

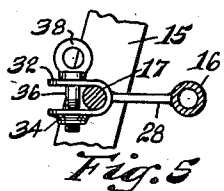
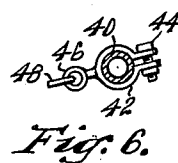
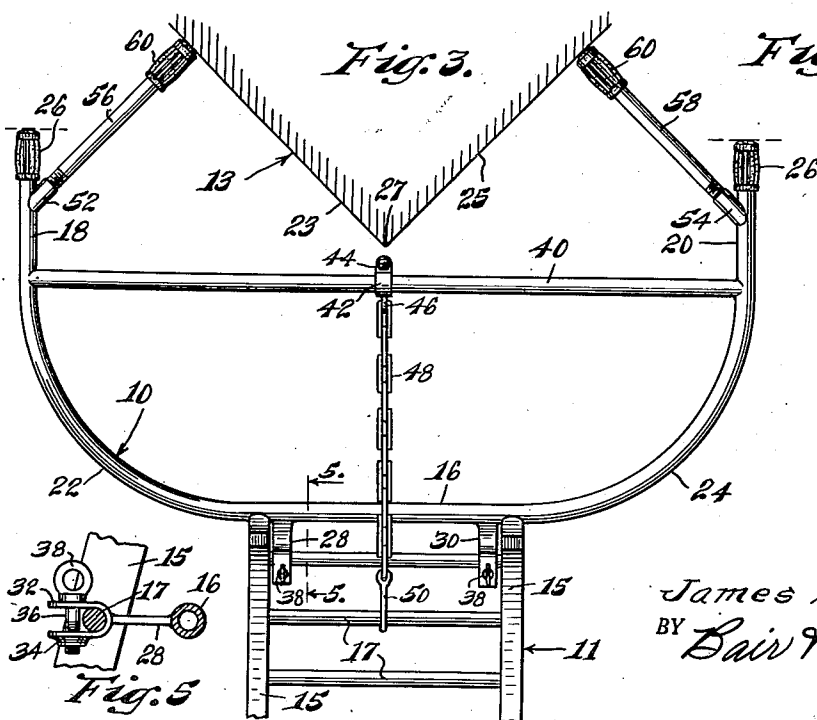
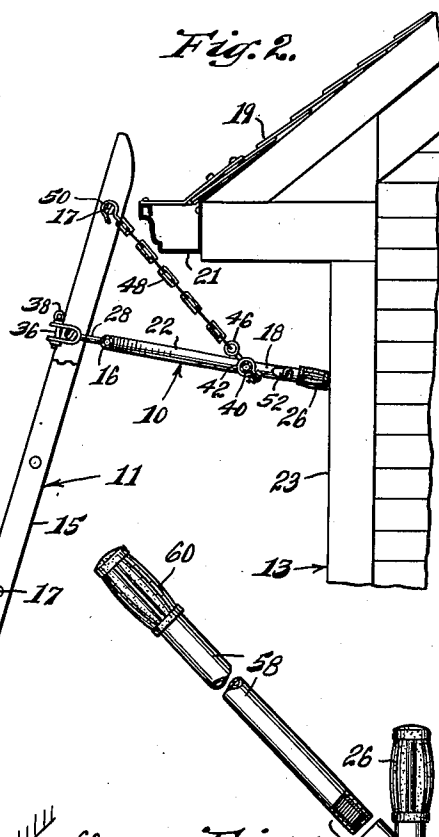
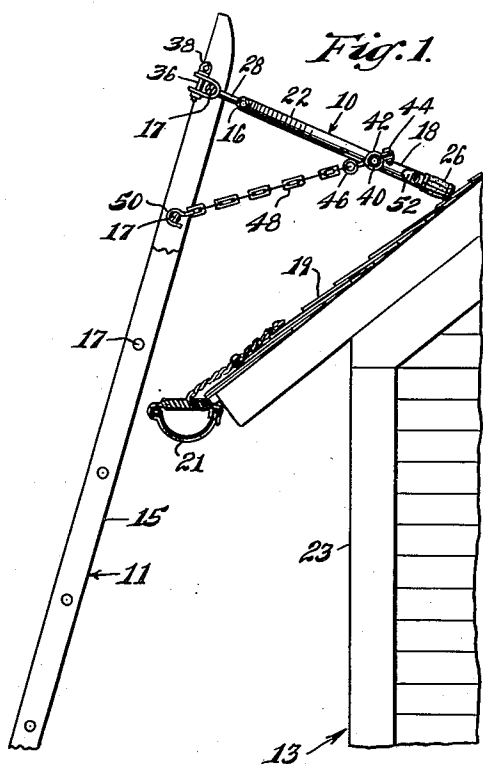
April 8, 1952

J. A. BURKE

2,592,006

PROP ATTACHMENT FOR LADDERS

Filed Aug. 17, 1948



INVENTOR.
James A. Burke.
BY *Bain & Freeman*
Attys.

