Oct. 14, 1958 O. BRODERICK 2,856,112

LADDER BRACKETS

Filed Dec. 29, 1952 3 Sheets-Sheet 1

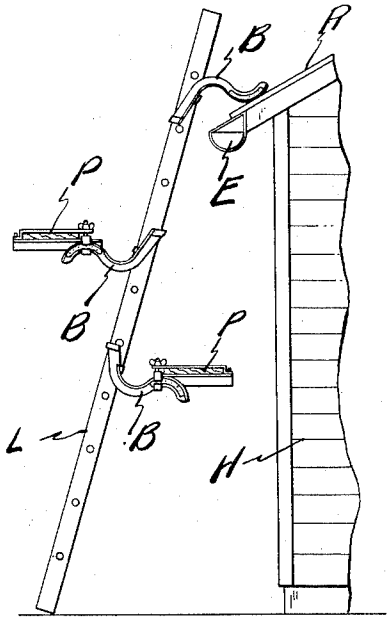


Fig. 1

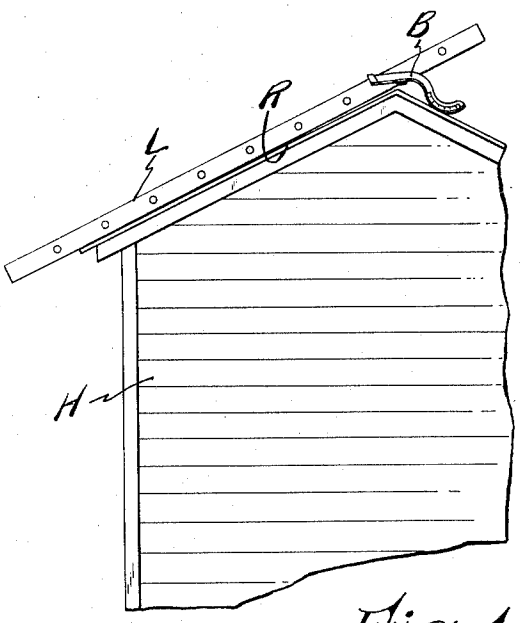


Fig. 4

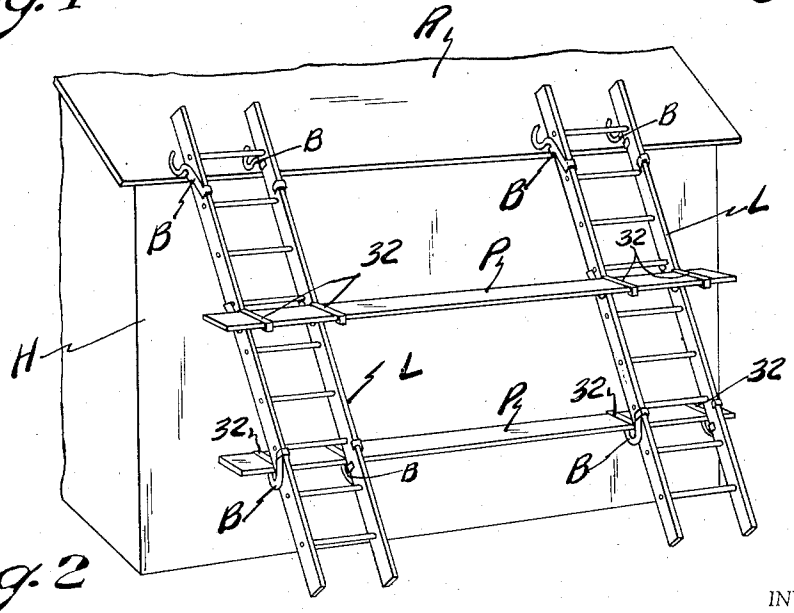


Fig. 2

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Oct. 14, 1958 O. BRODERICK 2,856,112

