

Jan. 27, 1959

R. H. LUNDGREN
LADDER ATTACHMENT

2,870,948

Filed April 27, 1955

2 Sheets-Sheet 1

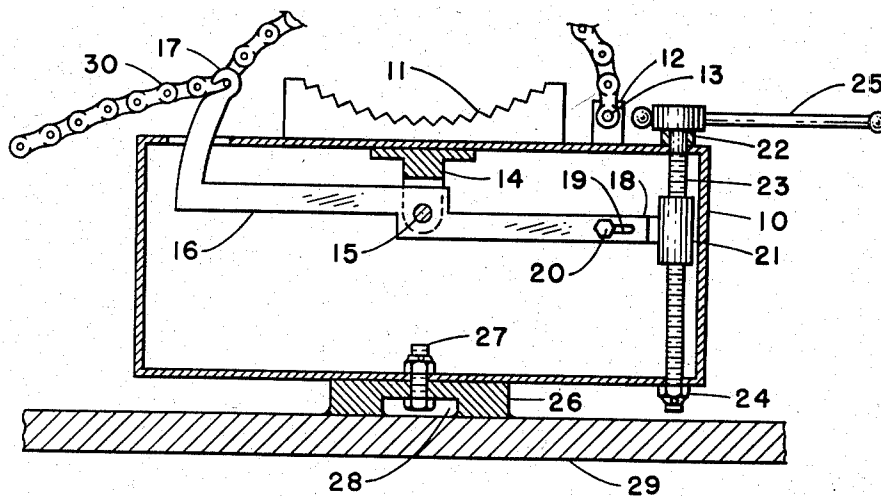


FIG. 1

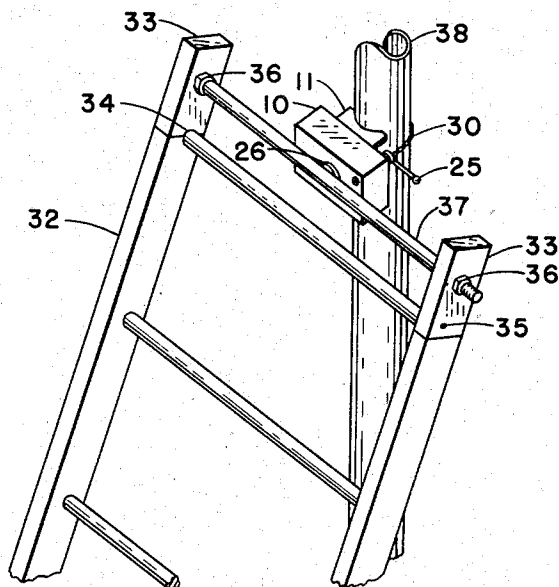


FIG. 2

INVENTOR.
ROBERT H. LUNDGREN
BY
Floyd Trimble
ATTORNEY

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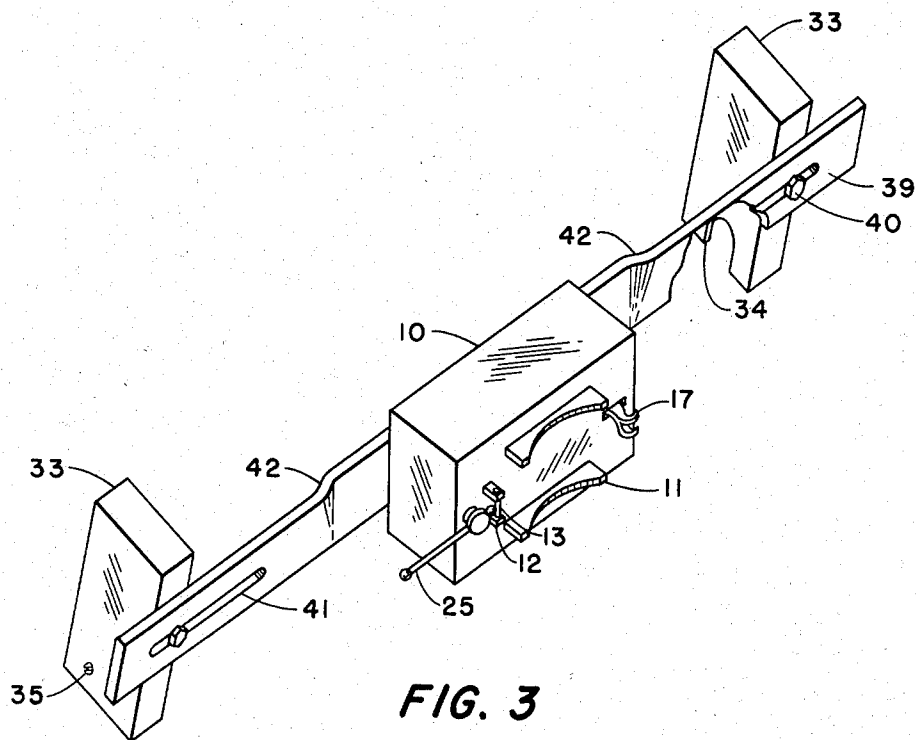


