

(19) AUSTRALIAN PATENT OFFICE

(54) Title
Ladder Mounting

(51)⁶ International Patent Classification(s)
E06C 7/48 (2006.01) 20060101AFI2005111
E06C 7/48 OBMEP

(21) Application No: 2004242514 (22) Application Date: 2004 .12 .24

(43) Publication Date : 2005 .02 .10

(43) Publication Journal Date : 2005 .02 .10

(62) Divisional of:
47172/00

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(56) Related Art
US 4813515
US 5215163
US 5509500
US 5358071

ABSTRACT

A ladder mounting including: a body member mountable adjacent an outer wall of a gutter and defining a bearing surface against which in use a ladder bears; a locating formation extending from the body member to be receivable in the gutter to bear against an inner wall of the gutter to locate the body member with respect to the gutter; a fastening means, carried by the body member, for releasably fastening the ladder to the body member; and a positioning means arranged on the body member, for positioning the body member with respect to the gutter. The positioning means defines a pivot axis about which the body member pivots, the positioning means being positioned on the body member such that, when unrestrained, the body member and the locating formation pivots about the pivot axis such that the locating formations hangs downwardly.

2004242514 24 Dec 2004

P/00/011
Regulation 3.2

AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION

Invention Title:

Ladder Mounting

The following statement is a full description of this invention, including the best method of performing it known to me:

Ladder Mounting

This invention relates to a mounting for a ladder. It particularly relates to a means of safely mounting a ladder in position against a gutter of a building.

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Elongated open gutters of buildings provide run-off of water from a roof. In a vertical section a gutter is usually a substantially U-shaped channel having side walls interconnected by a bridging floor portion. They can be made of metal such as thin folded aluminium form which is pressed rolled to shape from a roll of aluminium sheeting. Other forms of gutters are made from extruded plastics. The gutter, in use, is usually mounted below an overhang of a roof and extends continuously around the roof of the building connecting to down pipes to transport the water to a storm water drain or the like. One side wall of the gutter bears against a fascia board of the building or is received inwardly of an underside of the roof with the other side wall of the gutter being spaced outwardly of the ends of the roof

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Gutters require regular maintenance due to the collection of leaves and other debris or purely due to weather damage on the gutter, the fascia boards of the building adjacent the gutter to which the gutter is usually attached or to the roofing material.

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For these purposes access to the gutter is normally achieved by placing a ladder against the protruding gutter. If the gutter is in disrepair or the substrate on which the ladder is placed is uneven or not firm, the ladder can slip relative to the gutter. This can cause the ladder user to fall causing injuries. Occupational health and safety (OH&S) regulations for workers undertaking chores on external sides of buildings require secure mounting of ladders. Also domestic use and do-it-yourself (D-I-Y) repairers need to maintain safe operating practices of ladders.

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The invention is designed to restrict the movement of the ladder when the ladder is positioned against the gutter. The invention is designed to afford the user safer access to the roof area to carry out general roof maintenance. As well as allowing maintenance to be carried out on the gutters and roof, it also protects the gutters

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against damage arising from the ladder leaning directly against and distorting or breaking the gutter.

Disclosed in US Patent No. 4,185,421 to Robinson is a combination safety device and gutter protector for use with a ladder which is leaned at an angle to the wall of a house

- 5 or the like, the upper ends resting laterally secure against a relatively narrow extending surface of the device and not against the outer edge of a gutter installed on the eave of a roof. The device of the invention serves to prevent slippage or other undesirable movement of a ladder when it is placed in position for use and is a support means supporting the ladder and its load directly to the fascia board of a
- 10 house, rather than to the gutter. The device is an "H" shaped support means attached to a gutter backwall and to a fascia board and is composed of two spaced apart stanchions and a crossmember, each of the stanchions having a longitudinal passageway thereto and an elongated spike disposed in the passageway. One end of the spike protrudes through the gutter backwall and is embedded in the fascia board.
- 15 A terminal portion of each stanchion and a free edge of said crosspiece protrudes beyond the free edge of the gutter forming a recess in which a ladder may be disposed.