LADDER BRACKETS

Filed Dec. 29, 1952 3 Sheets-Sheet 2

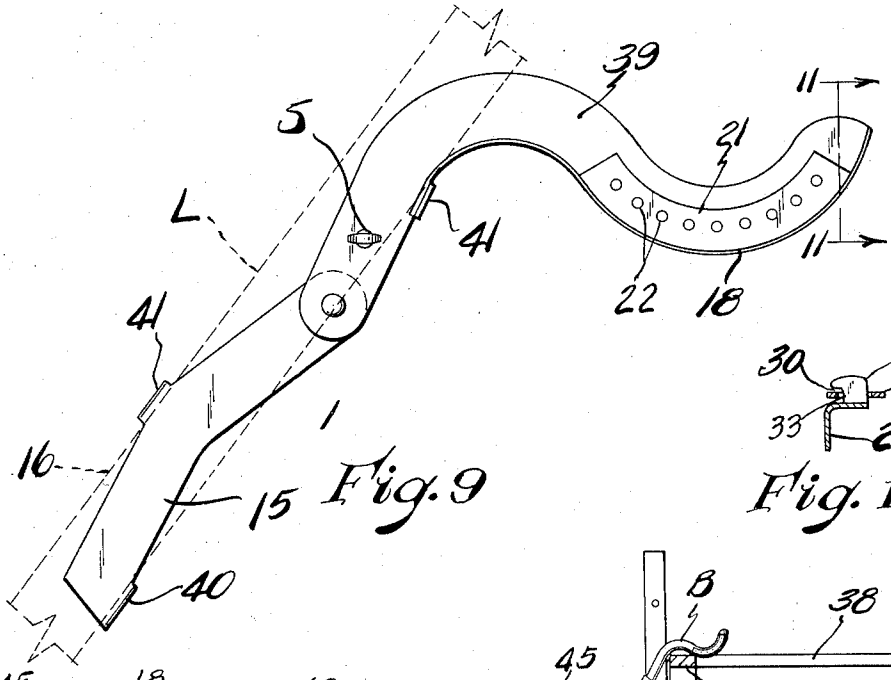


Fig. 9

Fig. 10

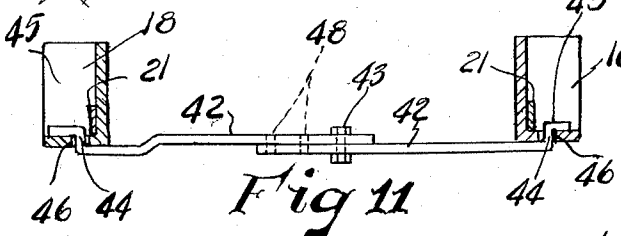


Fig 11

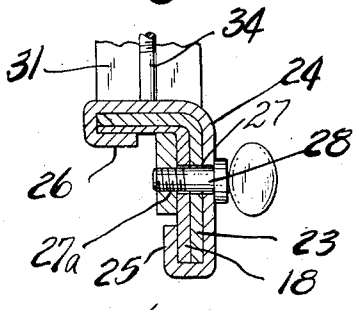


Fig. 7

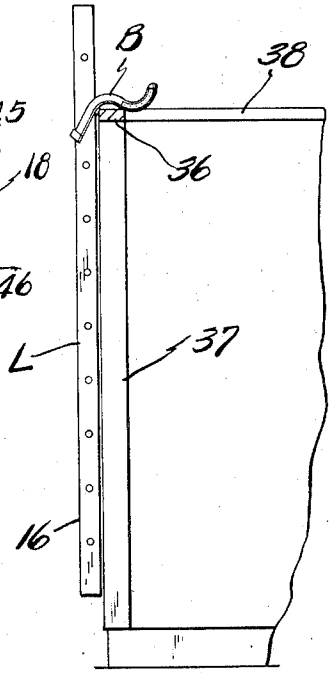


Fig. 3

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Oct. 14, 1958 O. BRODERICK 2,856,112

