

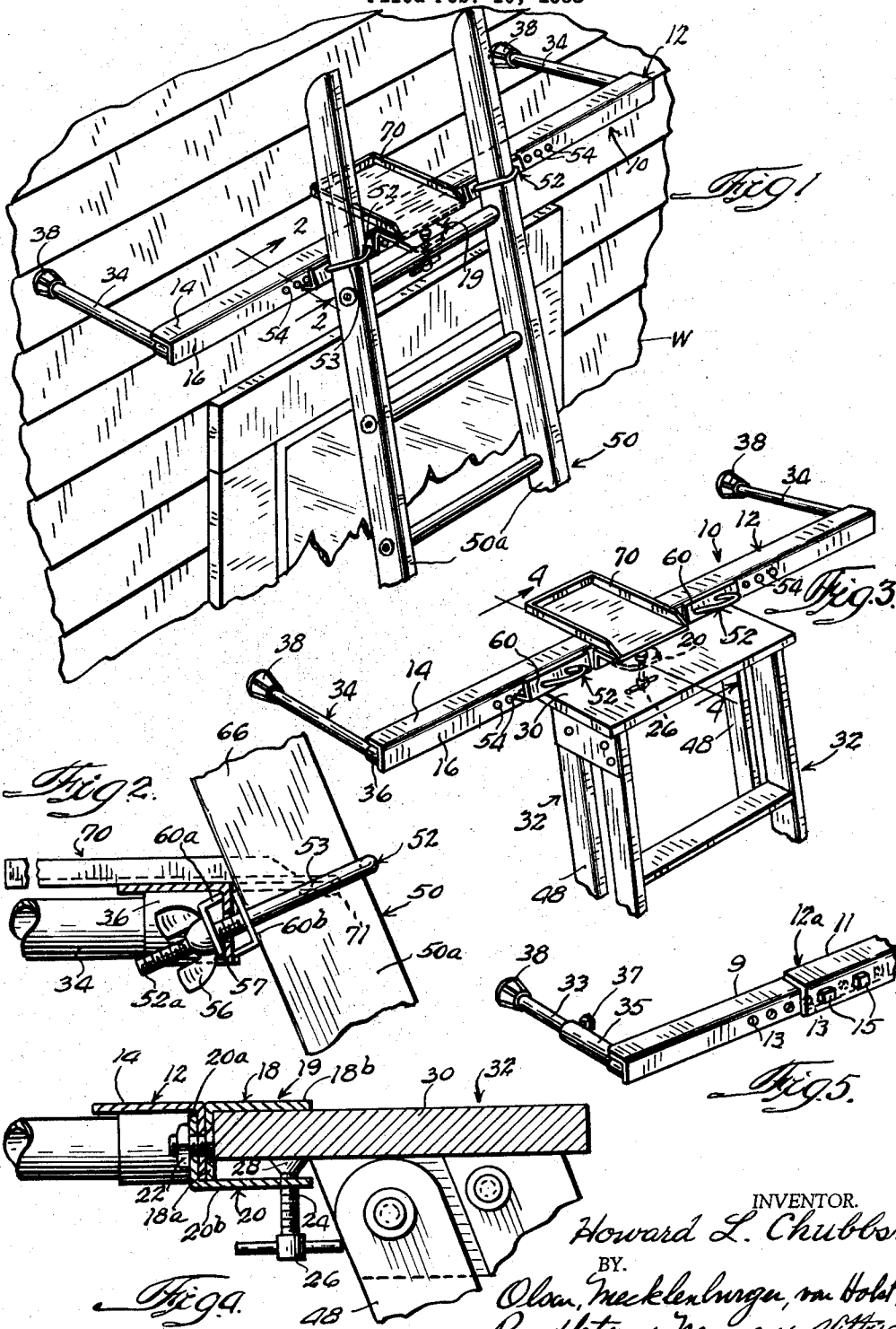
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H. L. CHUBBS

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LADDER ATTACHMENT

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INVENTOR.

Howard L. Chubbs.

BY.

Olm, Mackenburger, m. Holst,  
Pendleton, & Neuman. Attys.

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## LADDER ATTACHMENT

Howard L. Chubbs, Gary, Ind.

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The present invention relates to a ladder attachment and, more particularly, pertains to a device adapted to space the upper portions of a ladder from a vertically disposed supporting wall surface so as to enable a person to safely utilize the uppermost cross pieces (rungs or steps) of such ladder for a support.

In the normal course of using an ordinary ladder for purposes of working on a vertical surface, such as in painting the side of a house, the upper end of the ladder normally leans against such surface with the upper cross pieces being in close proximity to the surface whereby such cross pieces cannot be used safely for supporting a person disposed on the ladder.