A ladder support for mounting on the fascia board of a structure and securing the top end of a ladder to facilitate access to the roof of the structure is disclosed in US Patent

- 20 No 5,215,163 to Kent. In a preferred embodiment the ladder support includes a pair of spaced legs extending outwardly and upwardly in spaced relationship from fixed attachment to the fascia board and a crossbar connecting the extending legs intermediate the ends of the legs. The angle of extension of the legs facilitates clearance of any gutter which might also be mounted on the fascia board of the
- 25 structure and allows placement of the top segment of the ladder against the crossbar to support the ladder at a safe angle with respect to the supporting surface. In another preferred embodiment a sliding bracket is mounted on the crossbar and is fitted with a thumb screw for locking the bracket against one leg of the ladder and further securing the ladder on the crossbar.

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Shown in US 5,358,071 to Stennett is a ladder support attachment for supporting a ladder relative to a building while avoiding damage to the gutters or eaves trough

24 Dec 2004

2004242514

includes opposed support legs releasably attachable to a transversely extending support rod which is, in turn, receivable within the hollow rung of the ladder. The support legs each have return legs associated therewith and configured to fit within the gutter and bear against the rear wall thereof to enable the ends of the support legs
5 to rest on the roof of the building with the return legs within the gutter and the ladder itself firmly supported but out of contact with the gutter

10 In US Patent No. 4,813,515 to Wigington there is a gutter guard device which includes an elongated, tubular frame formed by a rolled and stamped sheet metal construction. The stamping process defines transverse bracing webs and vertical flanges which brace between front and rear tubular braces. Pivotal legs carried by frame allow for easy installation of the guard in a gutter. Spaced indicator brackets assist the support of the front of the frame while providing visibility to determine location of the frame from the ground. A ladder may be leaned against the gutter
15 between the indicator tabs.

In US Patent No 5,509,500 to Delagera there is disclosed a gutter guard protector and anti-slip ladder device for a roof on a building comprising an assembly that is insertable into the gutter, for preventing the top portions of the side rails of the ladder
20 from crushing the front segment of the gutter when placed against it. A structure on the assembly is for preventing the top portion of the side rails of the ladder from sliding off when placed thereagainst. However the structure does not positively hold the ladder and does nothing for different sized ladders.

25 In particular the majority of known systems require final fittings while on the ladder or merely rely on frictional hold of the ladder to the mounting device.

It is a further design of the invention to provide an improved ladder mounting which can allow for complete set-up by the user while remaining on the ground.

30 In accordance with the invention there is provided a ladder mounting including: a body member mountable adjacent an outer wall of a gutter and defining a bearing surface against which in use a ladder bears; a locating formation extending from the body member to be receivable in the gutter to bear against an inner wall of the gutter

to locate the body member with respect to the gutter; a fastening means, carried by the body member, for releasably fastening the ladder to the body member; and a positioning means arranged on the body member, for positioning the body member with respect to the gutter.

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The positioning means can define a pivot axis about which the body member pivots, the positioning means being positioned on the body member such that, when unrestrained, the body member and the locating formation pivots about the pivot axis such that the locating formations hangs downwardly. The positioning means includes a lug projecting outwardly from a surface of the body member opposed to the bearing surface, the lug having a passage defined therethrough, an axis of the passage defining the pivot axis.

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The positioning means can include a manipulating means pivotally secured to the lug by a pivot pin received in the passage.

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The body member can comprise a planar element defining the bearing surface and an attachment formation arranged at each end of the planar element. Preferably each attachment formation carries one of the fastening means.

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The locating formation can comprises a leg projecting from a side of the body member opposite its bearing surface. The ladder can have the leg shaped to pass over a lip of the outer wall of the gutter to be received in a channel of the gutter and to bear against the inner wall of the gutter so that a force exerted by a ladder, and a person on the ladder, in use, is transferred to the inner wall of the gutter.

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The ladder mounting can have the fastening means able to automatically fasten a ladder therein when received. One preferred form is for the fastening means to comprise two swivel catches such that leaning the ladder against the swivel catches allows the swivel catches to rotate to a holding position for holding the ladder.