LADDER BRACKETS

Filed Dec. 29, 1952 3 Sheets-Sheet 3

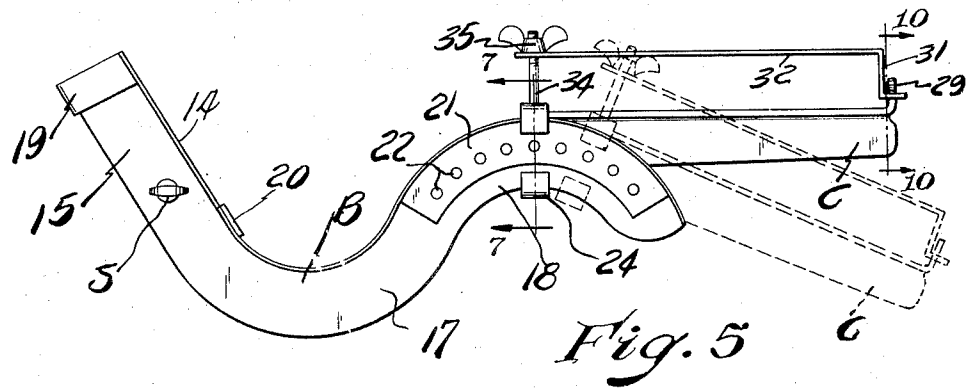


Fig. 5

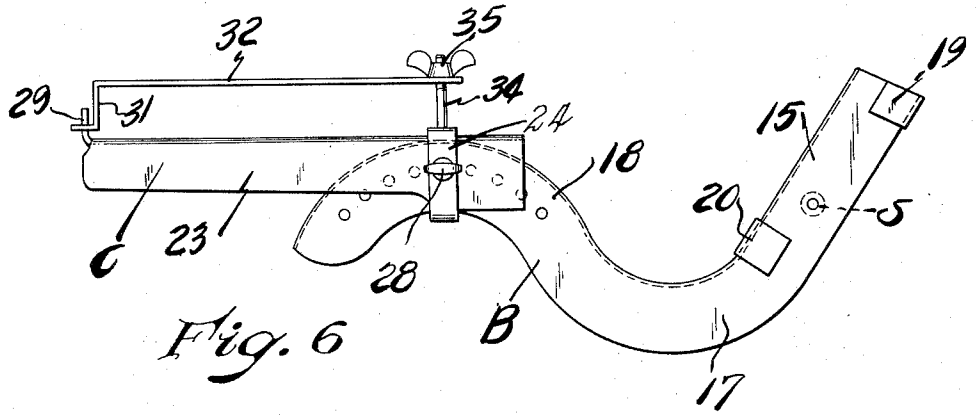


Fig. 6

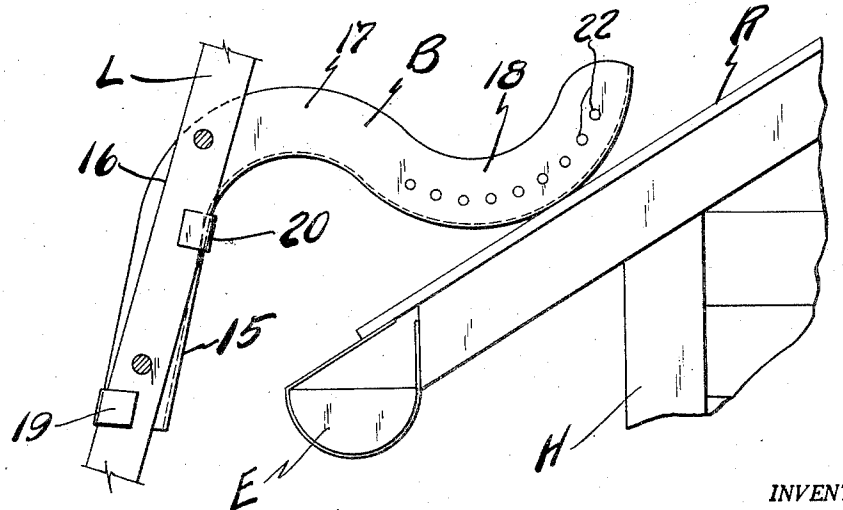


Fig. 8

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United States Patent Office 2,856,112 Patented Oct. 14, 1958

2,856,112

LADDER BRACKETS

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Application December 29, 1952, Serial No. 328,371

10 Claims. (Cl. 228—60)

This invention relates to ladder brackets for supporting the upper end of a conventional ladder a spaced distance from a roof or wall, and more particularly to ladder brackets which are employed in pairs, and supported individually on each leg of a ladder rather than on the rungs thereof.

One of the prime objects of my invention is to design ladder brackets which can be simply and securely mounted on the legs of a ladder rather than on the rungs thereof as are conventional ladder brackets, and which are of such construction that when a weight is applied to the ladder, the effect is to more firmly clamp the brackets on the ladder legs and prevent displacement thereof.

A further object of the invention is to design novel ladder brackets which can be mounted on the upper end or intermediate the length of a ladder to extend over a depending eaves trough and bear on roofs of varying pitch, thus supporting the upper end of the ladder away from the roof in a position where it will not bear against or injure the eaves trough or ornamental trim.

Another object of the invention is to provide novel ladder brackets which curve up and over the eaves trough and thence are reversely curved to provide a smooth bearing surface which will not dig into or injure the roof, regardless of the angle at which the ladder is supported, and so that the angular position of the ladder relative to the roof may be readily and easily shifted without damaging the roof.

