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LADDER ATTACHMENT

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Fig. 1.

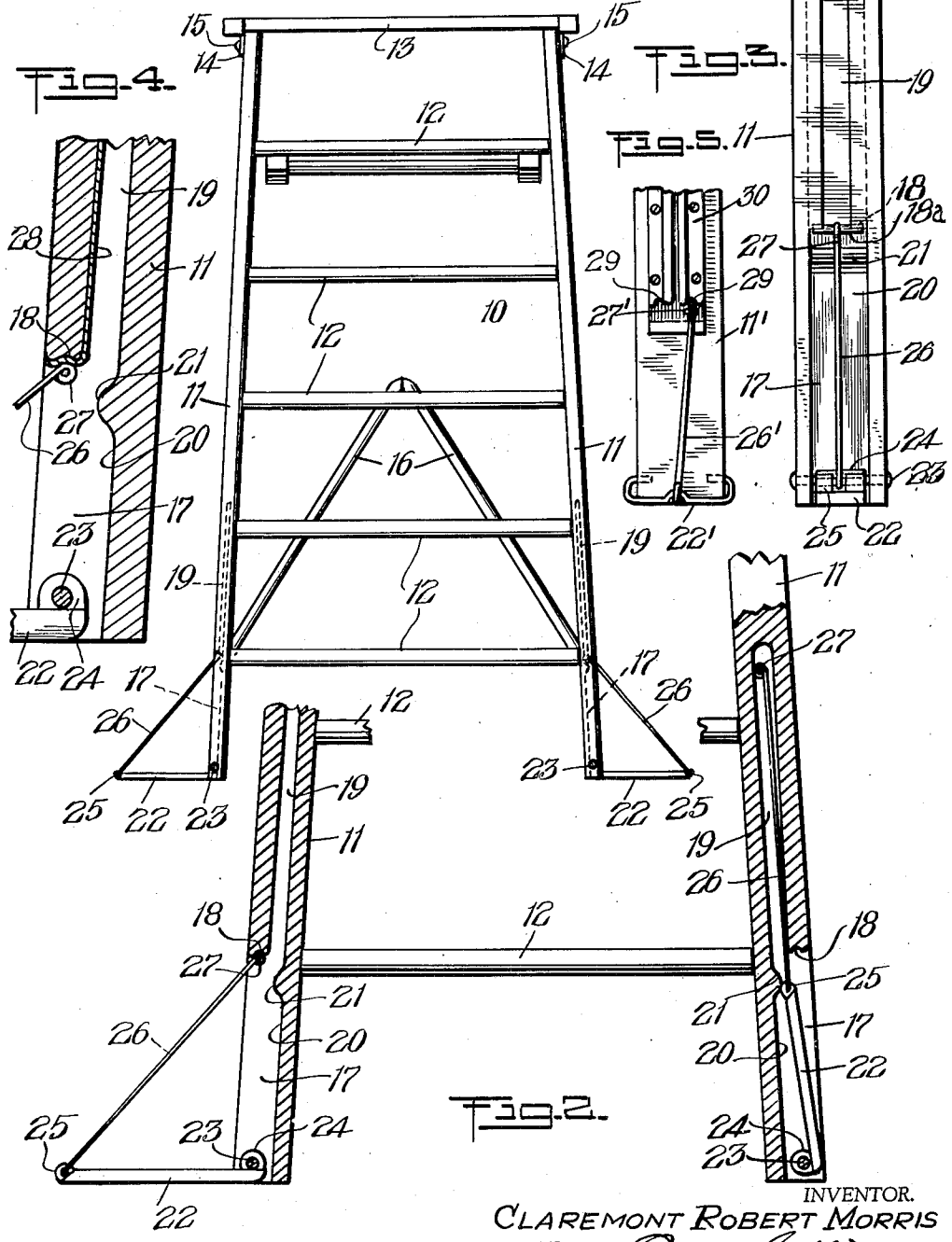


Fig. 4.

Fig. 5.

Fig. 3.

Fig. 2.

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LADDER ATTACHMENT

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4 Claims. (Cl. 228—61)

This invention relates to improvements in ladder attachments, and more particularly to a non-tiltable attachment for ladders.

Objects

Among the principal objects which the present invention has in view are: to provide a ladder or the like with means whereby the ladder will be prevented from tilting while in use; to provide means to prevent tilting of a ladder in a lateral direction; to be enabled to provide attachments to two or more rails of the ladder or the like; to be enabled to enclose the attachment entirely within the rails of the ladder; to provide an attachment of sturdy construction and to reinforce the ladder where the attachment is pivoted thereto; to secure simplicity of construction, operation and at a minimum of cost to manufacture; and to obtain other advantages and results as may be brought out in the following description.