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The ladder mounting can further include a release means connecting to the fastening for releasing the fastening means to release the hold on the ladder. A release means activator can be able to activate the release means and extend from the release means

when located in a gutter and holding a ladder to a position reachable by a person on the ground. The release means activator also can in one preferred form act as the manipulating means for mounting the ladder mounting in the gutter by a person on the ground.

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It can be seen that the invention can allow for mounting of the ladder mounting in the gutter by a person on the ground. Further it can allow a ladder to be fasten to the ladder mounting by a person on the ground. Still further it can allow release of the ladder from the ladder mounting by a person on the ground. This dramatically positively affects the safe working environment of the user of a ladder when required to work where there is a protruding gutter on external side of a building.

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In order that the invention can be more readily understood embodiments will be described by way of illustration only with reference to the drawings wherein:

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Figure 1 is a perspective view of a ladder mounting in accordance with a first embodiment;

Figure 2 is a perspective view of a ladder mounting in accordance with a second embodiment of the invention;

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Figure 3 is a schematic side view of the ladder mounting of Figure 2 while in use;

Figure 4 is a perspective view of a front of a ladder mounting in accordance with a third embodiment;

Figure 5 is perspective view of a rear of the ladder mounting of Figure 4;

Figure 6 is side diagrammatic elevation of the ladder mounting of Figure 4;

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Figures 7A, 7B and 7C are partial close up views of the front of the ladder mounting of Figure 4;

Figure 8 is a side diagrammatic elevation of the one part of the fastening means of the ladder mounting of Figure 4.

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Referring to the drawings and particularly Figures 1 to 3 there is shown a ladder mounting 10 comprising a body member 12 in the form of a substantially planar element. The ladder mounting 10 can be a moulding of a suitable plastics material. A pair of ears 14 project from either end but on one side of the substantially planar element 12.

5 A locating formation 15 in the form of a leg projects from a longitudinal edge of the opposing side of the planar element to the side having the ears 14. The locating formation is sized and shaped to be able to be received in the open channel 32 of a gutter 34. The leg 15 has in cross section a substantially dog leg shape defining an angled planar upper leg part 16 extending across and away from the planar element 12 to an intermediate knee 18 and a lower planar leg 20 and finishing with an inturned foot 22.

10 In use the locating formation 15 fits over the outer edge of the open channel 32 of the gutter 34 with the upper leg part extending to the base of the gutter 34 and the lower leg extending to along the gutter to the inner wall and the inturned foot resting against the inner wall and the fascia board to which the gutter is attached. In this way the inturned foot 22 bears against the inner surface of the inner wall 36 of the gutter to
15 stabilise the ladder mounting 10 in position.

The locating formation 15 is configured and dimensioned relative to the gutter such that it can rest in the gutter and extend beyond the outer wall of the gutter such that the planar element 12 is held at a position spaced from the extremities of the outer
20 wall of the gutter. As a result, when a ladder 42 bears against the planar element 12 of the ladder mounting 10 received in position relative the gutter 34, a force exerted by the ladder 42, and in use, a person on the ladder 42, is substantially transferred by the location formation 15 to the inner wall 36 of the gutter and accordingly a fascia board 44 against which the gutter is mounted.

25 A fastening means 28 in the form of a resiliently flexible member such as a length of shock cord is releasably secured by an engaging hook 30 to each ear 14 at either end of the planar element 12 against which the ladder 42 is rested. A hook 32 is carried at a free end of each shock cord 28 for fastening the ladder 42 to the ladder mounting 10.

30 In the embodiment of the invention illustrated in Figure 1 a positioning means 24 in the form of a lug 24 projects from a central position on the 12 on the same side as the leg 16 projects. The lug 24 has an opening or passage 26 defined therethrough, the passage 26 having an axis extending parallel to the planar element 12. A suitable

device (not shown) is inserted into the passage 26 for lifting and manoeuvring the ladder mounting 10 into position relative to the gutter 34.