FIG. 3

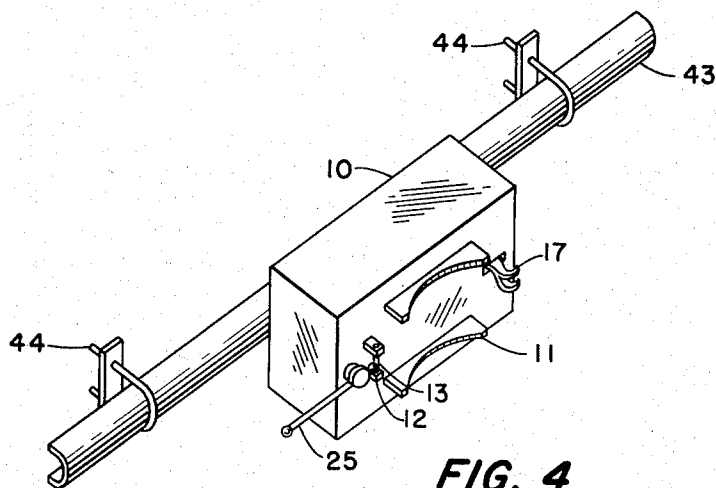


FIG. 4

INVENTOR.
ROBERT H. LUNDGREN
BY
Floyd Trimble
ATTORNEY

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LADDER ATTACHMENT

Robert H. Lundgren, Lake Charles, La.

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1 Claim. (Cl. 228—60)

This invention is concerned with an improved ladder attachment for permitting stabilization of a ladder by its connection to an elongated object and is more particularly directed to a ladder which may be utilized to secure the upper end of the ladder to any elongated object irrespective of its angle of departure from the vertical.

In most situations where a long ladder is employed, the safety of the person on the ladder demands that several people hold the base of the ladder to stabilize it. This waste of manpower is avoided, to some extent, when the man working on the ladder uses a rope to secure the top end of the ladder to some elongated object, such as a pole or pipe. However, when this is done it is still necessary for men to stabilize the lower end of the ladder for some time while the man working above secures it, and similarly, valuable time is lost when the top of the ladder is unfastened and resecured every time the ladder is moved.

It is, therefore, the principal object of this invention to provide an attachment for ladders which will make them more stable and, therefore, more safe.

It is a more particular object of this invention to provide a ladder attachment whereby the top of the ladder may be secured quickly to any elongated object.

It is a further object of this invention to provide a device of the type described which may be easily attached to any ladder regardless of its dimensions.

It is a further object of this invention to provide an attachment as described which may be secured to any elongated object against which the top of the ladder rests, regardless of the angle at which the elongated object and the ladder intersect.

Other objects and advantages of the present invention will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then comprises the features hereinafter fully described and particularly pointed out in the claim, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawings:

Fig. 1 is a cross-sectional view of a suitable chain pipe vise mounted for use as my invention;

Fig. 2 is a perspective view of one form of my invention employed in securing a ladder to a pole;

Fig. 3 is a perspective view of an alternative form of my invention; and

Fig. 4 is a perspective view of the preferred form of my invention.

Broadly stated my invention comprises a ladder attachment comprising in combination: a supporting member adapted to be removably secured to a ladder adjacent one end thereof and extending between the side rails of the ladder and a chain pipe vise mounted on said supporting member intermediate of said side rails.

With reference now to Fig. 1, 10 designates a chain

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pipe vise frame which may be in the shape of either a hollow disc or preferably a rectangular or oblong receptacle. Mounted on the top side of the frame 10 are two jaws 11 and a pair of lugs 12 as more clearly illustrated in Fig. 4. Extending between the lugs 12 and secured thereto is a pin 13 perpendicular to the jaws 11. On the inside of the top of the frame 10 are two lugs 14 with a pin 15 extending between and secured to them. Pivotaly mounted on the pin 15 is an arm 16. The arm 16 is bent to extend upward through a port in the frame 10, and its end 17 which protrudes above the frame 10 is bent into the shape of a double hook for grasping the chain. The other end 18 of the arm 16 contains an elongated slot 19, as illustrated, through which extends a bolt 20 which pivotally secures the arm 16 to a member 21. Extending from the top of the frame 10 is a short rod 22 through which, and the frame 10 below it, is drilled a hole. A threaded shaft 23 extends through the holes in the rod 22 and the top of frame 10 and the corresponding hole in the bottom of frame 10. The top portion of shaft 23 is enlarged through which is bored a hole at right angles to the axis of the shaft. A lever 25 of the type used in a machinist's vise extends through this hole. Obviously other types of levers could be used such as a pivotally mounted lever. As another alternative this enlarged portion could be square shape in which case it could be turned by means of an ordinary wrench. The lower portion of shaft 23 is secured to the frame 10 by means of the locknut 24. The member 21 is internally threaded to receive the threaded shaft 23. The bottom of the frame 10 is rotatably secured to a disc 26 by a bolt 27. The head of the bolt 27 which is outside the frame 10, is contained in a recess 28 in the disc 26. The side of the disc 26 remote from the frame 10 is welded to a member 29. The end link of a chain 30 is secured to the pin 13.

