D. R. N. TAYLOR AND D. MARKS.

CRUTCH.

APPLICATION FILED JUNE 2, 1920.

1,349,639. Patented Aug. 17, 1920.

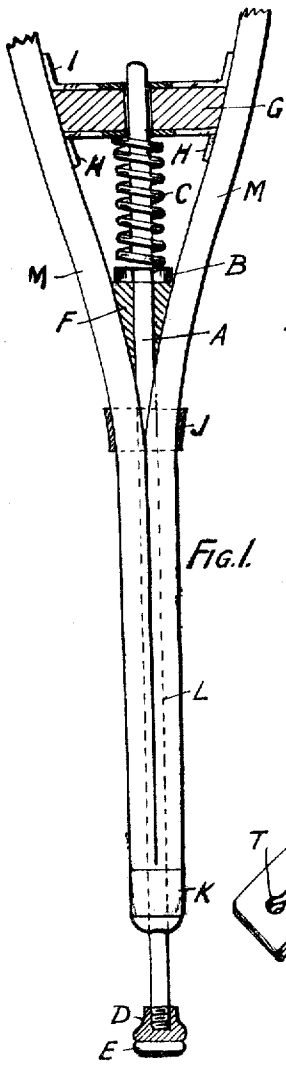


FIG. 1.

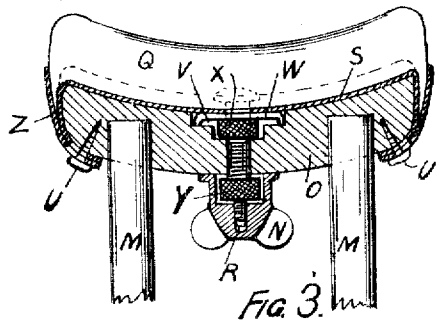


FIG. 3.

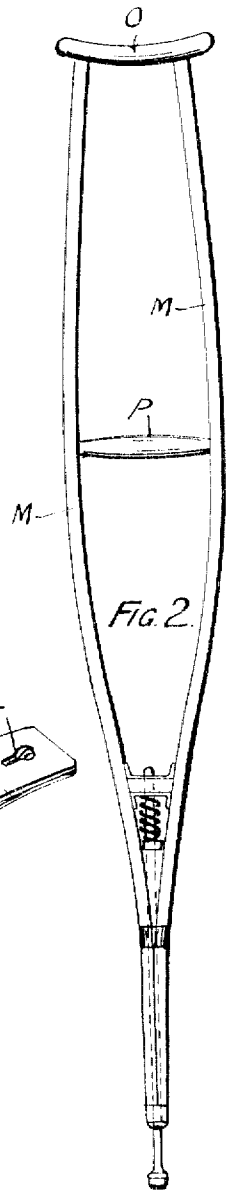


FIG. 2.

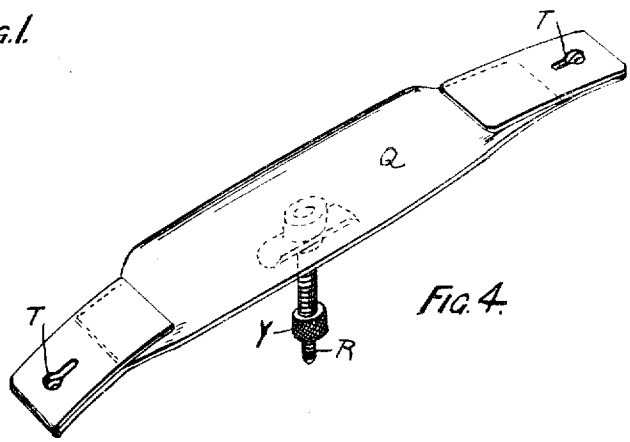


FIG. 4.

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DONALD ROBERT NAPIER TAYLOR, OF DRUMMOYNE, NEAR SYDNEY, AND DAVID MARKS, OF SYDNEY, NEW SOUTH WALES, AUSTRALIA.

CRUTCH.

1,349,639. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed June 2, 1920. Serial No. 386,091.

To all whom it may concern:

Be it known that we, DONALD ROBERT NAPIER TAYLOR and DAVID MARKS, subjects of the King of Great Britain and Ireland, and residing, respectively, at St. Kilda Bridge road, Drummoyne, near Sydney, New South Wales, Australia, and 380 George street, Sydney, aforesaid, have invented certain new and useful Improvements in and Relating to Crutches, of which the following is a specification.

This invention relates to crutches which are usuable as supports for lame or infirm persons in walking, and also to an air cushion attachment for the armpit cross piece at the head of the crutch providing an easy rest for the armpits of the person using the crutch.

Our crutch has been designed with the object of providing a crutch which is light in construction and fitted with resilient means which render it susceptible of use by a person with ease and comfort. The crutch comprises a pair of staff members, a hand grip, an armpit crosspiece, a metal rod which may be shod with a pad, a spring on said rod, abutments for the spring, and bearings for the rod. The spring is arranged to be capable of compression to relieve excessive pressure of the crutch on the armpits of a person using it. The armpit cross-piece of the crutch may be provided with a cushion consisting of a bag or pouch adapted to be inflated by air and to be readily attached to and detached from said cross-piece.

