A. E. WARRY.

CRUTCH APPLICABLE ALSO FOR USE AS A WALKING STICK OR ELBOW CRUTCH.

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1,400,394. Patented Dec. 13, 1921.

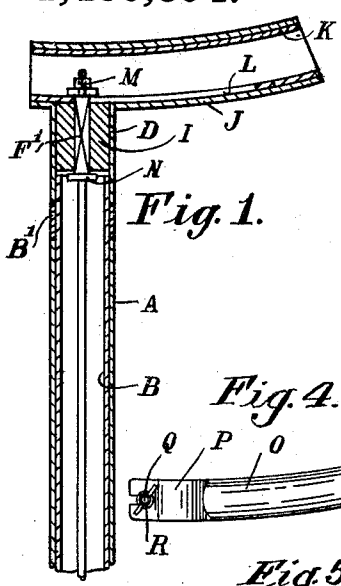


Fig. 1.

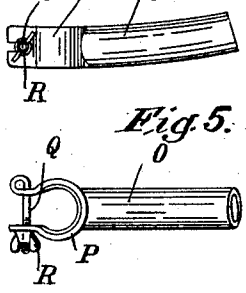


Fig. 4.

Fig. 5.

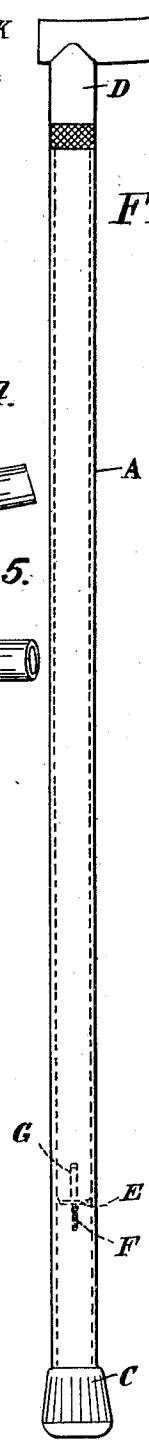


Fig. 3.

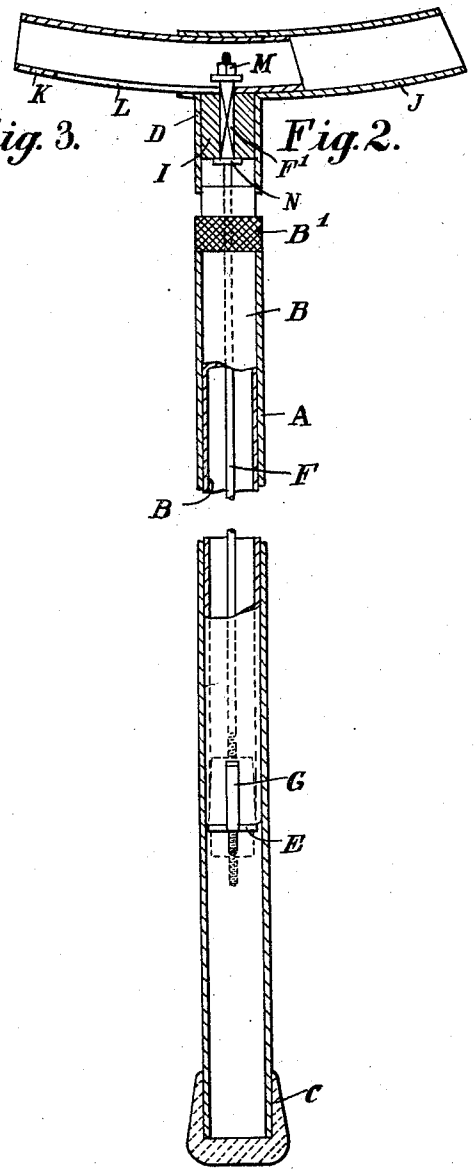


Fig. 2.

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UNITED STATES PATENT OFFICE.

ALBERT ERNEST WARRY, OF BIRKENHEAD, ENGLAND.

CRUTCH APPLICABLE ALSO FOR USE AS A WALKING-STICK OR ELBOW-CRUTCH.

1,400,394. Specification of Letters Patent. Patented Dec. 13, 1921.