Thus, a person attempting to use the upper cross piece to extend his or her reach while on a ladder in such position may lose their balance and fall, thereby incurring a serious injury. Furthermore, it is often desirable to utilize a conventional stepladder in such a way that the ladder leans against the wall surface for support rather than its stiles in spread position. Where a stepladder is utilized in such a manner, the upper steps thereof become of little value as supports, because of their close proximity to the wall surface.

It is an object of this invention, therefore, to provide a ladder attachment which spaces the upper end portion of a ladder, whether of the extension or stepladder variety, at a desired distance from the supporting wall surface and thus materially increase the utility of the upper cross pieces of the ladder as supports.

It is another object of this invention to provide a ladder attachment which is readily adaptable for engagement with ladders varying widely in size and shape.

It is still another object of this invention to provide a ladder attachment which is adapted to assume selected positions on a supporting wall surface, such as a window-straddling position, and which will not obstruct cleaning or painting of the wall or window surface.

It is a still further object of this invention to provide a ladder attachment which, when contacting a supporting wall surface, will not cause any serious strain or stress to be effected in either the ladder or attachment components.

It is a still further object of this invention to provide a ladder attachment having means for supporting objects, such as pails, brushes, etc., in a convenient location adjacent the upper portion of the ladder to which such attachment is affixed.

It is a still further object of this invention to provide a ladder attachment which is of simple, compact, and sturdy construction, is readily assembled or disassembled with respect to a ladder, and is inexpensive to produce.

The above and other objects will become more apparent upon proceeding with the following discussion when read in the light of the accompanying drawing and appended claims.

In one embodiment of the attachment, an elongate rigid member, formed of angle iron or the like, is provided having extensible parallel arms projecting there-

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from at opposed end portions. The extensible arms attached to the elongate member assure desired spacing between the upper portion of the ladder and the adjacent supporting wall surface. The rigid member may, if desired, have extensible end portions. Clamping means, for engaging a platform portion of a stepladder or the like, is secured to the central portion of the elongate rigid member intermediate said extending arms. Relatively spaced securing means for engaging the stiles of an extension ladder or the like are adjustably carried on said rigid member and are arranged on opposite sides of said clamping means. Cam means are provided which cooperate with the securing means and cause the latter to project obliquely in substantially the same direction from said rigid member, upon said securing means and ladder stiles being in assembled relation, and thereby prevent any excessive bending forces being exerted on the ladder stiles or the attachment.

For a more complete understanding of this invention, reference should now be made to the drawing, wherein:

Figure 1 is a perspective view of one embodiment of the improved attachment shown engaging the stiles of an extension ladder and in contact with the adjacent supporting wall surface.

Fig. 2 is an enlarged fragmentary sectional view taken on line 2-2 of Fig. 1;

Fig. 3 is a fragmentary perspective view of one embodiment of the improved attachment, shown engaging the platform of a stepladder;

Fig. 4 is an enlarged fragmentary sectional view taken on line 4-4 of Fig. 3; and

Fig. 5 is a fragmentary perspective view of a modified form of the improved attachment.

Referring now to the drawing and, more particularly, Fig. 1, one embodiment of an improved attachment 10 is illustrated in combination with a conventional type of extension ladder and is adapted to space the upper portion of the latter a predetermined distance from a supporting wall surface. The attachment 10 comprises an elongate frame member 12 formed of rigid, sturdy material such as, for example, a piece of angle iron or channel. Obviously, other frame members may be employed to equal advantage; it is desired, however, that the frame member be provided with two normally disposed flanges such as 14 and 16, see Fig. 1, for a purpose to be described more fully hereinafter.

Secured to substantially the center portion of the elongate depending flange 16 of member 12, is a vise-like clamp 19, the components of which are more clearly seen in Fig. 4. Clamp 19 comprises an upper inverted L-shaped first piece 18 and an opposed L-shaped second piece 20. First piece 18 has one flange 18a engaging the outer surface of member flange 16 and second piece 20 has one flange 20a thereof engaging the inner or opposite surface of flange 16. Flanges 18a and 20a are held in fixed relation with member flange 16 by nut and bolt assemblies 22, or any other suitable means, such as welding.

