

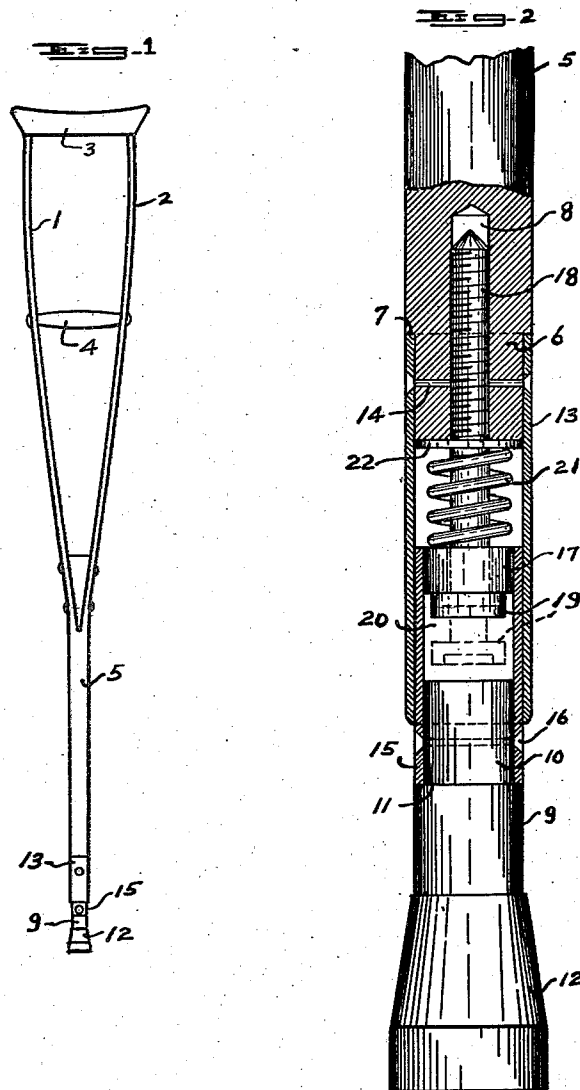
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CRUTCH

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CRUTCH

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This invention relates broadly to crutches, but more particularly to shock absorbers for crutches, and important objects and advantages of the invention are to provide a shock absorber of the character described, which embodies resilient means for reducing to a minimum all shocks and jars inevitably concomitant with the use of crutches on concrete pavements, floors, and analogous unyielding surfaces, and in consequence providing ease and comfort to the user; which may be readily installed to crutches of any type already constructed as well as form a component part of new crutch structures, which is simple in its construction and arrangement, durable and efficient in its use, compact, attractive in appearance, positive in its action, and comparatively economical in its manufacture, installation, and maintenance.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the novel construction, combination, and arrangement of parts herein specifically described and illustrated in the accompanying drawing, but it is to be understood that changes in the form, proportions and details of construction may be resorted to that come within the scope of the claims hereunto appended.

In the drawing wherein like numerals of reference designate corresponding parts throughout the several views:

Figure 1 is an elevational view of a crutch with a shock absorber constructed in accordance with the invention.

Figure 2 is a full-size elevational view, partly in cross section, of the shock absorber, and illustrating the connection of the latter with the crutch structure.

Referring in detail to the drawing 1 and 2 denote the side arms of the crutch, to the upper ends of which side arms the shoulder bar 3 is secured. The side arms, intermediate their ends, have secured therebetween a handle grip 4. The construction and assembly of the side arms, shoulder bar, and handle grip conform to the conventional type of crutch well known in the art to which the invention appertains.

The lower ends of the side arms 1 and 2 converge and combinedly merge to form a cylindrical shank 5. The lower end portion of the shank is of less diameter than its upper portion and thereby provides a reduced end portion 6 and a peripheral shoulder 7.

An aperture 8, open at the free end of the reduced end portion 6, extends longitudinally through the axial center of the latter, and con-

tinues a considerable distance into the shank 5 above the shoulder 7.

The improved shock absorber includes a bottom stem 9, which has a reduced end portion 10 at the upper end thereof providing a peripheral shoulder 11. A suitable cushioning member in the form of a conventional type of rubber cap ferrule 12 is secured to the lower end portion of the bottom stem 9 for the obvious purpose of mitigating shock and for preventing wear at the lower end of the bottom stem.

Mounted on and extending from the reduced end portion 6 of the shank 5 is an upper sleeve 13, which abuts against the peripheral shoulder 11. The upper sleeve 13 is rigidly secured to the shank 5 by a transversely extending rivet 14.

A lower sleeve 15 is fixedly secured to the reduced end portion 10 of the bottom stem 9 by means of a transversely extending rivet 16, and abuts against the peripheral shoulder 11 of said bottom stem. The lower sleeve 15 is inserted in the upper sleeve 13 and is telescopically shiftable in the latter.