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To all whom it may concern:

Be it known that I, ALBERT ERNEST WARRY, a subject of the King of Great Britain, residing at Birkenhead, in the county of Chester and Kingdom of England, have invented a certain new and useful Improved Crutch Applicable Also for Use as a Walking-Stick or Elbow-Crutch, of which the following is a specification.

This invention has for its object to provide an improved crutch for cripples and invalids which shall be convertible into a walking stick or elbow crutch.

The device in question comprises a crutch made of two or more tubular lengths or sections which are arranged to slip or telescope the one into the other, so that they can be extended for use as a crutch, or contracted so as to be suitable for use as a walking stick or elbow crutch. Furthermore the head of the device is arranged so as to be convertible into a crutch head or into a walking stick handle.

The invention will be understood from the following description reference being had to the accompanying drawings, in which:—

Figure 1 is a longitudinal section of the device showing the tubular lengths contracted for use as a walking stick,

Fig. 2 is a similar view showing the tubular lengths ready to be unlocked for extension as a crutch and the crutch head extended,

Fig. 3 is a side elevation of the device converted from a crutch into a walking stick.

And Figs. 4 and 5 are side and plan views respectively of a removable supplementary handle.

The tubular lengths or sections are by preference made of thin metal tubes, one of the tubes A being shod with a pad or ferrule C of rubber, leather, metal or other suitable material or with a spur to prevent slipping, and into this tube A is adapted to telescope another tube B of rather smaller diameter, the upper end of the said tube B having mounted thereon a head member D so arranged that it can be turned independently of the tube B. The inner tube B just below its upper end has an external collar B′ formed integral with it or attached thereto. This collar forms a stop or abutment which prevents the inner tube B being slipped or telescoped too far into the outer tube A. The said collar B′ may be milled as shown.

The tubular lengths or sections A B can be extended instantly to produce a crutch to the length required to suit the stature of the person using the crutch and then locked by a locking device, or by unlocking them they can be instantly contracted to produce a walking stick. Such locking device comprises a taper plug or cone member E of such size that it will wedge itself into the end of the smaller tube B (which end has longitudinal slits in it so as to render it expansible), and a rod F screw threaded at the lower end so that it can be screwed into an axially threaded hole in the said plug E. This rod F passes through the interior of the smaller tube B and its other end passes into the head member D of the device, the said end F′ being squared to fit a corresponding squared portion of the head member so that by turning the head member, the rod F will be turned also. The plug E is provided with feathers G at opposite sides which enter the longitudinal gaps or slits in the lower end of the inner tube B so as to prevent the said plug E from rotating. By turning the head member D in one direction, the plug E is drawn forcibly into the expansible end of the inner tube B as shown in Fig. 1, thus expanding the latter and causing it to bind against the bore of the outer tube A, thereby locking the tubular lengths or sections A, B in their extended or contracted position. By turning the head member D in the other direction, the screw raises the head member above the top of the outer tube A as shown in Fig. 2 and then by grasping the head member D in the hand and giving the device a sharp perpendicular tap on the ground, the plug E is forced out of contact with the said expansible end, so that the tubular lengths are unlocked.

The head member is formed of a sleeve D containing an internal bush I having an axial hole in it square in cross section through which passes the squared end F′ of the rod F. The said sleeve D whose bore is the some diameter as the outside of the inner tube B extends a little beyond the bush I so as to fit onto the inner tube B at the top above the collar B′.

The sleeve D has a laterally projecting tubular part J into which is adapted to tele-

scope another tube K of rather smaller diameter. These tubes when extended form a crutch head to support the person beneath the arm pit as shown in Fig. 2, or when contracted they form a walking stick handle as shown in Figs. 1 and 3. This laterally projecting tubular part J as well as its telescopic extension K can be suitably curved, and the said telescopic extension has a longitudinal slot L formed in it at the under side through which the upper end of the aforesaid rod F passes, the said rod (which has a head or a nut and washer M at the top) terminating inside the tubular telescopic extension K.

When the crutch is being used, the tubular lengths or sections A B are firmly locked together by the locking appliance aforesaid so that they cannot collapse, and the head M of the internal rod F binding against the inside of telescopic tubular extension K keeps the said extension extended so as to support the person beneath the arm pit.

