

April 6, 1954

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2,674,253

CRUTCH

Filed May 7, 1951

Fig. 1

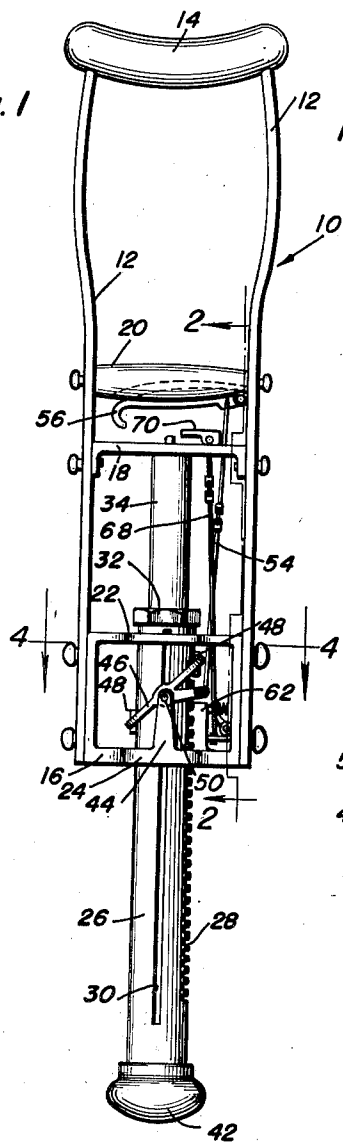


Fig. 2

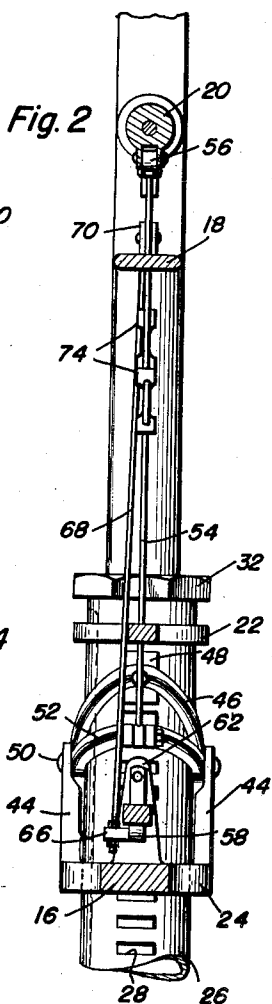


Fig. 3

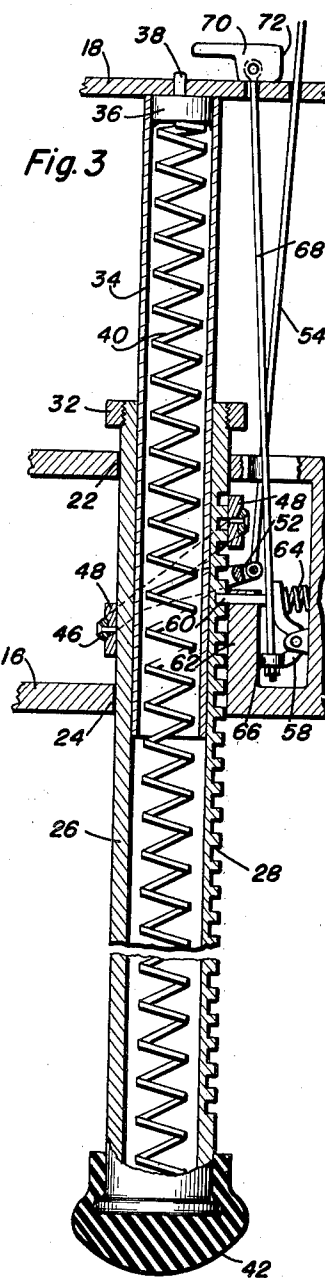
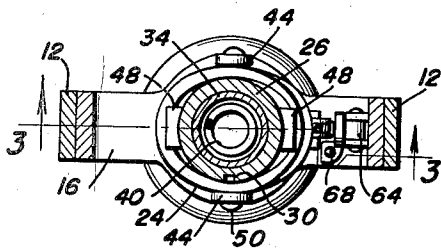


Fig. 4



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UNITED STATES PATENT OFFICE

2,674,253

CRUTCH

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Application May 7, 1951, Serial No. 224,961

11 Claims. (Cl. 135—50)

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This invention relates to new and useful improvements in crutches and the primary object of the present invention is to provide a crutch so constructed as to permit a user to lower himself into a chair or the like in a convenient manner.