UNITED STATES PATENT OFFICE

2,592,006

PROP ATTACHMENT FOR LADDERS

James A. Burke, Brandon, Wis., assignor of one-third to Wayne J. Gibbons and one-third to Melvin W. Gibbons, both of Brandon, Wis.

Application August 17, 1948, Serial No. 44,779

3 Claims. (Cl. 228—60)

1

This invention relates to braces, extensions or supports for attachment to a ladder so that the top of the ladder, when erected in working position, will be spaced from the surface against which the top of the latter would ordinarily rest in the absence of such a support, brace or extension.

Ladders are used in work on the sides, walls, roofs or eaves of buildings at heights where the part or area to be worked on are not within reach from the ground or from relatively low supports of types other than ladders. For such work, ladders are in many respects unsafe, inconvenient and unsatisfactory. For instance, when work is to be done on an eaves trough or gutter, a ladder cannot rest on the trough or gutter, so that the workman must lean backwards and away from the ladder, which is extremely hazardous. When soldering is to be done, the workman cannot lean forward and must use both hands, with consequent danger of falling. If the ladder leans against the wall surface below the trough or gutter, the inside of the trough or gutter is not accessible from above to the workman.

For painting a wall a ladder must be moved after the wall area accessible to the painter has been painted, and then the same area must be finished with the ladder moved to a closely adjacent position, since the area contacted by the ends of the ladder cannot be covered by the painter when the ladder is in its first position.

For work around the corners of a building, a ladder must be leaned first against one wall forming the corner and then against the other wall, the whole corner area not being within the reach of a workman at any one time.

To overcome these and other inconveniences and hazards encountered in working on ordinary ladders I have now provided an extension, brace or support removably and adjustably attachable to the top of a ladder so that the top of a ladder can be supported from the upper part, wall or roof of a building in spaced relationship thereto.

This brace or extension comprises a generally U-shaped frame having outer rounded bight portions from which project relatively short legs. The latter may be rigidified by a connecting cross bar extending transversely of the legs and well within the end portions thereof. The middle portion of the bight is provided with means for attaching the frame to an upper rung of a ladder, and these means are preferably so arranged as to hold the frame at right angle to the

2

ladder while the latter is being erected. A chain having a terminal hook adapted to engage another ladder rung is suspended from the cross bar to hold the extension or brace against swinging movement relative to the ladder after the latter has been erected. Further, removable extension legs may be attached to the frame to project inwardly and forwardly at about 45° angle so that the ladder can be supported from the two wall surfaces on each side of a corner whereby the ladder will straddle the corner. The ends of the frame legs and also of the extension legs are preferably provided with a rubber covering, for increased frictional resistance against slippage over a supporting surface.

By the use of my novel device, a ladder can be erected and supported from the wall or roof of a building in spaced relationship thereto so that a workman can reach the whole area in front of the ladder and can do this from above and while leaning forward, without need for holding on to the ladder. Both sides of a corner can be reached at one and the same time and, no matter what structure is being worked on, the structure is not only accessible but can also be displaced, removed or otherwise manipulated.

It is therefore an important part of the present invention to provide an extension, support or brace removably and adjustably attachable to the top of a ladder to hold its top in spaced relationship to the roof or wall of a building so as to make work from the top of a ladder safe and convenient and to allow the workman full access to a large area from above or from in front, without any necessity for holding on to the ladder and without interfering with the structure being worked upon.

Another important part of this invention is to provide a ladder brace or support of a type indicated comprising a generally U-shaped frame attachable at its bight to an upper rung of a ladder, a cross bar connecting the two legs of the frame, a chain suspended from said cross bar having a terminal hook capable of engaging another ladder rung for preventing collapsing movement of said frame relative to the ladder, and extension legs removably attachable to the frame for supporting the top of the ladder from the two sides of the corner of a building.