An apertured holding disk 17 is fixedly secured, in any suitable manner, in the upper end of the lower sleeve 15. A screw bolt 18, extending through and being shiftable in the holding disk 17, is fixedly screwed into the aperture 8 in the shank 5. The head 19, of the screw bolt 18, is disposed in the lower sleeve 15 below the holding disk 17. Ample clearance 20 is provided between the holding disk 17 and the top of the bottom stem 9 to allow the necessary operating movements of the head 19 in said clearance, as shown in dot and dash lines in Figure 2.

It will be noted that the sleeves 13 and 15 are inseparately joined together in their telescopic inter-engagement by the extension of the screw bolt 18 through the holding disk 17, and by the engagement of the screw bolt in the shank 5, in the manner set forth. The extension of the screw bolt through the reduced end portion 6 of the shank and well into the latter, serves to reinforce said reduced end portion 6. The screw bolt is further secured in position in the shank 5 by means of the rivet 14, which latter extends transversely through the upper sleeve 13, through the reduced end portion 6, and through the screw bolt 18, whereby all of these elements are simultaneously secured in their assembled positions when the rivet 14 is secured in position.

A spiral spring 21 is mounted on the screw bolt 18 within the upper sleeve 13. The lower end of the spring seats upon the holding disk 17, and the upper end thereof abuts against a washer 22,

which is positioned against the lower end of the reduced end portion 6 of the shank 5. The normal action of the spring tends to forcibly project the lower sleeve 15 from the upper sleeve 13, and to tensionally hold said lower sleeve at its maximum extended position.

It will be apparent that when weight is imposed upon the improved crutch by the user, the lower sleeve 15 will be partially forced into the upper sleeve 13 against the resilient action of the spring 21, whereby shocks and jars are reduced to a minimum.

The present invention provides a most efficient device of its kind, which may be economically constructed, and successfully employed for the purposes and in the manner herein set forth.

What we claim is:

1. In a crutch structure, a shank, an upper sleeve connected with said shank, a bottom stem, a lower sleeve connected with said stem and being telescopically engaged in said upper sleeve, a screw bolt fixedly secured in said shank and depending into said sleeves, means for shiftably joining said bolt with said lower sleeve, and resilient means mounted on said bolt and being normally operable to forcibly project said lower sleeve from said upper sleeve.

2. In a crutch structure, a shank, an upper sleeve connected with said shank, a bottom stem, a lower sleeve connected with said stem and being telescopically engaged and shiftable in said upper sleeve, a screw bolt fixedly secured in said shank and depending into said sleeves, means for shiftably joining said bolt with said lower sleeve and for limiting the movement of the latter in said upper sleeve, and resilient means mounted on said bolt and being normally operable for forcibly projecting said lower sleeve from said upper sleeve.

3. In a crutch structure, a shank, an upper sleeve connected with said shank, a bottom stem, a lower sleeve connected with said stem and being telescopically engaged and shiftable in said upper sleeve, a screw bolt fixedly secured in said shank and depending into said sleeves, a hold-

ing disk secured in said lower sleeve and engaging said bolt for shiftably joining said lower sleeve in said upper sleeve, and resilient means mounted on said bolt and being normally operable for holding said lower sleeve in the extended position in said upper sleeve.

4. A crutch comprising a shank having a handle forming element projecting thereabove and further having a longitudinally disposed aperture in its lower portion, an upper sleeve secured to and depending from said shank, a bottom stem carrying a cushioning member at the lower end thereof, a lower sleeve secured to the upper end of said stem and being telescopically engaged and shiftable in said upper sleeve, a screw bolt engaged in said aperture and depending into said sleeves and including a head, a holding disk fixed in the upper end of said lower sleeve, said bolt being shiftably extended through said disk with the head thereof being disposed below said disk to connect said lower sleeve in said upper sleeve and to limit the longitudinal movement of said lower sleeve in said upper sleeve, means extending transversely through said upper sleeve and through said shank and through said bolt for securing said blank in said upper sleeve and for fixedly securing said bolt in said shank, and a spiral spring mounted on said bolt and being disposed between said disk and the lower end of said shank, the normal action of said spring tending to force said lower sleeve from said upper sleeve and to hold said lower sleeve in the extended position in said upper sleeve.

5. In a crutch structure, a shank, an upper sleeve connected with said shank, a lower sleeve telescopically engaged in said upper sleeve, a screw bolt fixedly secured in said shank and depending into said sleeves, means for shiftably joining said bolt with said lower sleeve, and resilient means mounted on said bolt and being normally operable to forcibly project said lower sleeve from said upper sleeve.

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