5 In use a long pole with a hook at a distal end can engage the opening 26 and the ladder mounting can be raised into position above the gutter with the locating formation 15 in the form of the leg, hanging downwardly from a height above the gutter 34. The leg 15 is then lowered into the channel 32 of the gutter 34 and is manipulated so that the intumed foot abuts the inner wall 36 of the gutter 34 and the planar element 12 extends beyond the outer wall 38 of the gutter 34. The shape of the
10 lower leg 20 and the intumed foot 22 assist in effecting a locking action of the location of the ladder mounting 10 in position relative to the gutter 34. The ladder 42 is raised into position to bear against the outer surface of the planar element 12.

15 It can be seen that the majority of the placement and mounting of the ladder into position is achieved while the user is on the ground.

Referring to Figures 2 and 3 there is shown a further embodiment of the invention in which like reference numerals to Figure 1 is used for corresponding parts.

20 In this embodiment of the ladder mounting 10 includes a manipulating means in the form of a telescopic pole or post 46. The post is secured by a connector 48 to the lug 24. The connector 48 has a pivot pin 50 which is received in the passage 26 of the lug 24 for pivotally securing the post 46 to the planar element 12 of the ladder mounting 10. As illustrated in Figure 2 of the drawings, when the ladder mounting is raised into
25 position relative to a roof 52 of the building, the centre of gravity of the ladder mounting 10 is such that the leg 16 hangs downwardly. As described above the leg 16 is inserted into the channel 32 of 32 of the gutter 34 and the ladder mounting 10 is lowered so that the leg 16 bears against the lip 40 of the outer wall 38 of the gutter 34. This effectively wedges the ladder mounting 10 and inhibits thereof relative to the
30 gutter 34.

As shown in Figures 4, 5 and 6 there is shown a particularly preferred further embodiment in which the fastening means 28 is provided to be able to achieve connection or fastening of the ladder 42 to the ladder mounting 10 by the user on the

ground. The fastening means comprises parts similar to the fastening means of Figures 1, 2 and 3 and therefore these parts are not further explained. However The ladder mounting of any one of the preceding claims in which the fastening means is able to automatically fasten a ladder therein when received.

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However the ladder mounting further includes fastening means comprising two swivel catches such that leaning the ladder against the swivel catches allows the swivel catches to rotate to a holding position for holding the ladder.

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The ladder mounting can include a release means connecting to the fastening for releasing the fastening means to release the hold on the ladder. The release means activator is able to activate the release means and extend from the release means when located in a gutter and holding a ladder to a position reachable by a person on the ground.

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The ladder mounting can have the release means activator also acting as a manipulating means for mounting the ladder mounting in the gutter by a person on the ground.

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It will be appreciated by persons skilled in the art that numerous variations and/or modifications can be made to the invention without departing from the spirit or scope of the invention as broadly described and defined in the following claims. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A ladder mounting including: a body member mountable adjacent an outer wall of a gutter and defining a bearing surface against which in use a ladder bears; a locating formation extending from the body member to be receivable in the gutter to bear against an inner wall of the gutter to locate the body member with respect to the gutter; a fastening means, carried by the body member, for releasably fastening the ladder to the body member; and a positioning means arranged on the body member, for positioning the body member with respect to the gutter.
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2. The ladder mounting of claim 1 in which the positioning means defines a pivot axis about which the body member pivots, the positioning means being positioned on the body member such that, when unrestrained, the body member and the locating formation pivots about the pivot axis such that the locating formations hangs downwardly.
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3. The ladder mounting of claim 2 in which the positioning means includes a lug projecting outwardly from a surface of the body member opposed to the bearing surface, the lug having a passage defined therethrough, an axis of the passage defining the pivot axis.
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4. The ladder mounting of claim 3 in which the positioning means includes a manipulating means pivotally secured to the lug by a pivot pin received in the passage.
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5. The ladder mounting of any one of the preceding claims in which the body member comprises a planar element defining the bearing surface and an attachment formation arranged at each end of the planar element.
- 30 6. The ladder mounting of claim 5 in which each attachment formation carries one of the fastening means.