Other and further objects and features of this invention will become apparent from the following description and appended claims taken in conjunction with the accompanying drawing which shows, by way of an illustrative example,

a device according to the present invention. More particularly:

Figure 1 is a side view, with parts broken away and other parts shown in section, of a ladder provided with a brace according to the present invention as supported from the roof of a building;

Figure 2 is a side view, with parts broken away and other parts shown in section, of a ladder provided with a brace shown in Figure 1 as supported from the wall of a building;

Figure 3 is a view from above of a ladder provided with the brace shown in Figure 1 as supported, by means of extension legs, from the two sides of the corner of a building (shown in section);

Figure 4 is a detail view, with parts broken away, showing the attachment of the removable extension legs to the frame of the brace;

Figure 5 is a detail side view, with parts in vertical cross section, showing the attachment of the brace to the rung of a ladder; and

Figure 6 is a detail side view, with parts in vertical cross section, showing the attachment of the chain to the cross bar.

In Figures 1 through 3, a brace according to the present invention is indicated generally by the reference numeral 10, a ladder of the conventional type by the reference numeral 11, and a building by the reference numeral 13. The ladder has uprights 15 and rungs 17. The building has an overhanging roof 19 carrying a gutter 21 and walls 23 and 25 forming a corner 27.

The brace 10 comprises a generally U-shaped frame made up of a central straight bight portion 16, generally straight legs 18 and 20 and curved portions 22 and 24 connecting the straight bight portion 16 respectively with the legs 20 and 24.

The frame is suitably constructed of metal tubing having the requisite strength. The ends of the arms 18 and 20 are preferably covered with rubber, as by covering the same with rubber hand grip pieces 26 of the conventional type used, for instance, on bicycle handle bars.

The straight frame portion 16 has rigidly attached thereto two U-shaped brackets 28 and 30 spaced from each other and extending in the plane of the frame away from the legs 18 and 20. The terminal portions of the legs of these brackets are formed with upper and lower lugs 32 and 34 (see Figure 5) pierced by aligned apertures receiving a bolt 36 threadedly engaged by a wing nut 38 outside the bracket.

The two arms 20 and 18 of the frame are connected and rigidified by a cross bar 40 extending in parallelism with the straight bight portion 16 and fixedly attached to the legs 18 and 20 near their junction with the curved frame portions 22 and 24.

The cross bar may be formed of metal tubing of adequate strength. A clamp 42 is adapted to be tightened about the cross bar (at the middle thereof) by a nut and bolt 44 (see Fig. 6). The clamp 42 is formed with a lug 46 having an eye by means of which a chain 48 is suspended. The chain 48 has a terminal hook 50 adapted to be hooked around a rung of the ladder 11 in a manner described hereinbelow.

Internally threaded sockets 52 and 54 extend inwardly and forwardly from the frame legs 18 and 20, respectively, at an angle of about 45°. These sockets are adapted to receive and hold the externally threaded ends of two extension arms 56 and 58, which, when so held, will extend inwardly and forwardly from about the middle of the arms 18 and 20 at an angle of about 45°

past the rubber covered ends 26 of the arms 18 and 20. Similarly to the free ends of the arms 18 and 20, the free ends of the extension arms 56 and 58 are covered with rubber, for instance, by having rubber handle grips 60 fitted thereover.

Three different ways of supporting the ladder 11 against the building 13 by means of the brace 10 are illustrated in the drawing. As shown in Figure 1, the two brackets 28 and 30 may be placed over the highest rung on the ladder 11, and the pulleys 36 and wing nut 38 are attached to the brackets and tightened so that the brackets will engage the top rung and the brace 10 will be held at an angle of about 90° with the ladder against swinging movement relative to the ladder. This attachment is carried out before the ladder is erected, and the frictional resistance offered by the tightened clamps is sufficient to insure that the frame will extend generally normally from the ladder while the ladder is being erected. Further, the hook 50 is slipped over the next to the highest rung of the ladder, which may then be supported from the roof 19 with the rubber covered ends 26 of the extension resting on the roof. When in this position, the clamp 48 prevents folding of the brace 10 against the ladder under the influence of the weight of a workman. It will be noted that the eaves trough or gutter 21 is easily accessible to a workman from above and from in front, without any necessity for holding on to the ladder; that the trough may be moved or replaced since the ladder does not rest on the trough or gutter; and that for the installation of a new trough or gutter the new trough or gutter may be carried up to the roof on the inner side of the ladder. Further, if the wall 23 includes a series of closely spaced high windows offering no satisfactory support for the top of the ladder as in an enclosed porch, the brace 10, being supported from the roof, still makes it easy and safe to paint such a wall.