Another important object of the present invention is to provide a crutch including a longitudinally adjustable spring urged staff including a manually actuated brake means whereby the frame of the crutch may be slowly moved downwardly on the staff to permit a user to move from a standing position to a seated position.

A further object of the present invention is to provide a crutch of the aforementioned character wherein the adjusting mechanism and the braking mechanism of the crutch staff are manually actuated quickly and readily.

A still further aim of the present invention is to provide a crutch that is simple and practical in construction, strong and reliable in use, inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the present invention;

Figure 2 is an enlarged longitudinal vertical sectional view taken substantially on the plane of section line 2—2 of Figure 1;

Figure 3 is a longitudinal vertical sectional view taken substantially on the plane of section line 3—3 of Figure 4; and,

Figure 4 is an enlarged transverse horizontal sectional view taken substantially on the plane of section line 4—4 of Figure 1.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents the upper body portion or frame of the present crutch including a pair of side portions 12 whose upper ends are connected by a top arm rest 14 and whose lower ends are connected by a lower substantially rectangular brace 16 that is suitably secured to side portions 12.

The central portions of the side portions 12 are connected by an upper brace 18 that underlies a hand grip 20. The ends of the hand grip 20 and the ends of the brace 18 are suitably secured to the side portions 12.

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The upper and lower horizontal portions of the lower brace 16 are formed with registering eyes 22 and 24 that slidably receive a tubular leg or staff 26 having a plurality of longitudinally spaced apertures or recesses 28 and a longitudinal recess 30. A nut 32 threaded on the upper end of the staff 26 prevents accidental disengagement of the staff from the brace 16.

The upper end of a guide tube 34 is suitably fixed to the upper brace 18 between the side portions 12. The lower end portion of the tube 34 enters the upper portion of staff 26 and guides the staff during sliding thereof. A plug 36 mounted in the upper end of the tube 34 includes a centrally disposed nipple 38 that extends upwardly through an aperture in the brace 18.

A coil spring 40 extends through the tube 34 and downwardly into the staff 26 to engage against the lower closed end of the staff 26 on which there is mounted a resilient cap 42. The upper end of the spring 40 engages the plug 36 to urge the staff 26 longitudinally from the frame 10.

Ears 44 rise from the eye 24 to pivotally support a ring member 46 that is inclined relative to the staff with its upper and lower portions supporting brake shoes 48 for engaging the outer periphery of the staff 26. One of the pivots 50, securing the ring member 46 to one of the ears 44 enters the groove or recess 30 to prevent rotation of the staff 26 relative to the frame 10.

Ring member 46 is formed with a yoke 52 that is pivoted to the lower end of a flexible rod 54. The rod 54 is slidably carried by the brace 18 and its upper end is pivoted to a finger grip 56 which in turn is pivoted to the hand grip 20. The finger grip 56 is manually movable into a recess into a hand grip 20 when the ring member 46 is actuated to force the brake shoes 48 against the outer periphery of the staff 26.

Means is provided for adjusting the staff 26 longitudinally of the frame 10. This means comprises a U-shaped member or holder 58 that is pivoted to the lower brace 16. The upper portion of the member 58 carries a pin 60 that is slidably received by a guide ear 62 rising from the eye 24. The pin 60 may be swiveled to the member 58 or the opening in ear 62 sufficiently large to permit sliding of the pin 60 during swinging of the member 58. A spring 64 urges the pin 60 toward the staff 26 and into a selected one of the recesses 28.

An ear 66 formed on the lower portion of the

member 53 engages the lower end of a flexible operating rod 68 whose upper end is slidably carried by the brace 18 and which pivotally supports a cam member 70 having a flat portion 72 that will bear against the brace 18 when the member 58 has been pivoted sufficiently to move the pin 60 out of a selected recess 28.

The end apertures in adjusters 74 receive the rods 54 and 68 to permit adjustment of the distance between the ends of the rods 54 and 68.

In practical use of the present invention, the cam 70 is pivoted until the surface 72 engages the brace 18 whereupon the pin 60 is retracted, so that the user may lower himself as the gradual lowering is governed by manual manipulation of the finger grip 56.