It will be noted in Fig. 4 that the second or outwardly projecting flanges 18b and 20b of pieces 18 and 20, respectively, are disposed in substantially coextensive relation and terminate in substantially the same vertical plane. Flanges 18a, 18b and 20b cooperate with one another to form a pocket in which a top step 30 of a conventional stepladder 32 is accommodated. The flange 20b of member 20 has threadedly mounted thereon a clamping bolt or stud 24, see Fig. 4. Affixed to the exposed end of bolt 24 is a handle portion 26. The concealed or opposite end of the bolt 24 is provided with an enlarged flattened head 28 which abuts the underside of step 30 and causes the latter to be securely clamped between head 28 and flange 18b of piece 18.

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Ladder attachment 10 also comprises a pair of relatively spaced, substantially parallel elongate arms 34 which are secured to and extend transversely from opposed end limits of elongate frame member 12. The arms 34 preferably project from the inner surface of flange 16 and are secured thereto by threaded nipple 36 mounted on flange 16, or by any other suitable means, such as welding. Where nipples 36 are utilized, the arms 34 may be disassembled from member 12 to facilitate packing or storing of the attachment 10.

It is the purpose of arms 34 to space frame member 12 and the upper portion of the ladder secured thereto from the supporting wall surface a predetermined distance so as to effect greater stability for the ladder and enable the uppermost crosspiece of the ladder to be utilized. Affixed to the distal ends of arms 34 are rubber caps 38 which may have a rounded terminal portion to assure a minimum area of contact with the supporting wall surface. The rubber caps 38 prevent scratching or marring of the supporting wall surface and also prevent accidental slippage between the surface and attachment when the ladder is leaning against such surface.

When the attachment 10 is being utilized with a conventional stepladder 32, pivotally connected stiles 48 of such ladder should be moved to their inoperative position, see Fig. 3, and the lower ends of the stiles, not shown, should be spaced away from the wall surface a sufficient amount so that the step 30 will be disposed substantially normal to the wall surface against which such ladder is positioned. In the conventional stepladder, the plane of the uppermost step is angularly disposed with respect to the longitudinal axes of the stiles.

As will be noted from Figs. 3 and 4, the flange 18b of the vise clamp 19 and the arms 34 are disposed substantially normal to flange 16 of member 12 and thus, arms 34 will be disposed normal to the supporting wall surface when the ladder is positioned in the manner aforementioned and, thus, prevent any undue strain or stress being caused in the attachment or ladder 12.

As a result of the spacing of the uppermost step 30 of stepladder 32 from the supporting wall surface, a person may ascend the steps of the ladder and utilize the uppermost step thereof with ease and without experiencing a sense of unbalance.

Attachment 10, in addition to being engageable with a stepladder 32, may also be used in combination with an extension ladder 50, fragmentarily illustrated in Figs. 1 and 2. It will be noted that attachment 10 is provided with a pair of relatively spaced U-bolt members 52 which project outwardly from flange 16 of member 12. Members 52 are disposed on opposite sides of vise clamp 19 and are accommodated in selected apertures 54 formed in flange 16. There are a plurality of apertures 54 formed in flange 16 for each U-bolt member 52, so that the spacing between the U-bolt members 52 may be varied to conform to the spacing between the stiles 50a of the ladder 50. The ends of members 52 project through the selected apertures and are threadedly engaged by wing nuts 56, see Fig. 2. The U-bolt members may be readily disassembled from frame member 12 by merely unthreading wing nuts 56 from the bolt member ends.

It will be noted in Fig. 2 that when attachment 10 and ladder 50 are in assembled relation, U-bolt members 52 project obliquely from flange surface 16 so that the plane of the bolt member is normal to the longitudinal axis of the stile embraced by member 52 and thus no excessive bending force is exerted on the U-bolt member arms 53 or the embraced stile. The apertures 54 are of sufficient diameter to enable the U-bolt member arms 53 to assume the angular disposition illustrated in Fig. 2.

To further insure the proper oblique disposition of members 52, a pair of apertured opposed angle pieces 60a and 60b are provided. One piece 60a is disposed to one side of flange 16, adjacent wing nut 56, and the other

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piece 60b is disposed in inverted position on the opposite side of flange 16 and in direct engagement with the stile 50a. The two angle pieces 60a and 60b, traversed by each of said U-bolts, form a two-part rectangular base portion, see Fig. 2, which functions to prevent the U-bolt arms from being subjected to any distorting or bending force when the bolt member 52 is drawn up into gripping engagement with the stile by the wing nuts 56. The U-bolt members 52, when in a non-gripping position, may be readily slipped endwise of the stiles to effect ready engagement or disengagement of the attachment 10 from the ladder 50. Accordingly, it is apparent that attachment 10 may, with equal facility, engage either the stiles of an extension ladder or the uppermost step 30 of a stepladder 32, and space the upper portion of either ladder a correct distance from a supporting wall surface.

