L. J. FINKLE.

CRUTCH.

APPLICATION FILED APR. 25, 1916.

1,197,727.

Patented Sept. 12, 1916.

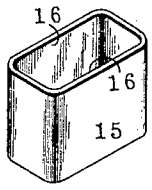


Fig. 5.

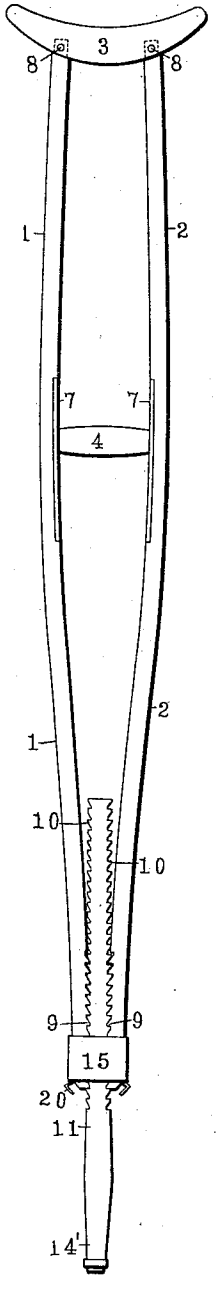


Fig. 1.

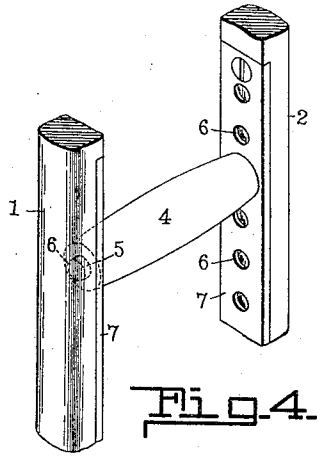
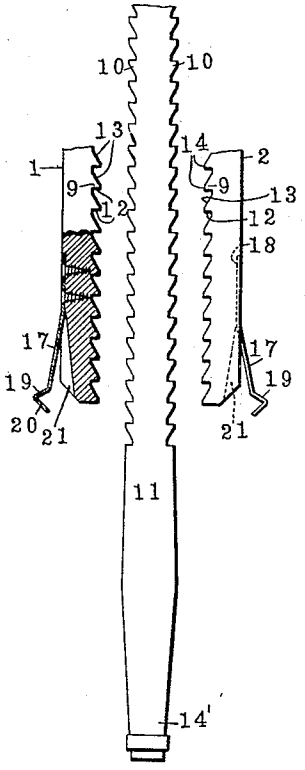


Fig. 4.

Fig. 2.



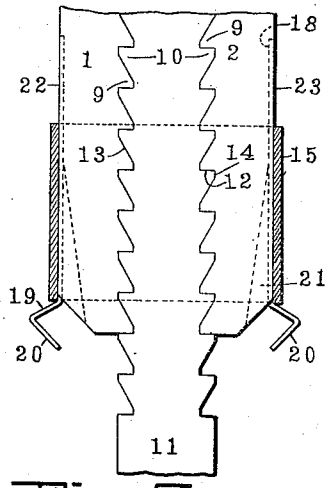


Fig. 3.

WITNESSES

C. F. Polk.

M. A. Meyer.

INVENTOR

L. J. Finkle

BY

Duell, Warfield & Duell

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEONARD J. FINKLE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO CHARLES L. LEONORI, OF NEW YORK, N. Y.

CRUTCH.

1,197,727. Specification of Letters Patent. Patented Sept. 12, 1916.

Application filed April 25, 1916. Serial No. 93,412.

To all whom it may concern:

Be it known that I, LEONARD J. FINKLE, a citizen of the United States, residing at New York city, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Crutches, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to crutches, and with respect to its more specific features to crutches which are adjustable in length and thereby adapted for use by persons of different sizes.

One of the objects of the invention is the provision of a practical adjustable crutch of simple and inexpensive construction.

Another object of the invention is the provision of an efficient crutch having a range of adjustment adapting it for persons of different sizes.

Another object of the invention is the provision of a practical adjustable crutch which shall be strong in construction and safe in use.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings forming part of this specification and wherein similar reference characters refer to similar parts throughout the several views, Figure 1 is a side elevation illustrating one embodiment of the invention; Fig. 2 is an enlarged detail view illustrating the connection between the leg and staff, the leg and staff being separated; Fig. 3 is a longitudinal vertical section through the clamp and showing the adjustable connection between the leg and the staff; Fig. 4 is a perspective view of one of the connections of the hand grip with the staff; and Fig. 5 is a perspective view of the clamp or strap.

The crutch may be constructed of any suitable material, as wood or light elastic metal, and in the present disclosure the staff is composed of ash or maple, and the leg of hickory. The support or staff is composed of a plurality or pair of branches 1 and 2 attached at their upper ends to a cross piece 3, the latter being adapted to serve as an armpit rest. Disposed intermediate the ends of the staff, longitudinally thereof, is a hand grip 4 having gudgeons 5 adapted to be seated in pairs of oppositely disposed recesses 6, a series of these recesses being provided in metallic face plates 7, fastened on the inner face of each branch. In this wise the hand grip may be disposed at the proper distance from the armpit rest to be readily taken hold of by the person using the crutch.