In the position shown in Figure 2, the brace 10 rests on the wall 23 of the building. For this position the brackets 28 and 30 are clamped around the next to the highest rung of the ladder, while the hook 50 of the chain 48 is slipped over the highest rung of the ladder. This reversal of position as shown in Figure 2, prevents folding of the brace 10 against the ladder, since collapsing tends to take place downwardly instead of upwardly (as in the position shown in Figure 1).

It will be noted that when mounted as shown in Figure 2, the ladder offers free access to the eaves trough or gutter 21.

In Figures 1 and 2, the brace 10 has been shown as resting against a single surface, the extension arms 56 and 58 not being used. Such use is shown in Figure 3 where the rubber covered ends of the extension arms rest against the two walls 23 and 25 forming the corner 27. When the ladder is mounted as shown in Figure 3 both wall surfaces around the corner 27 are simultaneously accessible to a workman.

The width of the brace 10 (the distance between the rubber covered ends 26 of the arms 18 and 20) is preferably sufficient to span the width of a standard size window, to permit the workman to work with ease directly above the window, as for painting, carpentry work or repair of an eaves trough; to support a ladder more safely; and to permit sufficiently wide spacing of the rubber covered ends 60 of the removable extension arms 56 and 58 when the latter are

used. The length of the arms of the brace should be such as to hold the ladder at convenient arm's length from the side of a building. The chain 48 should be made sufficiently long to allow the brace to rest against a building at a safe angle preventing folding. The extension arms 56 and 58 should be long enough to permit the rubber covered ends 60 to rest outside a corner with the cross bar 40 clear of the corner.

The specific brace shown in the drawing has been described merely by way of an illustrative example. Many changes in structure may be made without departing from this invention. For instance, the brackets 28 and 30 may be any suitable conventional means for removably attaching the brace to a ladder rung at spaced points without danger of disengagement and characterized by sufficient frictional resistance against swinging movement about the rung to maintain the brace in angular relationship to the ladder while the ladder is being erected. In place of the chain 48, a rigid hooked bar swingable about the cross bar 40 may be employed. Any suitable means may be employed for securing the extension arms 56 and 58 to the brace arms 18 and 20. It is therefore not my intention to limit the patent granted on this invention otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. An extension brace for a ladder comprising a generally U-shaped frame having a straight bight portion and straight terminal leg portions, spaced clamps on the straight bight portion for attaching said brace to a ladder rung, a cross bar connecting the legs of said frame, a member having a terminal hook swingably suspended from said cross bar for engaging another ladder rung, internally threaded sockets projecting forwardly from the insides of the frame legs at about a 45° angle, and extension legs having threaded ends threadedly received within said sockets, the ends of said frame legs and of said extension legs being covered with rubber, said brace when clamped onto a ladder rung with the hook on said swingable member engaging another ladder rung being capable of support-

ing and spacing the top of said ladder from a structure against which said ladder is erected.

2. An extension brace for a ladder comprising a generally U-shaped frame having a bight portion and leg portions, spaced clamps on the bight portion for attaching said brace to a ladder rung, a cross bar connecting the legs of said frame, a chain member having a terminal hook swingably suspended from said cross bar for engaging another ladder rung, and removable extension legs projecting forwardly and inwardly from the insides of said frame legs, said brace when clamped onto a ladder rung with the hook on said swingable member engaging another ladder rung being capable of supporting and spacing the top of said ladder from a structure against which said ladder is erected.

3. An extension brace for a ladder comprising a generally U-shaped frame having a bight portion longer than the rungs of said ladder and leg portions adapted to extend forwardly from said ladder outside the ladder uprights, spaced clamps on said bight portion for attaching said brace to a ladder rung, a cross bar connecting the legs of said frame at points spaced from said ladder uprights, and a chain member having a terminal hook and swingably suspended from said cross bar for engaging another ladder rung, said brace when clamped onto a ladder rung with the hook on said swingable member engaging another ladder rung being capable of supporting and spacing the top of said ladder from a structure against which said ladder is erected.

JAMES A. BURKE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
549,910	Endress	Nov. 19, 1895
1,352,914	Plasclascovite	Sept. 14, 1920
1,553,279	Wirth	Sept. 8, 1925
1,760,803	Wirth	May 27, 1930
2,237,596	Eilers	Apr. 8, 1941
2,327,317	Randall	Aug. 17, 1943
2,414,078	Wetzel	Jan. 7, 1947