Feb. 21, 1967 W. J. LUTES 3,304,946

CRUTCH

Filed June 1, 1965

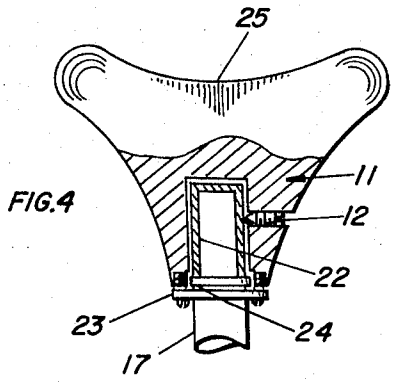


FIG. 4

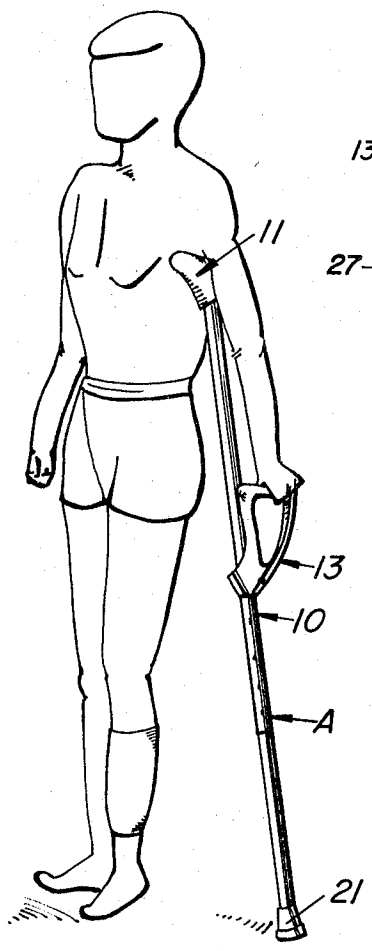


FIG. 1

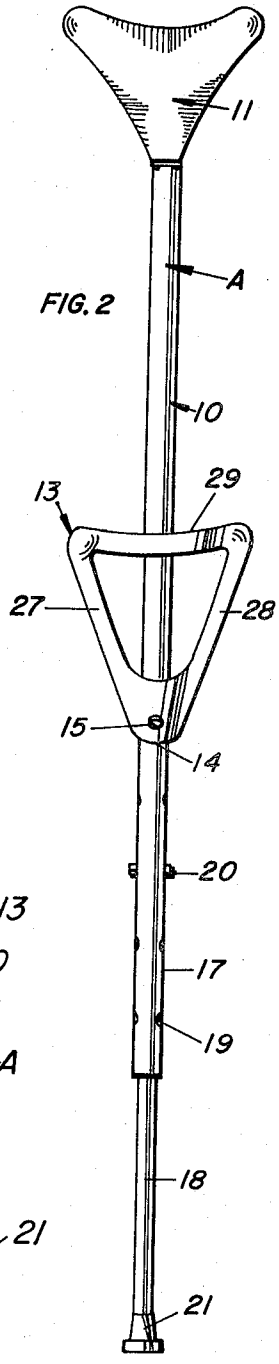


FIG. 2

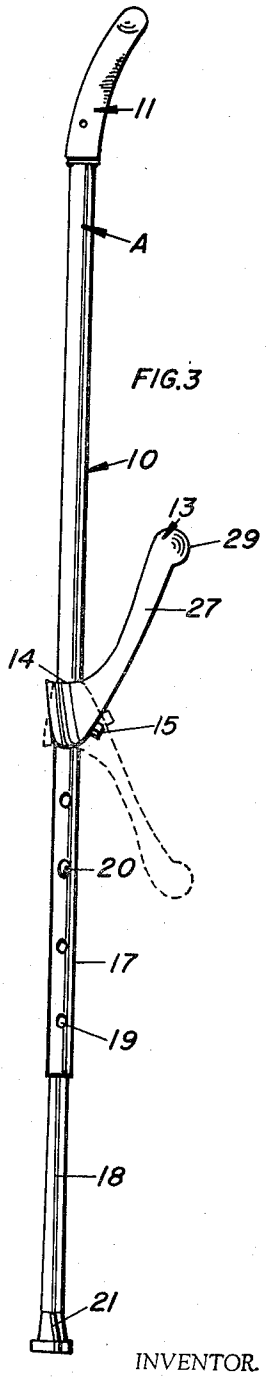


FIG. 3

INVENTOR.
William J. Lutes

BY
Harrand Lane
ATTORNEYS

United States Patent Office 3,304,946 Patented Feb. 21, 1967

3,304,946

CRUTCH

William J. Lutes, 230 Monroe Drive, Apt. 13, Mountain View, Calif. 94040

Filed June 1, 1965, Ser. No. 460,153
3 Claims. (Cl. 135—50)