A further object of the invention is to design ladder brackets which are vertically adjustable and which can be positioned vertically on the ladder to adapt them to ladders and/or roofs of varying height and pitch.

Another object of the invention is to design ladder brackets which are employed in pairs, one on each leg of the ladder, so that they may be employed on ladders of varying width, and when not in use can be compactly bundled and stored in a relatively small space.

Another object of the invention is to provide ladder brackets which are amply strong and sufficiently firmly secured to support a ladder from the ridge of a roof, or suspended from an edge beam when bearing against a stud and prevented from swinging inwardly.

A further object of the invention is to design reversible ladder brackets and plank clamping means therefor which can be easily positioned on the brackets and readily secured to support a plank and thus provide a scaffold on either side of the ladder, depending upon the manner in which the ladder brackets are mounted.

Another object of the invention is to design ladder brackets and plank clamping means therefor which can be adjusted relative thereto so that the plank or scaffold can always be supported horizontally regardless of the angle at which the ladders supporting the scaffold are inclined.

A further object of the invention is to design lightweight ladder brackets of durable and rugged construction which are amply rigid to support loads as heavy as may be safely carried by the ladder.

A still further object of the invention is to design ladder brackets which may be readily applied to the legs of a conventional ladder without the aid of tools, and which can be simply and inexpensively manufactured.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportion, and minor details of construction, without departing from the spirit, or sacrificing any of the advantages of the invention.

In the drawings:

Fig. 1 is a side elevational view showing several pairs of brackets mounted on a ladder, the upper pair engaging the roof of a building and spacing the upper end of the ladder from the eaves trough, the other pairs showing the brackets reversely mounted to extend from opposite sides of the ladder with plank clamping means on each pair of brackets to support planks which form inner and outer scaffolds.

Fig. 2 is a front perspective view thereof.

Fig. 3 is a side elevational view illustrating the manner in which a ladder may be hung from a beam in a partially constructed building.

Fig. 4 is a side elevational view showing another application of the ladder brackets which are shown hooked over the ridge of a roof to retain a ladder thereon.

Fig. 5 is a side elevational view of a ladder bracket with plank clamping means thereon, the broken lines illustrating an adjusted position of the plank clamping means.

Fig. 6 is a view similar to Fig. 5 showing a slightly different arrangement.

Fig. 7 is a transverse, sectional view taken on the line 7—7 of Fig. 5.

Fig. 8 is a side elevational view showing the ladder brackets holding the upper end of a ladder shown in section spaced from the roof so as not to bear against and injure the eaves trough.

Fig. 9 is a side elevational view of a modified ladder bracket mounted on a ladder which is shown in broken lines.

Fig. 10 is a transverse, sectional view taken on the line 10—10 of Fig. 5.

Fig. 11 is an enlarged, vertical, sectional view taken on the line 11—11 of Fig. 9.

Referring now more particularly to Figs. 1–8 of the accompanying drawings in which I have shown one embodiment of my invention, the letter B generally indicates one of my brackets which it is to be understood are substantially identical and are employed in pairs, each pair comprising a right hand and a left hand bracket. Each bracket B is formed of an angle member including a flange 14, and comprises a linear shank portion 15 adapted to be applied to the leg 16 or side rail of a ladder L, a substantially laterally extending intermediate portion 17 curved to avoid an eaves trough when the bracket is mounted on the upper end of a ladder, and a reversely curved portion 18 to bear against a roof or wall.

In Figs. 1, 2, 4 and 8 is shown the side wall of a building designated by the letter H, the roof by the letter R, and the eaves trough by the letter E. The shank portion 15 is provided with a pair of oppositely disposed keeper bands 19 and 20 extending transversely from the shank portion 15 opposite the flange 14, the strap 19 being welded to the edge of the shank 15 adjacent the free end thereof and the band 20 being welded or otherwise rigidly secured to the flange 14 near the intermediate portion 17. The free ends of the bands 19 and 20 are turned inwardly in opposite directions to embrace the

front and rear edges of the ladder leg **16**, and a setscrew S is provided intermediate the bands **19** and **20** to hold the bracket B in position on the ladder when there is no weight thereon. When a weight is applied to the ladder, it will be obvious that the keeper bands **19** and **20** bear on the opposite edges of the side rails **16** to firmly grip and insure that the bracket cannot slip off, all as clearly shown in Fig. 8 of the drawings.