In the form of my invention illustrated in Fig. 2, 32 designates a conventional ladder, to the top of which are attached two extensions 33. The extensions 33 are hollow shells which slide over the ends of side rails of the ladder and are provided with grooves 34 which permit the extensions 33 to slide down the side rails beyond the top rung of the ladder. A hole 35 is provided through the base of each of the extensions 33 so that the extensions 33 may be secured to the ladder 32 by screws. Extending between the extensions 33, and secured thereto by nuts 36, is a metal rod 37 which corresponds to the member 29 in Fig. 1. When the ladder 32 is erected against a pole 38, the jaws 11 of the chain pipe vise rest against the pole 38, and the chain 31 is wrapped around the pole 38 and secured to the hook 17 as illustrated in Fig. 1. The lever 25 is then turned so that the member 21 is raised on the shaft 23. As the member 21 is raised, the arm 16 is pivoted about the pin 15 so that the hook 17 is pulled down, tightening the chain 30 around the pole 38. The pipe vise is so maintained, securing the ladder to the pole until it is desirable to move the ladder when the wrench 25 is rotated to lower the member 21 and loosen the chain 30.

In the form of my invention, illustrated in Fig. 3, the extensions 33 are employed in the same way they were in the form of Fig. 2. Here, however, a rectangular metal bar 39 is bolted to the extensions 33 by bolts 40 which pass through slots 41 in the bar 39. The frame 10 of the chain pipe vise illustrated in Fig. 1 is bolted directly to the bar 39. The disc 26 shown in Fig. 1 may be employed for further strength if it is desirable to weld the bar 39 to the disc 26. Because it is desirable to have both the jaws 11 in contact with the pole 38, the bar 39 is given a slight bend at 42 to allow for the average inclination at which the ladder is placed against the pole. The chain pipe vise in this form of my invention is secured to the pole in the same way as it was in the form

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illustrated in Fig. 2. This form of my invention may also be used without the extensions 33. If the extensions 33 were not employed, the bar 39 would be bolted directly to the side of the ladder.

The form of my invention illustrated in Fig. 4 comprises the chain pipe vise of Fig. 1 and a section of pipe 43 cut axially. The convex side of the pipe section 43 is welded to the disc 26 of the pipe vise in Fig. 1 and corresponds to the member 29. The concave side of the pipe section is held against the top rung of the ladder and secured thereto by two U bolts 44. Preferably, the concave side of the pipe section 43, while being fabricated, is machined with criss-cross grooves so that it will better grip the rung of the ladder. This form of my invention is adapted to be secured to a pole or pipe just as are the forms described above.

All the forms of my invention are adapted to be secured to any pipe which passes the end of the ladder in the plane of the pipe vise, since the pipe vise can be rotated about the bolt 27. Furthermore, the forms illustrated in Figs. 2 and 4 are adapted to be secured to any pipe which passes the end of the ladder because the rod 37 in Fig. 2 may be rotated in the holes in the extensions 33, and the form illustrated in Fig. 4 may be rotated about the ladder rung to which it is secured.

My invention provides a new attachment whereby the top of a ladder may be secured to any elongated object against which the ladder is placed. The only limit governing the maximum size of the elongated object to which the attachment can be secured is the length of the chain on the chain pipe vise. By using a long enough chain, my invention may be employed to secure a ladder to any object.

When my invention is made out of a light metal, it may be employed on any ladder without appreciably increasing its weight. My invention is simple to use and will very rapidly secure a ladder to a pole, pipe, or the like.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the feature stated in the following claim or the equivalent of such be employed.

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I, therefore, particularly point out and distinctly claim as my invention:

An attachment for securing one end of a ladder to a post or the like, comprising a hollow housing having one side thereof pivotally secured to one end of the ladder for motion about a first axis parallel to the rungs of said ladder and for rotation about an axis perpendicular to said first axis, a serrated jaw secured on the opposite side of the housing and shaped to engage one side of the post, a chain having one end pivotally secured to said opposite side of the housing adjacent one end of the jaw and being of a length to encircle the post, a lever pivotally secured in the housing to move in a plane parallel with the jaw, one end of said lever being bent to extend out through an opening in said opposite side of the housing adjacent the end of the jaw opposite the first-mentioned end and having hooks formed thereon outwardly of the housing to engage the chain when the chain encircles the post, an internally threaded member pivotally secured to the opposite end of said lever within the housing, and a threaded shaft rotatably secured in the housing in a fixed longitudinal position at a right angle to said lever and jaw and extending through said member in threaded engagement with said member, only one end of said shaft being extended through one side of the housing and being shaped to facilitate turning of said shaft, whereby said member is moved along said shaft to pivot said lever and tighten the chain.

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