Referring to the accompanying drawings, Figure 1 is a broken sectional elevation of a crutch in accordance with our invention; Fig. 2 a front elevation thereof, Fig. 3 a sectional elevation illustrating the head of a crutch with air cushion thereon; and Fig. 4 a perspective view of the air cushion shown in Fig. 3.

With reference to Figs. 1 and 2, the staff members M of the crutch are preferably constructed of wood bent approximately to the shape shown in the drawings. Secured at the head of said staff members is the armpit cross-piece O, and between such members about their middle portions is the hand grip P. The upper sections of the staff members M are held apart by the hand grip P and the lower sections are grooved and secured together to form a recess L for the metal rod A. The bands or ferrules J and K serve to strengthen the crutch and to secure the lower sections of the staff members M together. A metal cap D capable of carrying a pad E of rubber or like substance may be screwed or otherwise mounted on the foot of the rod A.

One end of the rod A extends below the lower ends of the staff members M and its other end projects into the opening between the upper section of such members, and such end extends through a slot in the guide piece G. The latter may be affixed to the members M by the brackets H and I which are secured to such members and guide piece by screws or other preferred means. A wedge block F is positioned between the members M where they branch toward each other and this block serves as a bearing for the rod A and also as an abutment for the collar B thereon. Mounted on the rod A is the coiled spring C, its ends abutting respectively against the guide piece G and the collar B.

Referring to Figs. 3 and 4 which show an attachment for the armpit cross-piece of the crutch, such attachment consists of a bag or pouch Q which may be inflated by air, a valve by which it may be so inflated, and means for securing it to the head of the crutch. The bag or pouch may be made of rubber or similar substance or it may consist of a canvas cover inclosing an inflated rubber tube; it is fitted with a valve such as is used for admitting air to and retaining it in a pneumatic tire. Such valves usually consist of a casing which is threaded externally, a valve fitting said casing adapted to be connected to an air pump, means for securing it to a tire and the support for same, and means for keeping the valve locked against opening to prevent egress of air therethrough from the tire.

A strip of canvas S is attached by an adhesive or other means to the bottom of the bag or pouch Q and it may be made to extend longitudinally thereof and overlap its opposite ends. If, however, the bag consists of a canvas cover inclosing an inflatable tube of rubber the ends of such cover may be furnished with strips of canvas overlapping them. The overlapping ends of the canvas strips may be furnished with holes T for securing them to screws or the like U affixed to the armpit crosspiece O or to the staff members M and they may be reinforced by small pieces of canvas Z se-

cured to them and to the ends of the bag or pouch Q. The air admission valve is connected to the bag or pouch Q about its central portion, the cross-piece O being preferably recessed at V to receive the bent plate W and the pinching nut X attached to the casing of the valve. Said cross-piece is also holed to enable the valve stem and its casing to be threaded therethrough. On the outer end of the valve casing the nut Y for retaining the valve therein may be mounted. The thumbnut N which may be fitted to the stem R serves as a pinching nut for the valve as its inner end may be made to abut the intrados of the cross-piece O; it may be constructed to inclose the nut Y and to act as a cap for the open end of the stem R. It will be understood, however, that if the diameter of the hole in the cross-piece O is of sufficient size to receive the nut Y carried on the valve stem R the thumbnut need not be made to inclose the nut Y but may be screwed to the outer end of the stem R to act as a cap therefor and also as a pinching nut for the valve. A layer of canvas or other suitable material may be placed across the top of the cross-piece O to act as a backing for the bag or pouch Q.

The rod A is capable of sliding freely within the recess L. When the crutch is in use and pressure is exerted downwardly thereon the rod A may move upwardly in the recess L, and the pressure thereon will be borne by the spring C whose ends abut respectively the guide piece G and collar B.

What we claim as our invention and desire to secure by Letters Patent is:—

1. A crutch comprising a pair of downwardly converging staff members the lower portions of which are parallel and have their inner opposed faces grooved to form a recess, means for securing said staff members together, and a spring governed rod slidable in said recess.

2. A crutch comprising a pair of downwardly converging staff members the lower portions of which are parallel and have their inner opposed faces grooved to form a recess, means for holding the parallel parts of the staff members together, a cushioned arm support connecting the upper ends of said staff members, and a spring governed rod slidable in said recess.

3. A crutch comprising a pair of staff members grooved at their lower portions the latter being connected together to form a recess, an armpit cross-piece affixed to the head of said members, a hand grip secured between said members, and separating their upper portions, a rod fitting said recess carrying a compressible spring at the head thereof, a collar on said rod adapted to act as an abutment for one end of said spring, a guide piece for the upper end of said rod secured between said members above said spring and adapted to act as an abutment for the other end of said spring, and a block secured between said members and adapted to act as a bearing for said rod and an abutment for said collar.

4. A crutch comprising a pair of staff members having fitted thereto an armpit cross-piece and a hand grip, said staff members being connected together by ferrules and grooved at their lower portions to form a recess, a rod freely slidable within said recess and provided at its foot with a pad, a coiled spring mounted on the upper end of said rod, a collar on said rod acting as an abutment for one end of said spring, a pair of brackets secured to said staff members supporting between them a guide piece for said rod and arranged in such manner that one of said brackets will act as an abutment for the other end of said spring, and a wedge block secured between said staff members, and acting as an abutment for the lower face of said collar and as a bearing for said rod.

In testimony whereof we have affixed our signatures.

DONALD ROBERT NAPIER TAYLOR.
DAVID MARKS.