As the clutch is manually released, the spring 40 tends to urge the frame 10 upward, thereby helping a user to return to a standing position from a seated position.

Having described the invention, what is claimed as new is:

1. A crutch comprising a portable frame having an arm rest and a hand grip, a staff slidably carried by the frame, a brake means carried by the frame for engaging the staff to regulate the sliding of the latter relative to the former, and a locking means carried by the frame for securing the staff adjusted relative to the frame.

2. A crutch comprising a frame, a staff slidably carried by the frame, a ring member embracing the staff and pivoted to the frame, brake shoes supported on the ring member for selectively engaging and disengaging the staff, interconnecting means between the staff and the frame for securing the staff relative to the frame after adjustment, and means slidably carried by the frame and connected to the ring member for actuating the same.

3. A crutch comprising an elongated frame, a staff slidably carried by and movable longitudinally of the frame, spring means biased between the staff and the frame and urging the staff away from the frame, brake means carried by the frame and acting on the staff for braking the sliding movement of the staff longitudinally of the frame, and interconnecting means between the staff and the frame for securing the staff longitudinally adjusted relative to the frame.

4. The combination of claim 3 wherein said interconnecting means includes a swingable pin holder mounted on the frame, a pin supported on the holder, said staff including a plurality of longitudinally spaced recesses for selectively receiving the pin, a spring urging the pin toward the staff, and means carried by the frame and attached to the holder for retracting the pin.

5. The combination of claim 4 wherein said pin retracting means comprises a rod slidably carried by the frame and connected to the holder at one end, a cam member on the other end of the rod, and said frame including a brace rockably supporting the cam, said cam including a flat portion adapted to rest against the brace when the holder is pivoted to retract the pin from the staff.

6. The combination of claim 3 wherein said brake means includes a vertically inclined ring member disposed about the staff and pivoted to the frame, said ring member including upper and lower portions adapted to move as a unit selectively toward and away from the staff, brake shoes supported upon said upper and lower portions, and means carried by the frame and connected to the ring member for selectively moving

said brake shoes into and out of engagement with said staff.

7. A crutch comprising a frame including a pair of side members, upper and lower braces between the side members and a hand grip extending between the side members, a staff slidably carried by the lower brace, brake means pivoted on the lower brace for engaging the staff, a finger grip carried by the hand grip for actuating the brake means, means engaging the staff and urging the same away from the frame, and locking means mounted on the lower brace and engaging the staff to secure the staff adjusted relative to the frame.

8. A crutch comprising a frame, a staff slidably carried by the frame, a ring member embracing the staff and pivoted to the frame, brake shoes supported on the ring member for selectively engaging and disengaging the staff, and means slidably carried by the frame and connected to the ring member for moving the ring member toward the periphery of the staff, whereby said brake shoes will engage the staff.

9. In a crutch including a frame having a pair of side members, upper and lower braces between the side members and a hand grip extending between the side members, a staff slidably carried by the lower brace, brake means pivoted on the lower brace, and movable into braking engagement with the staff, and means carried by the hand grip and operatively connected to the brake means for moving the latter to its brake applying position.

10. A crutch comprising an elongated frame including a pair of side members and upper and lower braces connecting the side members, a tube fixed to the upper brace, said lower brace having an opening receiving the tube, a tubular staff slidably received in the opening and telescoped over the tube, spring means in the tube and the staff yieldingly urging the staff longitudinally from the tube, a ring member embracing the staff and pivoted to the lower brace, and brake shoes carried by the ring member for engaging the outer periphery of the staff.

11. A crutch comprising an elongated frame including a pair of side members and upper and lower braces connecting the side members, a tube fixed to the upper brace, said lower brace having an opening receiving the tube, a tubular staff slidably received in the opening and telescoped over the tube, spring means in the tube and the staff yieldingly urging the staff longitudinally from the tube, an elongated ring member embracing the staff and pivoted intermediate its ends to said lower brace for movement of the ends of the member selectively toward and away from the outer periphery of said staff, brake shoes at the ends of said ring member for engaging the outer periphery of the staff as the member is pivoted to move its ends toward the staff, and an operating rod slidably carried by the upper brace and pivoted to the ring member for imparting pivotal movement to the ring member.

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