It may be desirable to fabricate the frame member 12 so that the same may be longitudinally extensible. One way of accomplishing this result is shown in the modified frame member 12a, see Fig. 5. Frame member 12a comprises two telescoping sections 9 and 11 which are provided with a plurality of longitudinally spaced apertures 13 formed adjacent the interconnected end portions of said sections 9 and 11. Interconnection between sections 9 and 11 is effected by a pair of nut-and-bolt assemblies 15 which extend through selected apertures 13.

It may be desired to adjust the attachment 10 to specific widths for purposes of straddling window openings or the like. By rendering frame member 12 extensible, attachment 10 is possessed of greater utility.

If desired, the projecting arms 34 may also be of an extensible nature, wherein each arm comprises two telescopically engageable sections 33 and 35, illustrated in Fig. 5. A lock screw 37, threadedly mounted on section 35 may be employed for purposes of frictionally engaging movable section 33. Section 33 may also be provided with apertures for reception of a locking pin, if a more secure locking means is desired.

Upper flange 18b of piece 18, comprising part of the previously described vise clamp, may also function as a lip over which a tray 70 having raised edge portions may be frictionally secured. A portion of the tray periphery is provided with a hook-like portion 71 in which is accommodated flange 18b, see Figs. 2 and 3. Tray 70 may be used for supporting pail, bucket, brushes or tools used by the person supported by the ladder.

It is thus seen that a ladder attachment has been provided which is of relatively simple construction and yet possesses a flexibility heretofore unknown in a device of this type. The improved attachment may engage a plurality of ladder constructions without imparting excessive bending forces to the ladder or the attachment secured thereto.

While several embodiments of this invention are shown above, it will be understood, of course, that the invention is not to be limited thereto, since many modifications may be made and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. An attachment for a ladder comprising elongate means, releasable clamp means mounted in a fixed position on said elongate means intermediate the ends thereof; said clamp means extending transversely from said elongate means and cooperating therewith to form a first plane adapted to normally assume a horizontal disposition, said clamp means being adapted for selectively accommodating a cross-piece of a ladder, said clamp having an upper planar jaw extending transversely from said elongate means, tray means having an edge portion of substantially U-shaped cross-sectional configuration for frictionally engaging said clamp upper planar jaw, said tray edge portion engaging said upper jaw and being supported thereby, securing means carried by said elongate means and disposed in spaced relation on opposite

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sides of said clamp means, said securing means projecting from the same side of said elongate means as said clamp means for selective engagement with the stiles of a ladder, and surface-engaging, protruding means projecting from said elongate means and disposed within said first plane and in spaced relation with respect to said clamp and securing means, said securing means defining a second plane extending obliquely upwardly from said first plane.

2. An attachment for a ladder comprising apertured elongate frame means, said frame means having a vertical flange portion in the normal position of attachment use, spaced projecting arm means secured to and extending transversely from one side of said frame means, said arm means and said frame means forming a first plane adapted to normally assume a horizontal position, substantially U-shaped securing means carried by said apertured elongate frame means for straddling engagement with the stiles of such ladder, the free ends of said securing means extending through apertures of said frame means, removable angle means traversed by said U-shaped securing means, said angle means being disposed on opposite sides of said frame means vertical flange, the edges of said angles abutting against opposed surfaces of said vertical flange in the normal position of attachment use; fastener means adjustably mounted on the distal ends of said U-shaped securing means to effect adjustment of said securing means into anchoring engagement with the stiles of such ladder, said securing means forming a second plane extending obliquely upwardly from said first plane when said attachment is in assembled relation with such ladder.

3. An attachment for a ladder comprising elongate frame means, said elongate means having a depending

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flange disposed in the vertical plane in the normal position of use, releasable clamp means mounted in a fixed position on said elongate means intermediate the ends thereof; said clamp means having opposed plate-like jaws extending transversely from said elongate means and cooperating therewith to form a first plane adapted to normally assume a horizontal disposition, said plate-like jaws comprising portions of discrete angle members, portions of said angles formed integrally with said plate-like jaws abutting against opposed surfaces of said elongate means depending flange, securing means traversing said discrete angle members and said elongate means depending flange for retaining said angle members and elongate means in a rigid state of assembly, bolt means threadedly mounted in the lower plate-like jaw reciprocally movable relative to the opposed upper plate-like jaw whereby an upper step of a ladder may be clamped between said bolt distal end and said upper jaw, and parallel extensible arms projecting from opposed end limits of said elongate means in substantially the same plane as said clamp means plate-like jaws and in a direction opposite thereto relative to said interposed depending flange.

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