The branches 1 and 2 are movable toward and from each other, this movement being provided for either by the flexibility of the material of which the branches are composed, or by providing pivot pins 8 connecting the branches with the armpit rest 3, so as to permit the lower ends to have the movement referred to. Toward the lower ends, the inner face of each branch is provided with a series of teeth 9 interengageable with a series of teeth 10 on a leg 11, which latter is adapted to be moved longitudinally of the staff to increase or decrease the length of the crutch. In the present embodiment, a longitudinally disposed series of teeth on each branch is provided, these teeth being at the opposite end of the branches from the armpit rest, and, as illustrated, the teeth are made in the material of the branches, said material being provided with a series of stop shoulders 12 and inclining faces 13, the inclined face 13 being joined to the stop shoulder 12 by a face 14, so that the shoulders 12 do not engage the inclines 13 in a sharp edge, but sufficient material is provided therebetween to make a strong tooth. This particular construction of tooth is especially desirable where the material of the branches is of wood or a similar substance. When the branches are made of metal, or should a metal facing be provided at the toothed portion, the inclined faces 13 may be permitted to directly intersect the shoulders 12. In the embodiment illustrated the branches normally converge toward the lower end of the staff, and when the teeth thereof are in engagement with the leg, it is preferred that a plurality of the teeth of the branches shall engage a plurality of the teeth of the leg, and thus provide a large

area of material in engagement to effectively withstand the consequent upward as well as any lateral rotative strain when the crutch is in use. To effect this, the longitudinal faces of the branches on which the teeth are disposed are practically parallel to each other when the leg is clamped thereto. The end of each branch 1 and 2 provides a shoulder against which the shoulders of the teeth of the leg may bear. The leg 11 is provided on its opposite outer faces with a longitudinally disposed series of teeth similar to those of the branches, but oppositely disposed relative thereto, and when the branches are in their inner position, the teeth thereof will engage with the teeth of the leg to hold the latter in adjusted position. The leg terminates in a foot 14′ which may be shod with rubber or otherwise surfaced as exigency may require.

In order to secure the leg in adjusted position on the staff, a clamp is employed to hold the teeth of the staff in engagement with the teeth of the branches. In the present embodiment, the clamp is composed of a rigid strap 15, preferably of brass, adapted to closely surround the branches and leg, the opening in the strap being of a size to pass over the foot of the leg, thence into position around the branches and the leg disposed therebetween. This clamp may be moved or slid over the lower adjacent ends of the branches into and out of its position clamping the leg and branches, and it has opposite bearing faces 16, against which the outer faces of the leg may bear so as to brace the leg against movement transversely of the direction of movement of the branches.

In order to hold the clamp in a position retaining the leg and staff in adjustable position, latches are employed. Each branch of the staff is provided with one of the latches, and the same are conveniently provided by a light, flat metallic spring 17, of steel, secured in recesses 18 in the outer faces of the branches, and terminating in outwardly extending stop shoulders 19 against which the lower edge of the strap 15 may lie when in clamping position. The spring members 17 lie underneath the strap 15, and finger pieces 20 on the latches are provided for moving said latches so as to disengage the shoulders 19 from the edge of the strap to permit the latter to be drawn from clamping position, and over the leg. The grooves or recesses 18 in which the springs 17 are secured are deepened toward the lower end of the branches, as at 21, so as to provide for sufficient movement of the latches to permit the withdrawal of the strap. The outer faces 22 and 23 of the branches 1 and 2 preferably converge slightly toward the lower ends so that the strap 15 may take a firm frictional grip on these surfaces when in clamping position.

In setting the crutch for use, the leg is placed between the branches, and the teeth of these parts brought into engagement. The strap 15 is then threaded over the foot of the leg and over the latches, these latter being movable inwardly to permit its passage. Eventually the latches spring out and lie beneath the lower edge of the strap. The parts being separable, their manipulation for adjustment is easy, and broken parts may readily be replaced. Thus by the above described construction are accomplished, among others, the objects hereinbefore referred to.

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

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A crutch comprising, in combination, a staff and a leg, the leg adjustable longitudinally of said staff, said staff comprising a pair of branches movable toward and from each other opposite said leg, the opposite sides of said leg and each of said branches each having a longitudinal series of transversely extending teeth, a plurality of the teeth of each side of the leg being engageable with the teeth of the respective branches when the branches are in their inner position, and a clamping strap adapted to surround said branches and leg at the ends of said branches, said strap having opposite inner bearing faces adapted to brace said leg against movement transversely of the direction of the relative movement between said branches, and adapted to slide on and off the branches over the adjacent ends thereof.

2. A crutch comprising, in combination, a staff and a leg, the leg adjustable longitudinally of said staff, said staff comprising a pair of branches movable toward and from each other opposite said leg, the opposite sides of said leg and each of said branches each having a longitudinal series of transversely extending teeth, a plurality of the teeth of each side of the leg being engageable with a plurality of the teeth of the respective branches when the branches are in their inner position, a clamping strap adapt-

ed to surround said branches and leg at the ends of said branches, said strap having opposite inner bearing faces adapted to brace said leg against movement transversely of the direction of the relative movement between said branches, and spring latches secured to said branches and adapted to extend beneath said strap having shoulders against which the lower edges of said strap are adapted to bear to restrain longitudinal outward movement of said strap.

3. A crutch comprising, in combination, a staff including a pair of branches movable toward and from each other, a leg adjustable longitudinally of said staff between said branches, means adapted to hold said leg in an adjusted position relative to said staff comprising a strap slidable longitudinally of said staff into and out of holding position, and yieldable stops carried by said staff adapted to restrain movement of said strap off said staff when said strap is in holding position.

4. A crutch comprising in combination, a staff including a pair of grooved branches movable toward and from each other, a leg adjustable longitudinally of said staff between said branches, means adapted to hold said leg in an adjusted position relative to said staff comprising a strap slidable longitudinally of said staff into and out of holding position opposite said grooves, springs carried by said branches opposite said grooves, and stops on said springs adapted to restrain movement of said strap off said staff when said strap is in holding position.

In testimony whereof I affix my signature, in the presence of two witnesses.

LEONARD J. FINKLE.

Witnesses:
H. M. SEAMANS,
M. A. MEYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."