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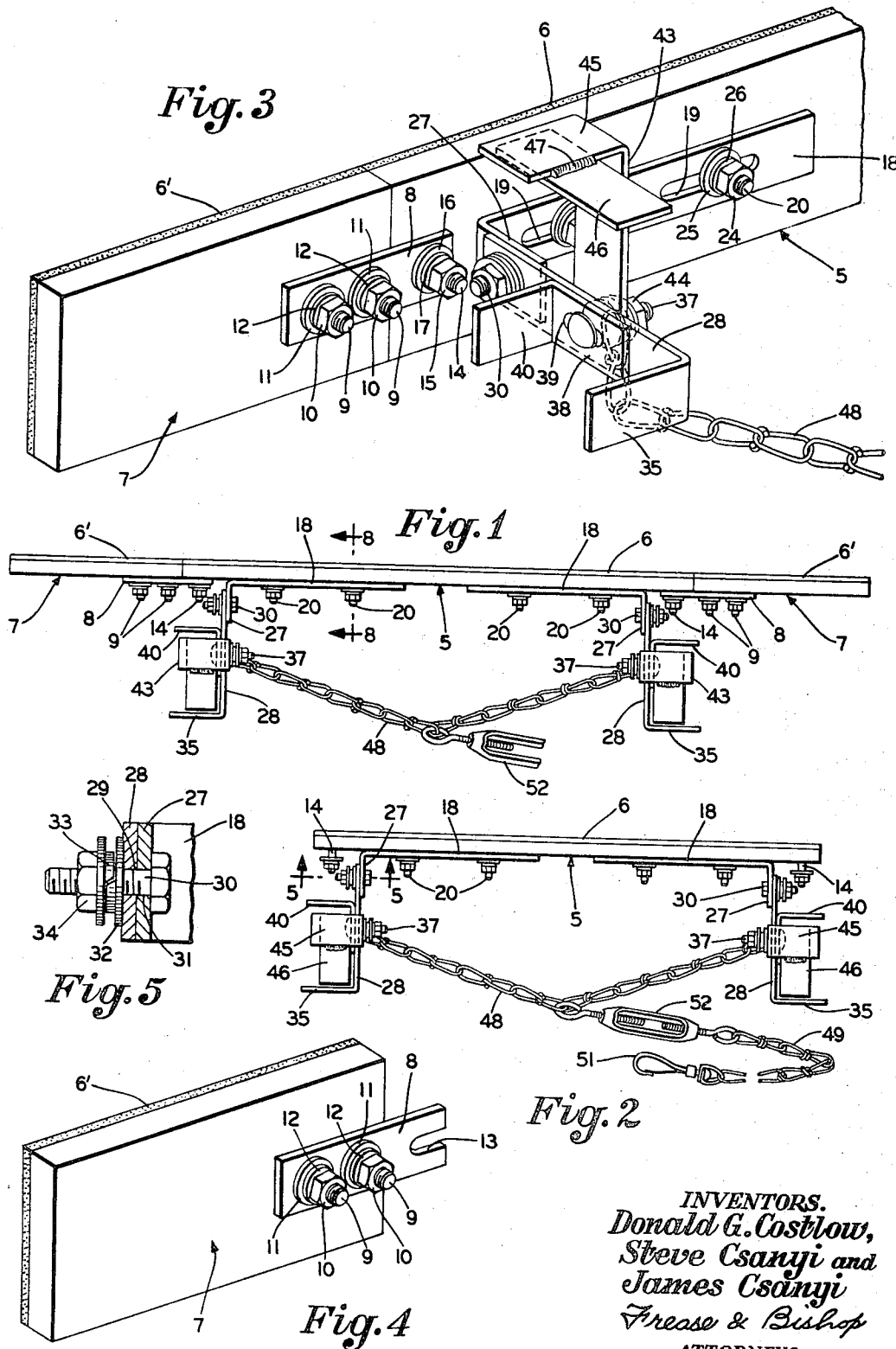
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3,419,109