Drawing

Figure 1 is an elevation of a ladder or the like embodying my invention;

Figure 2 is a similar view on an enlarged scale and showing the lower ends of the ladder broken away;

Figure 3 is a fragmentary side elevation of the lower end of the ladder showing one of the attachments;

Figure 4 is a further enlarged sectional view similar to Figure 2 and showing a modified construction; and

Figure 5 is a view similar to Figure 3 and showing a still further modified construction.

Description

As seen in the drawing, the several figures are illustrative of a ladder or the like 10 for general use in homes, office buildings, outside work and for other uses and purposes as is well known in the art. The ladder as illustrated in construction may be provided with the usual side legs or rails 11, 11 of which the standard type of ladder has four such legs or rails, with two at the front and two at the rear. For purposes of the present description there is shown only the front legs or rails, though it is well within the scope of the invention that its adaptability may well be utilized in the rear legs or rails. A description of only one leg or rail 11 to which the invention applies will suffice for both front legs or rails. In passing it may be said the present invention is more especially directed to prevent the ladder from tilting in a lateral direction when in use as happens in many cases when a person on the ladder overreaches. Also, it may here be stated that when a ladder having my improved attachment is in use against a wall, it will only be necessary to employ the attachment farthest from the wall and the attachment nearest the wall may very conveniently be entirely enclosed within the rail and thereby eliminate any obstructions on that side of the ladder next the wall.

In carrying out the invention the ladder 10 may be provided with steps 12, a top step or platform 13 affixed to the rails 11, 11 by brackets 14 on its under side, with a rear prop or leg structure (not shown) individually hinged to the top step or platform brackets 14 as at 15 and connected by crossed, diagonal braces 16.

An important feature of the present invention is in the construction of the legs or rails 11 at their lower ends. As seen more clearly in Figures 2 to 4 inclusive, the rails preferably may be provided with longitudinal cut-out portions or rectangular openings 17 extending upwardly a distance approximately to the lowermost step 12 of the ladder. These said openings preferably face outwardly from the rails as will be fully understood from the following description. At the termination of the rectangular opening 17 the rail at its lower edge is rounded to provide an upwardly extending shoulder or pocket 18 substantially the width of the said opening 17. Internally of the rail and extending upwardly beyond the opening 17 is a groove 19 which actually is a continuation of the aforementioned rectangular opening 17 and preferably extending slightly beyond the second lowermost step 12 of the ladder. The inner wall of the said openings 17 and 19 preferably is in a plane with the rail and in parallel relationship with the outer walls of the rail. However, it may be desirable to provide the said inner wall 20 with a slight protuberance 21 slightly below the lowermost step and facing outwardly to the open portion of the rectangular opening 17 and in a direction diagonally opposite to the shoulder or pocket 18. For clarity and for purposes of description the openings 17 and 19 will hereinafter be referred to as the housing within the rails 17.

When desiring to use the ladder 10 and in order that it will not tilt in either lateral direction when in use, I have found it desirable to employ suitable means which will extend laterally outward from the housing of the rails to engage the ground or floor in the same plane as the bottom of the said rails. In this connection such means may conveniently be in the form of blocks

or metal plates 22 of a width substantially that of the rectangular opening 17. Mounting of the said block or plate 22 to the rail preferably may be done adjacent the bottom of said rail and centrally thereof. Means for hingedly securing said block or plate may conveniently be done as by a bolt 23 which extends laterally through the outer walls of the rails 11 and passing through an upraised boss 24 at the inner end of said plate. By virtue of this said bolt the block or plate is free to swing in either an outwardly direction away from the rail when desiring to use the ladder or inwardly towards the rail and thereby be housed within the housing with the outer edge of the plate snugly engaging the protuberance 21 of the wall 20. The said bolt likewise will reinforce the structure of the rails at the bottom thereof as it extends all the way through the thickness of the material of said rail.

To facilitate movement of the plate 22 into and out of the housing of the rail 11, there is provided at the outer end of the plate and approximately midway of the width thereof an upwardly and angularly disposed lug 25 having an opening therein. Secured to said lug in any suitable or convenient method is a rod 26 preferably of a length somewhat greater than the longitudinal length of the block or plate 22. The end opposite to the end attached to the block or plate preferably may be turned inwardly or curved to provide a knob 27 so as to give the rod at its end where not attached a T-head 18a, for engaging the shoulder or pocket 18 of the rail 11 when the plate 22 is fully extended and when the ladder is in use, as clearly shown in Figure 1, the left hand side of Figure 2 and in Figures 3 and 4. By virtue of the knob 27 at the end of the rod 26 engaging or resting in the pocket 18 the plate 22 will at all times remain in flatwise position regardless of any pressure exerted by a person standing on the ladder.