The bands **19** and **20** are substantially U-shaped in cross section, and are open to permit the brackets to be easily placed on the ladder at any given height without necessitating slipping them on from the end of the ladder. It is important to note that the stresses are taken by the side rails of the ladder, rather than by the rungs, and while the end bands could be of sufficient length as to engage one or more of the rungs and relieve a portion of the strain on the side rails of the ladder it is not necessary since the side rails of the ladder L are well able to sustain any load which may be safely borne by the ladder.

Since painters, construction men and the like are often desirous of erecting scaffolds on which they may stand to work at different levels, it is highly desirable that plank supporting and clamping means be provided for the brackets. Preferably, this plank clamping means should be detachable so that it can be removed when not in use. To this end a reinforcing strip **21** is provided on the reversely curved portion **18** of the bracket B, and a plurality of spaced apart threaded openings **22** are provided in the strip **21** and section **18**. These openings comprise means providing an arcuate adjustment. This arrangement is particularly shown in Fig. 7, and it is to be noted that the angle base **23** of the shank supporting clamping means or clamping bracket which is generally designated by the letter C is shaped to fit over the reversely curved portion **18** of the bracket B and is slidable thereon.

A strap **24** is welded to the base **23** adjacent the one end thereof, and the free ends **25** and **26** thereof are bent outwardly and thence reversely to embrace the portion **18** and retain the clamping bracket C on the bracket B. The bracket C is, of course, slipped over the free end of the portion **18** and is thence adjusted thereon until it is horizontally disposed. An opening **27** is provided through the strap **24** and base **23** which can be aligned with a threaded opening **27*a*** in the portion **18** and strap **21** so that a setscrew **28** may be threaded therein to maintain the bracket C in adjusted position.

The opposite end of the base **23** is upturned as at **29** and formed with a hooked head **30** so that the downwardly and thence horizontally bent leg **31** of a clamping strap **32** may be pivotally secured thereon, the leg **31** having a slot **33** to accommodate the head **30**. At the inner end of the bracket C a threaded post **34** is provided to secure the free end of the strap **32** which is provided with an opening (not shown) to accommodate the post **34**. A wing nut **35** clamps the plank P in position, and it will be obvious that planks P of varying thickness may be employed and securely clamped in position.

Figs. 1, 2, 3 and 4 illustrate some of the practical ways in which the bracket combinations may be used. In Figs. 1 and 2 the brackets are shown supporting the upper ends of a pair of ladders outwardly of the roof R, and other brackets are shown supporting planks P on both the inner and outer sides of the ladder to form scaffolds of varying position and height. Fig. 3 illustrates the use of the brackets on the upper end of a ladder to hook over the ridge line of a roof so that the roof surface may be easily repaired, or to gain access to a chimney or aerial or the like (not shown).

In Fig. 3 of the drawings, the brackets are shown suspending a ladder L from an edge beam **36** which is supported by studding **37** on joists **38** in an unfinished structure. The ladder L is, of course, prevented from swinging inwardly by the studding **37**, and is otherwise securely held by the brackets B.

It will be apparent that the brackets are simply placed on the ladder at the desired height and in the desired position and secured thereon by the setscrew S. When a workman climbs the ladder, the effect is to more firmly secure the brackets in position.

In Fig. 9 I have shown still another modification of the invention, and this arrangement comprises a link **39** pivotally mounted on the free end of the shank portion **15**. In this embodiment, the keeper band **20** is omitted, and identical bands **40** and **41** are provided instead to form a three point bearing to clamp the device on the side rail **16** when the bracket is in load-bearing engagement. In this embodiment, the keepers **40** and **41** are formed on the bracket and thence bent to shape, but it will be obvious that they can be pre-formed if desired, and welded on the device as were the keepers in the embodiment first described. The action of this form of bracket is the same as that previously described, the application of weight to the ladder serving only to more tightly secure the brackets on the ladder, and the setscrew S is positioned as shown in the inner end of the portion **39**, rather than in the shank portion **15**.

In Fig. 11 I have shown an adjustable, two-piece cross bar or brace **42—42** connected by bolt **43**, which brace may be used to connect the free roof-engaging ends of a pair of my brackets, and while the employment of this two-piece extensible brace is not necessary, it may be desirable to use it in some instances. Each of the overlapping brace bars **42** is formed with legs **44** having horizontally disposed extensions **45** which extend through slots **46** provided in the reversely curved portion **17**. The inner end of one of the side bars **42** is provided with openings **48** and the inner end of the other bar **42** can be slotted to accommodate the bolt **43**. It will be obvious that the brace bar **42—42** is extensible to accommodate to ladders of varying widths once the bolt **43** is removed.