LADDER ATTACHMENT FOR USE WITH ALUMINUM SIDING

Filed July 21, 1967

Sheet 1 of 2



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Sheet 2 of 2

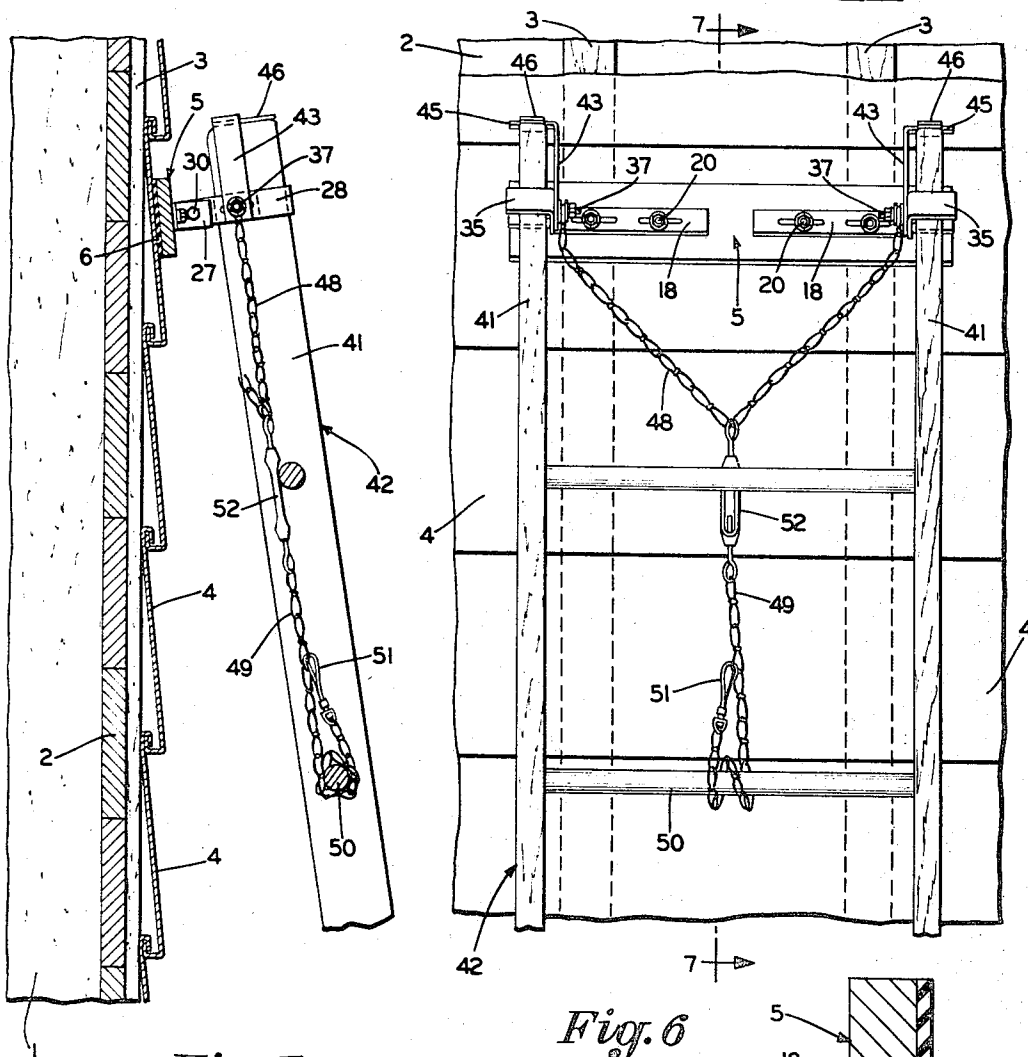


Fig. 7

Fig. 6

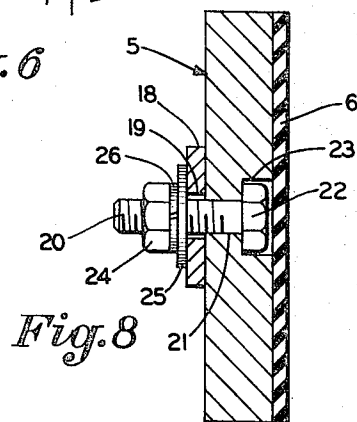


Fig. 8

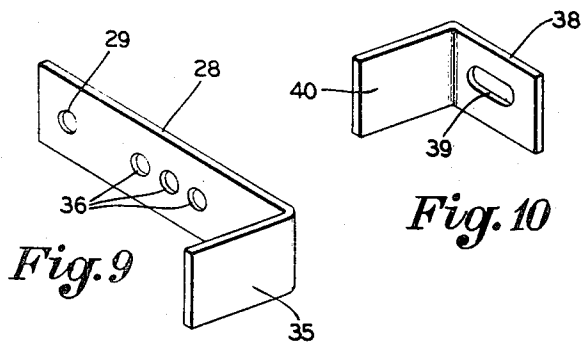


Fig. 9

Fig. 10

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LADDER ATTACHMENT FOR USE WITH ALUMINUM SIDING

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ABSTRACT OF THE DISCLOSURE

An attachment for ladders including a pressure bar with rubber-like pad for contact with the siding, and having two adjustable brackets thereon for receiving the upper end portions of the rails or stiles of a ladder, with means for temporarily connecting the same to the upper end of a ladder to prevent damage to aluminum siding, and two removable wings upon the pressure bar.