The present invention relates to a crutch.

In the past, various types of crutches have been developed in an attempt to find one which would be strong, reliable, comfortable and easy to use.

The present invention provides an improved crutch with a straight, telescopically adjustable, tubular staff portion, a curved armpit portion, and a stirrup hand grip portion which fits slidably onto the staff and is adjustable thereon.

An object of the invention is to provide an improved crutch to aid an injured or crippled person in walking.

Another object of the invention is to provide a crutch having a first tubular staff portion with a second staff portion mounted for telescopic adjustment co-axially thereof, an armpit support portion being mounted for rotative adjustment on the upper end of the staff, and a stirrup type hand grip portion being mounted for axial and rotative adjustment on the staff.

The foregoing objects and advantages of the invention will be apparent from the following description and the accompanying drawings, wherein:

FIG. 1 is a perspective view of a person using a crutch embodying the invention.

FIG. 2 is an enlarged front elevation view of the crutch shown in FIG. 1.

FIG. 3 is a side elevation view of the crutch drawn to the same scale as FIG. 2.

FIG. 4 is a further enlarged view of the armpit support portion, partly in elevation and partly in section, a fragment of the upper staff portion being included.

Brief description

Briefly, the illustrative form of the invention comprises a crutch A having a two part, telescoping staff **10**, and armpit support portion **11** being swiveled on the upper end of the staff **10**, and provided with anchoring means **12**. A stirrup type hand grip portion **14** is mounted adjustably on the staff, and is provided with anchor means **15** to secure the hand grip portion to the staff.

Detailed description

Referring to the drawings in greater detail, the crutch staff **10** comprises an upper tubular portion **17** and a lower tubular portion **18** inserted telescopically therein. A series of holes **19** are provided in axially spaced relation diametrically through the upper staff portion **17**, and one or more similar holes (not shown) are also provided through the lower staff portion **18**. An anchoring pin **20** is inserted through aligned holes in the upper and lower staff portions when these portions are adjusted telescopically to a desired total length. A conventional non-skid crutch tip **21** is provided on the lower end of the lower staff portion **18**.

The illustrative armpit support portion **11** is solid, and may be cast or molded of suitable material, such as, for example, aluminum, plastic, glass fiber and resin of other suitable material. It may be either solid or hollow as elected.

The armpit support portion **11** has a socket **22** in its lower end to receive the upper end of the upper staff portion **17** in fitted relation therein. A retaining ring **23** on the lower end of the armpit portion **11** fits beneath an annular head **24** provided on the upper staff portion **17** to prevent withdrawal of the staff from its socket, but at

the same time to permit swivel adjustment of the staff portion **17** relative to the armpit support portion **11**. Anchoring means in the form of a set screw **12** secures the armpit portion **11** and upper staff portion **17** in rotatively adjusted relation.

The armpit support portion **11** is curved transversely as best shown in FIGS. 2 and 3, and widens from its socketed lower end toward its upper end, which is wide enough to somewhat more than span the armpit of the largest person for whom the clutch is intended. The upper edge **25** of the armpit support portion **11** is concavely curved, as best shown in FIG. 2, to provide cradle support for a user's armpit. The entire armpit support portion **11** preferably is also curved lengthwise as best shown in FIG. 3 to provide some additional support by the substantial area of obliquely upwardly directed lateral surface thus presented.

The hand grip portion **13** comprises the tubular mounting portion **14** of an internal diameter to fit snugly but slidably onto the upper staff portion **17**, and is provided with suitable anchor means, such as the set screw **15**, by which the hand grip portion is firmly anchored in desired adjusted position on the staff **10**. While the specific type of hand grip anchor means employed is not material to the invention, it is of course essential that the hand grip portion be of adequate strength, and that it be securely anchored when adjusted.