When however the crutch is to be converted into a walking stick or elbow crutch, the head member is turned so that the screw thread at the end of the rod F causes such head member D to rise from the position shown in Fig. 1 to that shown in Fig. 2, and then by giving the crutch a sharp perpendicular tap on the ground the plug member is forced out of binding contact with the expansible end of the inner tube (by reason of the bush I abutting against the collar N on the rod F). This action also slackens the head M of the rod from binding contact with the inside of the telescopic tubular extension of the crutch head. The tubular lengths or sections can now be contracted to a length suitable to form a walking stick or elbow crutch that is to say with the collar B′ abutting against the top of the outer tube A, and the cruch head can also be contracted so as to form a walking stick handle or elbow. The head member D is then turned so as to again lock the parts in their locked position. To extend the tubular lengths into a crutch again, the head member D is turned into the position shown in Fig. 2 and the tapping operation is repeated so as to bring the collar B′ back against the top of the tube A, and then by holding the outer tube A in one hand, and pulling the milled head B′ with the other hand, the inner tube B is extended to form a crutch of the length required.

If desired the crutch may be provided with a supplementary handle O (Figs. 4 and 5) part way down so that when the crutch is being used, part of the weight of the user comes upon the handle, the crutch head carrying the remainder of the user's weight. This supplementary handle can be removed when the device is converted into a walking stick, and thus the invention provides a person who has had the misfortune to lose the use of a leg, with a device which he can use as an elbow crutch or walking stick, or which he can convert into a crutch wherein the direct upward pressure of the crutch head is on the armpits. To facilitate attachment and removal the supplementary handle O is provided with a springy sleeve P at one end to clasp the outer tube A, a swing bolt Q being hinged to one jaw of the sleeve so that it can be swung into an open ended slot in the other jaw, and then by tightening up the wing nut R the sleeve is clamped onto the outer tube A.

In thus describing my invention I would have it understood that I do not confine myself to the precise details described as these may be varied without departing from the nature of the invention herein set forth.

For instance the device may be made up of more than two tubular sections or lengths telescoping into one another.

I declare that what I claim is:—

1. A crutch comprising in combination two or more tubular lengths or sections which are arranged to slip or telescope the one into the other, so that they can be extended for use as a crutch, or contracted so as to be suitable for use as a walking stick, and a head member so arranged that it can be turned independently of the tube lengths for the purpose of locking the sections or unlocking them.

2. A crutch comprising in combination tubular lengths telescoping into one another, a head member so arranged that it can be turned independently of the tube lengths, an external collar just below the upper end of the inner tube forming a stop to prevent the inner tube being telescoped too far into the outer one, and a locking device operated by turning the head member for locking the telescoping sections in their extended or contracted positions.

3. A crutch comprising in combination a plurality of telescoping sections, the smaller inner tube section having its lower end expansible; a head member that can be turned independently of the tube sections; and a locking device operated by turning the head member for locking the telescoping sections, the said locking device comprising a taper plug or cone of such size that it will wedge itself into the expansible end of the smaller tube, an axially threaded hole in said plug, and a rod screw-threaded at the lower end so that it can be screwed into the said axially threaded hole in the plug, its other end being splined into a corresponding portion of the head member, so that the turning of the head member will either draw the plug forcibly into the expansible end of the inner tube, or enable the plug to be forced out of contact with the expansible end.

4. A crutch comprising in combination

tubular lengths adapted to telescope into one another, a head member turnable independently of the tubular lengths, locking means for locking the telescoping sections together operated by turning the head member, a laterally projecting tubular part on the said head member, and another tube adapted to telescope into the said projecting tubular part so as to be extensible to form a crutch head or contractible to form a walking stick handle.

5. A crutch comprising in combination tubular lengths adapted to telescope, a head member turnable independently of the tube lengths, a locking device for locking the telescoping sections together by turning the head member a laterally projecting tubular part on the said head member, a telescopic extension on the said tubular part, a longitudinal slot in the said telescopic extension, and a rod forming part of the locking device the upper end of which rod passes through the said slot and has a nut or head at the top for keeping the extension of the tubular head extended or contracted when the tubular lengths of the crutch are locked together by the locking device.

In witness whereof I have hereunto signed my name this 14th day of January, 1920, in the presence of two subscribing witnesses.

ALBERT ERNEST WARRY.

Witnesses:
JOHN MCLACHLAN,
H. STIRK.