BACKGROUND OF THE INVENTION

Field of the invention

One of the problems encountered during and after installation of aluminum siding upon buildings is the denting or otherwise damaging of the siding by ladders resting against the same in completing the installation, or by the ladders of other workmen such as telephone or electric power servicemen in installing telephone or electric power service.

In a great majority of instances where aluminum siding is installed, it has been found that the siding is damaged shortly after installation by the ladders of telephone or electric power servicemen in establishing telephone or electric power service through the siding.

Aluminum siding is generally applied either to sheeting on a new house wall, or to previously installed siding upon an old house. Usually vertical furring strips are applied to the sheeting or the old siding. The furring strips are usually typical wooden lath and may be installed on 12 inch centers up to twenty inch centers, although they are preferably spaced the same distance as the stud spacing. The aluminum siding is then applied over the furring strips, and if the upper ends of the ladder rails or stiles rest against the siding, particularly between furring strips, the siding will be dented thereby.

Description of the prior art

In the vast various attachments have been provided for the upper ends of ladders, none of which was intended for the purpose for which applicants' invention is adapted, namely for use with aluminum siding and nothing in the prior art discloses removable wing sections for a pressure bar.

SUMMARY OF THE INVENTION

In the past various attachments have been provided for as comprising a ladder attachment consisting of a pressure bar of sufficient length to span a pair of vertical furring strips of minimum spacing, with wings removably attached to the ends of the pressure bar to increase the length thereof to span a pair of furring strips of maximum spacing.

A spaced pair of brackets are adjustably mounted upon the pressure bar and carry clamping means for receiving the upper ends of the rails or stiles of a ladder, means being provided for adjusting these brackets upon the pressure bar to accommodate ladders of different widths.

Each of these clamps is pivotally mounted upon the corresponding bracket and comprises a channel portion adjustable to accommodate different widths of ladder

rails or stiles. Each clamp also includes an L-shaped member adapted to engage over the upper end of the adjacent rail or stile of the ladder.

For the purpose of preventing the attachment from becoming disconnected from the upper end of the ladder, a chain or similar flexible element is connected at opposite ends to the two brackets and a second chain or the like is connected at one end to the mid-portion of the first chain, the other end thereof being adapted to be wrapped around an upper rung of the ladder and having a harness snap or the like thereon for connection to an intermediate portion of the chain for holding the attachment upon the top of a ladder.

It is, therefore, an object of the invention to provide a ladder attachment for use upon aluminum siding including a pressure bar of sufficient length to span a pair of furring strips of minimum spacing with two removable wing sections for the pressure bar adapted to span a pair of furring strips of maximum spacing.

Another object of the invention is to provide a ladder attachment of the character referred to, including a pair of clamps adjustably mounted upon the pressure bar for engaging the rails or stiles of ladders of different widths, each bracket including a channel portion adjustable to fit upon ladder rails or stiles of different widths.

A further object of the invention is to provide such a ladder attachment in which each clamp includes an upwardly disposed L-shaped member adapted to engage over the top of the adjacent rail or stile of the ladder.

It is also an object of the invention to provide a ladder attachment of this type in which the clamps are pivotally connected to the pressure bar so as to permit the ladder to be placed at various angles to the wall.

Another object of the invention is to provide such a ladder attachment in which a flexible element is connected to the brackets and adapted to be looped around an upper rung of the ladder for preventing the attachment from becoming accidentally disconnected from the ladder.

The above objects together with others which will be apparent from the drawings and following description or which may be later referred to may be attained by constructing the improved ladder attachment in the manner hereinafter described in detail and illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a ladder attachment embodying the invention with the detachable wings connected to opposite ends of the pressure bar;

FIG. 2 is a similar view showing the detachable wings removed;

FIG. 3 is an enlarged perspective view of one end portion of the pressure bar showing one wing attached thereto and showing one adjustable bracket and clamp;

FIG. 4 is a detached perspective view of one of the removable wings;

FIG. 5 is an enlarged detail sectional view taken on the line 5-5, FIG. 2;

FIG. 6 is a fragmentary front elevation of the upper portion of a ladder with the improved attachment connected to the upper end thereof showing the ladder in use against an aluminum siding wall;

FIG. 7 is a vertical section taken on the line 7-7, FIG. 6;

FIG. 8 is an enlarged detail section taken on the line 8-8, FIG. 1;

FIG. 9 is a detached perspective view of one of the L-shaped swinging side braces forming a part of the clamp for one ladder rail or stile; and

FIG. 10 is a detached perspective view of the adjustable angle member forming the other part of the clamp.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the embodiment of the invention illustrated, in which similar numerals refer to similar parts throughout the several views, a portion of a wall of a building is shown in FIG. 7 comprising the usual studs 1, sheathing 2, vertical furring strips 3 and aluminum siding 4.