2004242514 23 Nov 2007

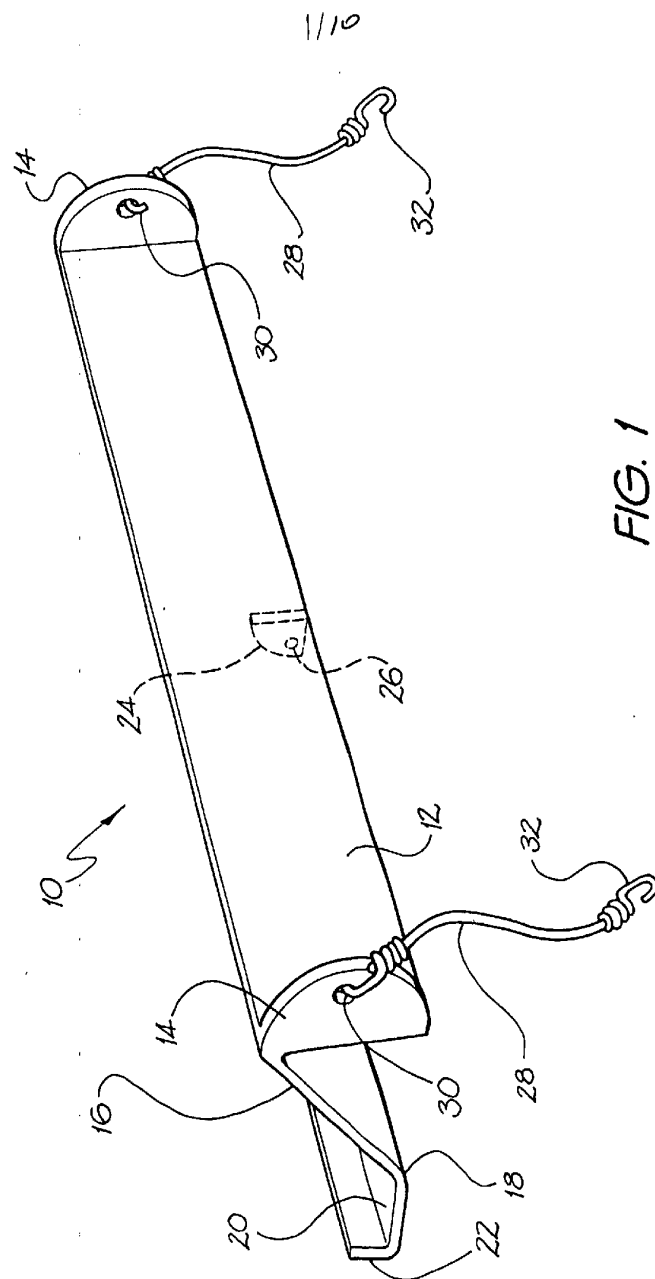
7. The ladder mounting of any one of the preceding claims in which the locating formation comprises a leg projecting from a side of the body member opposite its bearing surface.
- 5 8. The ladder mounting of claim 7 in which the leg is shaped to pass over a lip of the outer wall of the gutter to be received in a channel of the gutter and to bear against the inner wall of the gutter so that a force exerted by a ladder, and a person on the ladder, in use, is transferred to the inner wall of the gutter.
- 10 9. The ladder mounting of any one of the preceding claims in which the fastening means is able to automatically fasten a ladder therein when received.
- 15 10. The ladder mounting of claim 9 in which the fastening means comprises two swivel catches such that leaning the ladder against the swivel catches allows the swivel catches to rotate to a holding position for holding the ladder.
- 20 11. The ladder mounting of claim 9 or 10 including a release means connecting to the fastening for releasing the fastening means to release the hold on the ladder.
- 25 12. The ladder mounting of claim 11 including a release means activator able to activate the release means and extend from the release means when located in a gutter and holding a ladder to a position reachable by a person on the ground.
- 30 13. The ladder mounting of claim 11 wherein the release means activator also acts as a manipulating means for mounting the ladder mounting in the gutter by a person on the ground.
14. The ladder mounting of claim 2 wherein the positioning means defines a pivot axis located on the body proximal the locating formation to allow fine adjustment of the locating formation relative to the gutter.