From the foregoing description, it will be obvious that I have perfected a very simple, practical, and substantial lightweight bracket which can be readily manufactured, easily applied, and which is adaptable for a wide variety of purposes.

What I claim is:

1. In combination with a ladder, a ladder bracket for application to a ladder, said bracket having a shank portion supported on said ladder, and a portion curving substantially laterally therefrom and thence curving reversely, said reversely curved portion being provided with a plurality of laterally spaced openings therein, a substantially linear plank clamping bracket slidable on said reversely curved portion, means thereon extending into one of said openings to secure said plank clamping bracket thereon, and means on said shank portion for releasably securing the bracket on the ladder.

2. The combination as defined in claim 1 in which said ladder bracket is angular in cross section and said plank clamping attachment is angle-shaped and fits thereover, and clasp means are provided on said clamping attachment to embrace said reversely curved portion.

3. The combination defined in claim 1 in which said plank clamping bracket is comprised of an angle-shaped bar, a threaded post thereon, a pivotally mounted strap on said bar having an opening in the free end thereof to accommodate said post, and means on said post for clamping said strap in position to secure a plank.

4. In combination with a ladder, a ladder bracket for application to the ladder, said bracket having a support engaging portion extending substantially laterally with relation to said ladder, the support engaging portion including a reversely and outwardly turned portion presenting a concave surface to said support surface, a shank portion releasably secured to said ladder and pivotally secured to said laterally extending portion, means on said laterally extending portion movable into clamping engagement with the ladder and keeper means on said shank portion and the inner end of said load-

bearing portion in engagement with the opposite edges of said side rail to firmly clamp said bracket thereon when a load is placed on said ladder.

5. A ladder, a ladder bracket for application to said ladder comprising a shank portion releasably secured on said ladder, an intermediate portion curving laterally from said shank portion to extend over an eaves trough when said bracket is upright on said ladder adjacent an eaves trough, and a reversely curved portion extending from said intermediate portion to bear on the roof to which the trough is secured, a plank clamping attachment, said reversely curved portion having laterally spaced openings for securing the plank clamping attachment when said bracket is inverted, and means on the attachment selectively engageable in one of the openings.

6. In combination with a ladder, a ladder bracket supported thereon, said bracket including a portion extending laterally from said ladder and having a curvilinear end section, a substantially linear supporting attachment slidable longitudinally on said end section, and means for adjustably securing said attachment to said end section at different positions relative to the curve of said end section so that the attachment can be level regardless of the angle of inclination of the ladder.

7. The combination defined in claim 6 in which said supporting attachment includes clasp means for releasably accommodating said curved section of said bracket to restrain shifting of said attachment thereon except in a longitudinal direction.

8. The combination with a ladder of; a ladder bracket mounted thereon and comprising; a shank portion extending generally along the length of the ladder; and a support section extending generally laterally from said shank portion; a removable plank supporting attachment having a flat plank support surface; means on one of said support sections and plank supporting attachment providing an arcuate adjustment to dispose the plank support surface at different angles relative to the ladder so that the plank support surface can be leveled regardless of the angle of inclination of the ladder; and securing means cooperating between the plank supporting attachment and said laterally extending support section for releasably securing said plank supporting attachment in adjusted position.

9. The combination with a vertically inclined ladder which is to be supported adjacent a wall by a roof of: a ladder bracket mounted thereon and comprising; a shank portion extending generally along the length of the ladder; and a section curving upwardly and outwardly in a general lateral direction from the upper end of said shank portion in the general vertical plane of said shank portion; a portion having a downwardly and outwardly concavely curved under surface extending concavely in the said plane laterally from said section; said concave surface providing a convex support surface for a plank supporting attachment having a plank support surface which can be supported on top of said curved surface to dispose the plank support surface at the desired angle relative to the ladder so that the plank support surface can be leveled regardless of the angle of inclination of the ladder when the bracket is turned upside down on the ladder so that the said section extends from the lower end of the shank portion; and means for releasably securing said shank portion in adjusted positions on said ladder.

10. The combination defined in claim 9 in which said bracket is angular in cross section with a flat flange forming the said concavely curved portion.

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