The furring strips may be typical wooden lath, and while they are preferably installed on 16 inch centers, the same as the stud spacing, they may be installed on 12 inch centers, especially in restricted spaces, and sometimes are installed on the wall surface on up to 20 inch centers. In FIG. 6 the furring strips 3 are shown as on the minimum spacing or 12 inch centers.

As above mentioned, one of the problems encountered during and after normal installation of aluminum siding, is the denting and damaging of the siding by ladders resting against the siding in completing installation thereof, or in the establishing of telephone or electric power service through the siding by telephone or electric power servicemen.

The ladder attachment of the invention includes a pressure bar generally indicated at 5, which, as shown in FIG. 6, may be of a length to span furring strips installed on minimum spacing of 12 inch centers, so that a ladder with the attachment thereon may be used in restricted areas upon a wall.

This pressure bar may be formed of any suitable material, preferably aluminum, and is provided upon its rear surface with a pad of rubber or the like as indicated at 6, to prevent scratching or marring the aluminum siding when the pressure bar rests against the same, and also to reduce slippage.

As shown in FIGS. 1, 3 and 4, similar wing sections, indicated generally at 7, are removably connected to the ends of the pressure bar. Each wing section is formed of the same material and is of the same width and thickness as the pressure bar and is provided on its rear surface with a rubber pad 6'.

Each wing section 7 has a projecting ear 8 rigidly connected thereto as by bolts 9, nuts 10, washers 11 and lock washers 12. The end of each ear 8 is slotted, as indicated at 13, so that it may be received over a bolt 14 in the adjacent end portion of the pressure bar 5 and removably connected to the pressure bar as by the nut 15, washer 16 and lock washer 17.

The wings 7 are interchangeable and normally form part of the pressure bar to give the maximum length, although either or both wings may be removed where the upper end of the ladder must rest against a wall in a restricted space.

An L-shaped bracket 18 is adjustably mounted upon each end portion of the pressure bar 5. For this purpose elongated slots 19 are formed in the bracket 18, which slots receive the bolts 20 located through apertures 21 in the pressure bar 5. The heads 22 of these bolts are located in recesses 23 formed in the rear side of the pressure bar.

A nut 24, washer 25 and lock washer 26 are provided upon each bolt 20 for rigidly mounting each L-shaped bracket 18 in adjusted position upon the pressure bar.

It should be understood that each of the bolts 9 and 14 is mounted in the pressure bar 5 in a manner similar to the bolts 20, with the heads thereof received in recesses in the rear side of the pressure bar. Since this construction is the same as shown in FIG. 8, it is not thought necessary to illustrate similar sectional views taken through the bolts 9 and/or 14. With this construction it will be obvious that the brackets 18 may be adjusted toward and away from each other to accommodate different widths of ladders as will be later described.

An adjustable clamp, for clamping upon the adjacent rail or stile of the ladder, is pivotally mounted upon the out-turned angular arm 27 of each bracket 18. Each of

these clamps includes the L-shaped swinging brace 28 having an aperture 29 in the end portion of its longer leg which receives the pivot bolt 30 located through a suitable aperture 31 in the angular arm 27.

A washer 32, lock washer 33 and nut 34 are mounted upon the bolt 30 for pivotally mounting each swinging brace 28. The swinging brace 28 has an angular arm 35 at its outer end which forms one of the jaws of the clamp, as will be later described, and the long arm thereof is provided intermediate its ends with a plurality of apertures 36 for selectively receiving a bolt 37 for adjustably mounting the angle member 38.

This angle member has a slot 39 through which the bolt 37 is located so that the angular arm 40, which forms the other jaw of the clamp, may be adjusted toward or from the jaw 35 to fit upon the adjacent rail or stile 41 of a ladder, indicated generally at 42 in FIGS. 6 and 7.