It is preferred that the hand grip anchor means **15** permits a free selection of the relative adjusted position of the hand grip portion **13** on the staff **10**, not only rotatively and axially, but also, if desired, to inverted position as shown in broken lines in FIG. 3. Thus, a user of the crutch A is able to adjust it so that it can be used for either arm, the armpit support portion **11** can curve inwardly or outwardly, and the hand grip portion **13** can be positioned so that it is either on the outside of the staff as shown in FIG. 1, or inside (not shown) as desired, or even inverted as shown in broken lines in FIG. 3.

From the tubular hand grip mounting portion **14** a pair of grip support elements **27** and **28** extend in angularly divergent relation to each other, and at acute angles to the axis of the staff receiving hole in the mounting portion **14**. The outer ends of these divergent support elements **27** and **28** are joined by a grip element **29**, of a length, diameter and shape to permit the user to grasp it firmly and to support a substantial portion of his weight comfortably thereon. The various parts of the crutch A can be made of any suitable material, and if desired from different materials, for example, for the staff members **17** and **18**, aluminum or aluminum alloy tubing has been found highly satisfactory. For the armpit support portion **11** and hand grip portion **13**, aluminum castings or forgings, molded or fabricated high strength plastic, or glass fiber reinforced plastic material, would all prove highly satisfactory. Particularly in the case of the armpit support portion **11** and the hand grip portion **13** it is desirable to use a material of relatively low thermal conductivity for greater comfort of the user in extremes of hot or cold weather.

The manner of using the present invention is generally similar to that of any conventional armpit and hand grip type crutch, and therefore will be obvious to anyone familiar with crutches from the illustration of FIG. 1.

Some of the advantages of the present invention over some prior crutches reside in its lightness, strength, comfort, and the great flexibility of adjustment which is provided by the rotatably adjustable armpit support portion **11**. The longitudinal and lateral curvature of the armpit support portion, and the rotative and axial adjustability, and even the invertability, of the stirrup type hand grip portion **13**.

In addition, the invention provides a crutch which is of extremely attractive and modern appearance, and which provides maximum support and comfort for the user.

While I have illustrated and described a preferred embodiment of the present invention, it will be understood that various changes and modifications can be made in the details thereof without departing from the spirit of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is defined in the following claims.

1. A crutch comprising

a telescopically adjustable straight staff portion,

an armpit support portion having a socket in its lower end to receive the upper end of the staff portion in fitted relation therein,

means for retaining the staff portion rotatably within the socket of the armpit support portion,

releasable anchor means for securing the staff in rotatably adjusted position in its socket,

a stirrup-like hand grip portion comprising

a mounting element mounted for axial and rotative adjustment on the staff portion,

a grip support element mounted on the mounting element and disposed at an acute angle to the longitudinal center line of the staff portion, and

a grip element mounted on the outer end of the grip support element and disposed perpendicular to, and in laterally offset relation to the staff portion, and anchor means for securing the hand grip support portion in rotatably and axially adjusted position on the staff portion.

2. A crutch as claimed in claim 1 wherein the staff portion comprises two lengths of tubing, one thereof being of a size to fit snugly but slidably within the other, and anchor means for locking the two lengths of tubing in telescopically adjusted relation to provide a staff having a desired length.

3. A crutch as claimed in claim 2 wherein one of the lengths of the tubing has a plurality of holes transversely therethrough, and the other length of tubing has at least one hole therethrough, positioned to register selectively with the holes in the first length of tubing upon relative, axial adjustment of the two lengths of tubing and the anchor means comprises, a pin of a size to fit into aligned holes in the two lengths of tubing to secure them in relative, axially adjusted position.

References Cited by the Examiner

UNITED STATES PATENTS

1,192,290	7/1916	Engstrom	135—50
2,116,730	5/1938	Menton	135—50
2,797,698	7/1957	Vander Molen	135—49
3,213,870	10/1965	Kiehn	135—49

HARRISON R. MOSELEY, *Primary Examiner.*

P. M. CAUN, *Assistant Examiner.*