown on the drawings:

Referring particularly to Figs. 1 and 2, reference numeral 10 designates a leg, or standard, or rod, which is preferably made of metal, and which may be tubular to provide lightness. Numeral 11 designates a recessed shoe, which is preferably made of rubber, or equivalent material, and which is removably and replaceably mounted upon the lower end portion of leg 10. Leg 10 is provided with a pair of vertically, spaced apart apertures, which normally have mounted therein a pair of bolts 12 and 13, respectively.

As illustrated in Fig. 1, numerals 14 and 15 designate a pair of separately formed bows, whose normal lower end portions converge toward each other and then extend parallel to each other in slightly spaced apart positions to provide the integral arms 14a and 15a, respectively. The lowermost end portions of said arms 14a and 15a, have formed therein, correspondingly spaced, longitudinal slots 16, as illustrated in Fig. 2, and a short distance above the normal upper end of said slot 16, said arms have a plurality of apertures 17, which are longitudinally spaced and a relatively short distance apart from each other. The spacing of such apertures 17 is preferably one-half inch on centers. The relative position of the leg 10 and the degree to which it extends beyond the end portions of the arms 14a and 15a is accordingly easily adjusted to meet the differing requirements of different individuals, and the normal height of the apex of the outward angle of the arch or bow may be regulated to best fit the particular body or deformity of body of the proposed user.

As shown in Fig. 2, both the bows 14 and 15 are bent laterally or sidewise and in a direction away from the side of the user's body or hips to form

the angle or apex generally designated as 18. The intermediate forwardly and rearwardly arched portions of the bows 14 and 15 have a plurality of longitudinally spaced apertures 19 therein, the apertures 19 of one bow being spaced correspondingly to the similar apertures 19 of the other bow. A longitudinally passaged handle or hand grip 20 is adapted to be secured removably and adjustably in any transversely aligned pair of said apertures 19, to accord with the best fitted position, suitable for the person to use said contour crutch, by means of a transverse bolt and nut 21, which is mounted through said handle and through the desired pair of apertures 19. The relative normal height of the hand grip 20 and the distance thereof from the saddle or arm piece is predetermined according to the length of the particular person's arm or arms and the height of his normal grip from the supporting surface.

The upper end portions of the bows, side bars, or arched uprights or standards 14 and 15, which provide integral extensions or bars 22 and 23, are also substantially parallel to each other though spaced apart a short distance. Each of the upper extensions or bars 22 and 23 is provided with a longitudinal slot 24 and a plurality of longitudinally spaced apart apertures 25, as illustrated in Fig. 2.

Numeral 26 designates a passaged upper extension, bar, support, or tube, preferably made of metal, and has a pair of transversely extending passages or apertures therein, which are so longitudinally spaced as to provide for variable position and removable securance of such extension, bar or tube with respect to the upper arms or extensions 22 and 23. Removable fastening elements, such as a pair of bolts 27 and 28, are releasably mounted in the opposed slots 24 and in any one of the pair of opposed apertures 25, according to the relative position desired of the saddle or arm rest and of said bar or tube 26 in relation to the remainder of the crutch.

As illustrated in the cross-section of Fig. 3, a longitudinally passaged metal bushing 29 has its lower reduced end frictionally and snugly mounted in the upper end portion of the extensible tube 26. Slidably mounted above and on the bushing 29 is a centrally and longitudinally apertured or passaged yoke clamp 31. The aperture or passage of yoke clamp 31 is aligned with the passage of the bushing 29, and an adjustable bolt or axle 30 is mounted in said aligned passages.

Yoke clamp 31 has a laterally extending integral apertured flange, as illustrated in Fig. 3, in the apertures of which are mounted a plurality of screws 32 which thread into and engage the yoke, arm rest, arm piece or saddle 33. Numeral 37 represents a reduced flange abutment or upwardly extending retaining member integral with the upper portion of yoke clamp 31, which extends upward into an appropriate recess in the saddle 33. A nut 30a is normally mounted in said retaining member 37 and is kept from independent rotation thereby. The threaded upper end of bolt 30 is adjustably threaded into said nut.

The reduced lower portion of the yoke clamp is provided with a threaded passage in which is

mounted a set or retaining screw 34, whose inner end is adapted to engage bolt 30 and frictionally retain same from motion which is independent of yoke 31, by causing the set screw 34 to frictionally engage the bolt 30 and independent movement of said bolt and the consequent threading or unthreading into the nut 30a is precluded. Said setting of set screw 34 permits a sliding or rotation of the yoke 31, the nut 30a and the bolt 30 and saddle 33 on the top of the bushing 29, the walls of the aperture of said bushing providing a bearing surface for said rotation.

The inner portion of yoke or saddle 33 is made of a rigid material, i. e. wood or metal; yoke 33 is suitably padded with a soft fibrous material about its upper portion which is covered and held in place by a suitable, flexible fabric 35, which is secured about the upper face, sides and ends of the rigid portion of said saddle 33.

As many changes could be made in the above construction, and many apparently widely different embodiments of our invention, within the scope of the claims constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. In an adjustable arm rest for a crutch having an upper extension, a hollow member securable in said upper extension; a passaged bushing in said hollow member; a passaged yoke clamp swivelly connected to said bushing; and an arm yoke secured to said yoke clamp.

2. In an adjustable arm rest for a crutch having an upper extension, said crutch being bent normally away from the body, a hollow member securable in the upper extension of said crutch; a passaged bushing mounted in the upper end of said hollow member; a passaged yoke clamp swivelly connected to said bushing; a pivot extending in said bushing and yoke clamp passages; a set screw engageable with said pivot; and an arm yoke secured to said yoke clamp.

3. An adjustable arm rest for crutches and the like comprising an arm yoke; a passaged yoke clamp secured to the under surface of said arm yoke; a passaged bushing swivelly secured to said yoke clamp, said yoke clamp passage and said bushing passages being in alignment; a bolt mounted in said passages, the threaded end of said bolt extending upwardly; a nut mounted on the end of said bolt; and a set screw extending through said yoke clamp to hold said yoke clamp from movement with respect to said bolt.

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