EXTENSIBLE SIDE BRACE FOR STEPLADDERS

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The present invention relates to improvements in side braces for step ladders, and its particular object is to provide side braces for step ladders that may be used for preventing the step ladder from toppling over sidewise.

It is proposed in this connection to provide side braces that are removably attached to the sides of the ladder, that are extensible, simple in construction and that may be easily applied at the time the step ladder is put up.

It is further proposed to provide extensible side braces embodying certain structural features particularly adapted for the purpose desired, and including in its general features two sliding bars held in intimate relation with one another by means of guiding elements and that are, furthermore, provided with easily manipulated means for adjusting the lengths of the braces.

Further objects and advantages of my device will appear as the specification proceeds.

The preferred form of my invention is illustrated in the accompanying drawing, in which—

Figure 1 shows a step ladder with my braces attached thereto in perspective view.

Figure 2 is a longitudinal section through one of my side braces.

Figure 3 is a transverse section taken along line 3—3 of Figure 2.

Figure 4 is a transverse section taken along line 4—4 of Figure 2.

Figure 5 is a detail view of a hook and its supporting plate and

Figure 6 is a fragmentary detail view of a modified form for removably securing the side braces to the sides of the ladder.

While I have shown only the preferred form of the invention, I wish to have it understood that various changes or modifications may be made within the scope of the claim hereto attached without departing from the spirit of the invention.

In Figure 1 is shown a conventional form of step ladder comprising in its general features a ladder including two spaced upright members 2 with spaced steps 3 arranged between the same and a bracing frame 4 pivoted to the top of the ladder in a manner well known in the art allowing the ladder to be arranged at different angles.

My invention has particular reference to means for bracing the sides of the ladder so as to prevent the same from falling over sidewise. My side braces 6 are made of two bars 7 and 8, the former being preferably grooved for which purpose the conventional form of bar known as angle iron may be used, while the bar 8 is preferably provided with a longitudinal web 9 so as to resemble in shape a T-bar, the web 9 being adapted to ride in the groove of the bar 7. The T-bar has secured to one end thereof a guiding element 11 terminating in two arms 12 adapted to embrace the grooved bar 7 for maintaining the two bars in sliding engagement, in the manner shown in Figure 3. The grooved bar 7 also has a guiding element 13 secured to the outside thereof, this guiding element being carried around the T-bar as shown at 14 so as to hold the two bars in sliding engagement at a different place as shown in Figure 4. In this manner the two bars are firmly held in sliding engagement.

That section of the guiding element 13 which lies against the outer face of the T-bar as shown at 14, is provided with means for adjustably fixing the position of one bar relative to the other, this means comprising a lever 16 pivoted, as shown at 18, to two projections 17 rising from the guiding element 13, and terminating at one end in a pin 19 adapted to extend through a perforation 21 in the section 14 of the guiding element into one of a plurality of recesses 22 provided in the back of the T-bar, a spring 23 engaging the free end of the lever tending to force the pin into one of the recesses. To disengage the pin 19 from the recess, it is only necessary to depress the free end of the lever against the opposition of the spring.

To secure the side braces to the sides of the ladder, various forms may be selected. One of these is shown in Figure 1, from which it appears that a hook 24 extends from a plate 26 secured to the side of each upright member of the ladder, the hook being bent to allow the side brace to be engaged therewith by slipping the perforated end of the side brace over the hook with a tilting motion, the particular form of the hook preventing disengagement after the tilting motion is completed.

Another form for effecting disengagement is shown in Figure 6. The top member of the extensible ladder in this form terminates in a hook 27 which is formed for introduction into a perforation 28 in the
side of the ladder by lifting the side brace into a substantially horizontal position and tilting the far end of the same downwardly, this hook also being formed to prevent disengagement after the tilting motion is completed except by a reversal of the tilting motion.

After my side brace has been applied, the same may be held in place by means of a flexible member 29 connecting a handle 31 on the side brace with eyelets 32 on the sides of the ladder and the rear brace for the same.

The manner of using my device will be readily understood from the foregoing description. After the ladder has been set up, each side brace is engaged with the top of the ladder in the manner previously described, whereupon the length of the side brace may be adjusted by manipulating the lever 16. After the proper length has been obtained so that the foot of the brace rests on the ground surface, the flexible member 29 may be secured in place which prevents reversal of the tilting motion by means of which engagement was effected and thereby prevents the side braces from losing their hold on the ladder.

It will be seen that my side braces, due to the individual extensibility of either of them, is particularly well adapted for bracing the ladder on uneven ground, since each of the braces may be extended or shortened to suit the contour lines of the ground surface.

I claim:

1. In a stepladder, a lateral bracing element comprising an angle bar the upper end of which is adapted to be secured to the upper part of the stepladder, a T-bar slidably connected to said angle bar with the leg of the T-bar at the apex of the grooved side of the angle bar, a guiding element secured to said angle bar and slidable on the outer surface of the top portion of said T-bar and means for adjustably locking said T-bar to said angle bar, said means comprising an L-shaped lever pivoted on projections of said guiding element and adapted to pass through the latter and enter any one of a series of recesses formed in the top portion of said T-bar and a spring for normally keeping said L-shaped lever in engagement with one of said recesses.

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