In Figure 4 the construction is similar to that shown and described with respect to Figures 1 to 3 inclusive and like reference numerals may be applied to this figure. A slight modification in the construction of this figure may be that a thin metal lining 28 may easily be made secure to the interior wall of the groove 19 and made to fit the shoulder or pocket 18 of the rail 11. By virtue of said metal lining the knob 27 of the rod 26 will not, after considerable use, cause the material of the pocket to be destroyed and at the same time will reinforce the rail. In passing it may here be said the metal lining also can be utilized in the construction set forth in Figures 1 to 3 inclusive.

In operation and when not desiring to use the ladder, the attachment for convenience may at all times be hidden from view and thereby prevent any protrusion from the rails as the blocks or plates 22 are enclosed within the housing with the rod 26 extending upwardly in the groove 19, this is clearly shown in the right hand side of Figure 2. When desiring to use the ladder and to deter it from tilting, the plate 22 is swung downwardly outward. Only slight pulling pressure need be applied for releasing the plate from the housing as the rod will then slide downwardly in the groove until the plate is fully extended whereupon the knob 27 may then be placed within the pocket 18. To release the locking position of the rod and for inserting the plate within the housing only slight downward and sidewise pressure need be applied on the rod to release it from its engaging position in the pocket, and when thus disengaged the plate may then be raised until the rod is slid upwardly all the way in the groove and the lug 18 snugly engages the protuberance 21 of the wall 20.

In some circumstances and for purposes of retaining the original construction of the ladder, and for enforcing rigid economy in the application of the invention to the ladder it may be desirable to impart a slightly modified construction to the ladder. In this connection, and referring now to Figure 5, the attachment may be in the form of a U-shaped wire extending outwardly in a lateral direction from the rail 11'. Said U-shaped wire preferably may be the pivotal attachment 22' which in use will engage the floor or ground in a lateral direction away from the rails of the ladder and accordingly will prevent the ladder from tilting laterally away from its upright position. The free ends of the U-shaped wire preferably may be bent inwardly and embedded within the side walls of the rail. In such condition the attachment may be free to extend outwardly from the rail and when not in use may be swung upwardly to engage the side of the rail. As in the preferred showing of Figures 1 to 4 inclusive, the attachment 22' may be held in laterally extended position by a diagonally disposed rod 26' suitably attached to the forward part of the said attachment. The end opposite to the end attached to the attachment preferably may be turned inwardly or curved to provide a vertical and lateral shaped head or knob 27' utilized to engage an undercut depression 29 of a longitudinal slotted bracket 30 conveniently attached to the outside wall of the rail 11'. When the attachment is not in use, the rod 26' with its head may be disengaged from the undercut depression 29 with the lateral portion of the head alined to ride upwardly within the slot of the said bracket 30. By this construction it will be noted the attachment 22', the rod 26' and bracket 30 are all entirely separate parts of the ladder construction and may easily be applied to the rails without changing the contour or construction of the said rails.

Obviously detail changes and other modifications may be made in the construction and use of my improved attachments for ladders without departing from the spirit or scope of the invention, and I do not wish to be understood as limiting myself to the exact construction and operation shown and described.

I claim:

1. An attachment for ladders of the class described comprising a pivoted foot or plate adapted to be disposed in one position longitudinally of the side rail of the ladder and in its holding position projecting laterally from said side rail, a bracing rod pivoted at its lower end to the outer end of said foot and movable at its upper end longitudinally with respect to the said rail, said rail being provided with a longitudinal groove for the upper end of said rod and providing a pocket adjacent the bottom of said groove for receiving the said upper end of the rod and thereby brace the foot.

2. An attachment for ladders of the class described comprising a pivoted foot or plate adapted to be disposed in one position longitudinally of the side rail of the ladder and in its holding position projecting laterally from said side rail, a bracing rod pivoted at its lower end to the outer end of said foot and movable at its upper end longitudinally with respect to the said rail, said rail having a groove formed therein longitudinal-

ly thereof for admission and movement of said rod, said rail also providing a pocket adjacent the bottom of said groove for receiving the upper end of the rod and thereby brace the foot in its lateral position.

3. An attachment for ladders in accordance with claim 1, wherein said rod is slidable into said groove and situated therein substantially in its entirety when disposing said foot longitudinally of the side rail.

4. An attachment for ladders in accordance with claim 1, wherein a means is applied to the side face of the side rail of the ladder and providing the said longitudinal groove as part of said means.

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