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2004242514 23 Nov 2007

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15. The ladder mounting of any one of the preceding claims further including a ladder adjustment means located on the body wherein the adjustment means is adapted to receive a rung of the ladder thereon and has an adjustable body movable in at least one direction relative to the body to adjust the tilt angle of the ladder with respect to the gutter.
16. A ladder mounting substantially as described herein with reference to the accompanying drawings.

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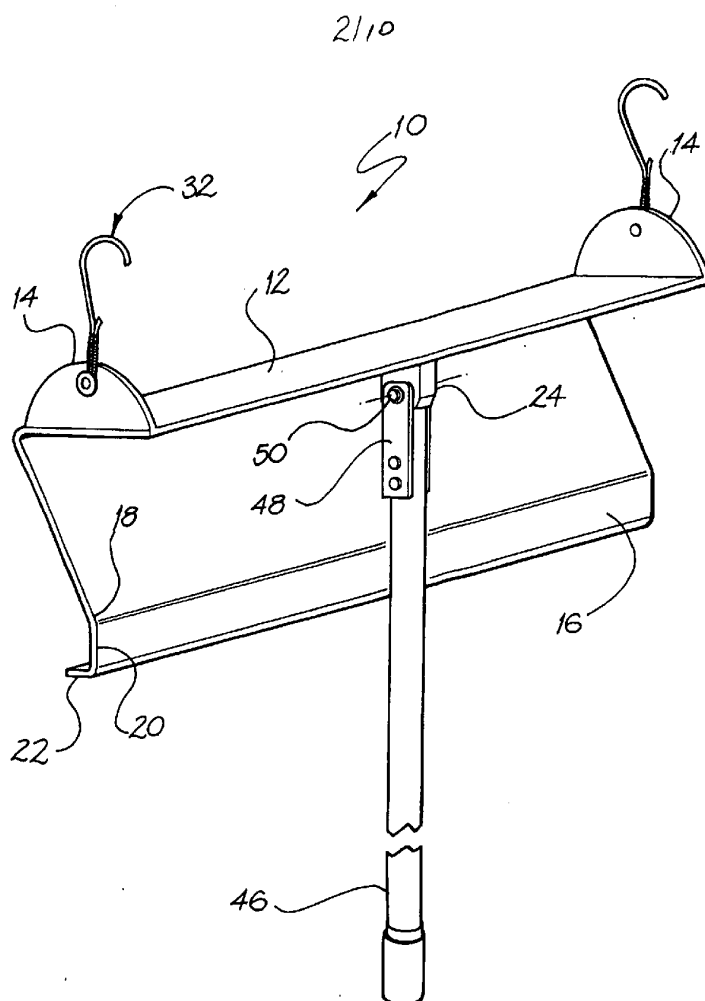