The clamping attachment also includes an upwardly disposed L-shaped swinging top bracket 43, the lower end of which is mounted and clamped upon the bolt 37 by the nut 44 which clamps the clamping members 28 and 38 together. Suitable washers and lock washers may be provided upon the bolt 37 as shown on the other bolts above described.

The angular upper arm 45 of the top bracket 43 is adapted to contact the upper end of the ladder rail or stile which is clamped between the clamping members 28 and 38. If desired, a horizontally disposed flange 46 may be welded or otherwise connected to the arm 45 as indicated at 47 so as to contact substantially the entire upper end of the ladder rail or stile.

For the purpose of securing the attachment to the upper end of a ladder and preventing accidental displacement thereof, a chain 48 is connected at its ends to the bolts 37 and a second chain 49 is connected at its upper end to the mid-portion of the chain 48.

The chain 49 may be wrapped around an upper rung 50 of the ladder, as shown in FIGS. 6 and 7, and is provided on its end with a harness snap or the like, as indicated at 51, for connection to a link of the chain for securing the same upon the ladder. A turnbuckle 52 may be provided in the chain 49 for adjusting the length thereof as may be required.

From the above it will be seen that the device is adjustable to various widths of ladders by adjusting the positions of the brackets 18 longitudinally upon the pressure bar 5 by means of the bolts 20 and nuts 24.

It will also be seen that each clamp may be adjusted to accommodate the width of the ladder rails 41 by means of the plurality of apertures 36 in the side brace 28 through any of which the bolt 37 may be selectively located and by the slots 39 in the angle member 38 of the clamp.

It will also be seen that through the pivots 30 for the clamps they may be adjusted to accommodate the angle at which the ladder is placed against a wall, and the pressure bar 5 may be adjusted to the correct angle so that it may rest against the aluminum siding as shown in FIG. 7.

It will also be seen that the attachment, with the removable wings thereon, is adapted to span furring strips of maximum spacing, and with the wings removed may be placed in restricted areas on a wall and at the same time span furring strips of minimum spacing, and that the attachment may be easily and readily attached to or removed from a ladder as desired.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of exam-

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ple, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discovery, the construction, the operation, and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful construction, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

We claim:

1. An attachment for a ladder having rails and rungs for use upon aluminum siding mounted upon spaced vertical furring strips, said attachment comprising a horizontally disposed pressure bar, a spaced pair of longitudinally adjustable brackets upon said pressure bar, means for clamping said brackets in adjusted positions to accommodate ladders of different widths, a swinging brace pivotally mounted upon each bracket, clamping means upon each swinging brace, means for adjusting said clamping means to fit ladder rails of different widths, a top bracket connected to each swinging brace and adapted to contact the top of an adjacent ladder rail, and means connected to the attachment for engaging a rung of a ladder for holding the attachment upon a ladder.
2. An attachment for a ladder as defined in claim 1, in which each of said longitudinally adjustable brackets is L-shaped and the corresponding swinging brace is pivotally mounted upon the shorter leg thereof by means of a bolt, nut and washers.
3. An attachment for a ladder as defined in claim 1, in which each swinging brace is L-shaped, and in which the clamping means includes an angle member mounted on the longer leg of the L-shaped swinging brace and adjustable toward and from the shorter leg thereof.
4. An attachment for a ladder as defined in claim 1, in which the means for holding the attachment upon a ladder comprises a chain connected at its ends to the longitudinally

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nally adjustable brackets and a second chain connected at one end to the center of the first chain and having a harness snap at its other end.

5. An attachment for a ladder as defined in claim 1, in which the pressure bar is of a length sufficient to span two furring strips of minimum spacing, and in which a removable wing is detachably connected to each end of the pressure bar, the overall length of the pressure bar and wings being sufficient to span two furring strips of maximum spacing.

6. An attachment for a ladder as defined in claim 5, in which each wing has an ear at its inner end, said ear having a slot therein receiving a clamping bolt upon the adjacent end portion of the pressure bar.

7. An attachment for a ladder as defined in claim 5, in which each of said longitudinally adjustable brackets is L-shaped and the swinging braces are L-shaped and are pivotally mounted upon the shorter legs of the brackets by means of bolts, nuts and washers, and in which the clamping means includes an angle member mounted on the longer leg of the L-shaped swinging brace and adjustable toward and from the shorter leg thereof.

8. An attachment for a ladder as defined in claim 7, in which the pressure bar is of a length sufficient to span two furring strips of minimum spacing, and in which a removable wing is detachably connected to each end of the pressure bar, the overall length of the pressure bar and wings being sufficient to span two furring strips of maximum spacing.

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