FIG. 2

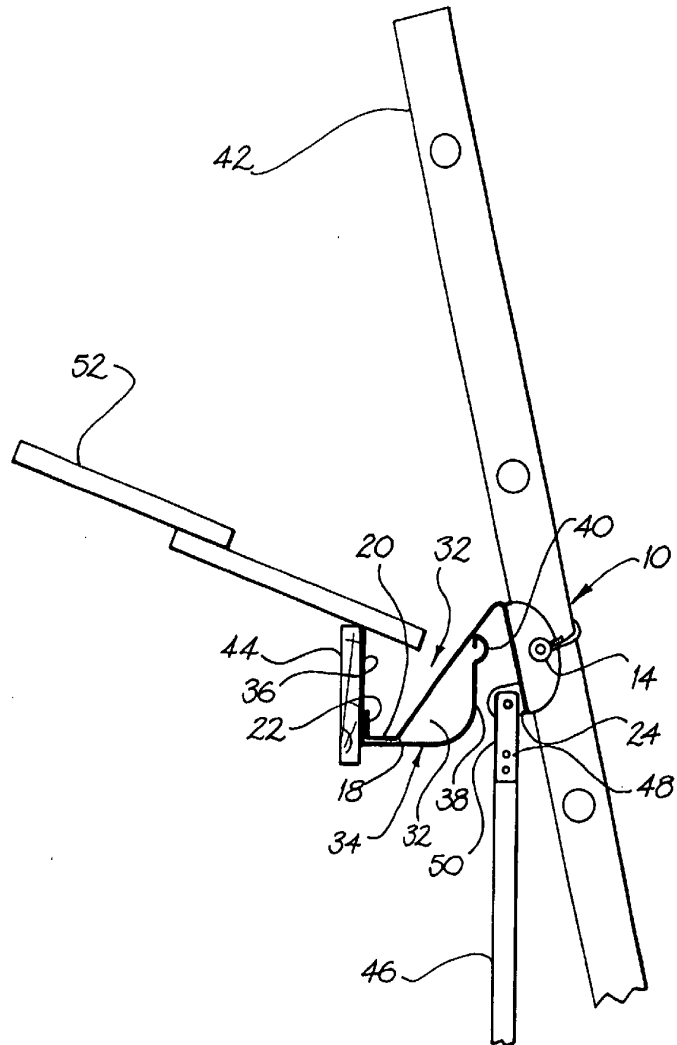
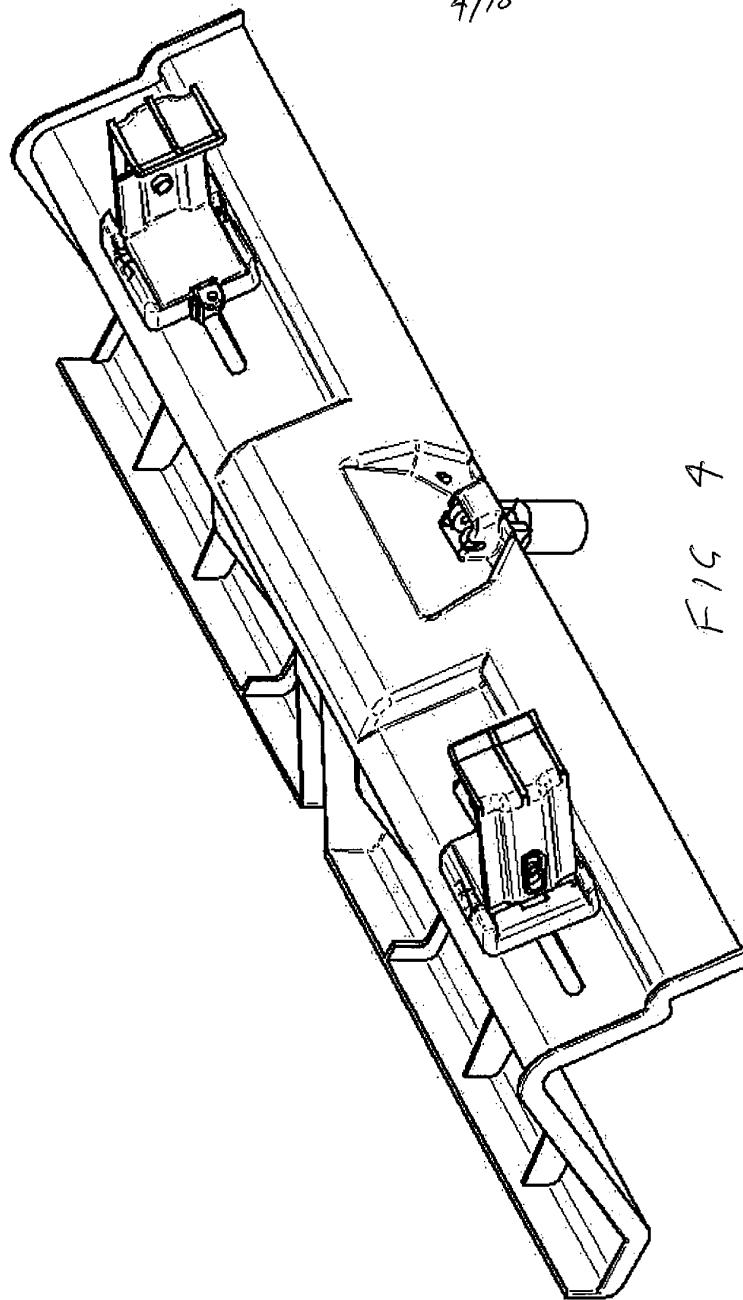


FIG. 3



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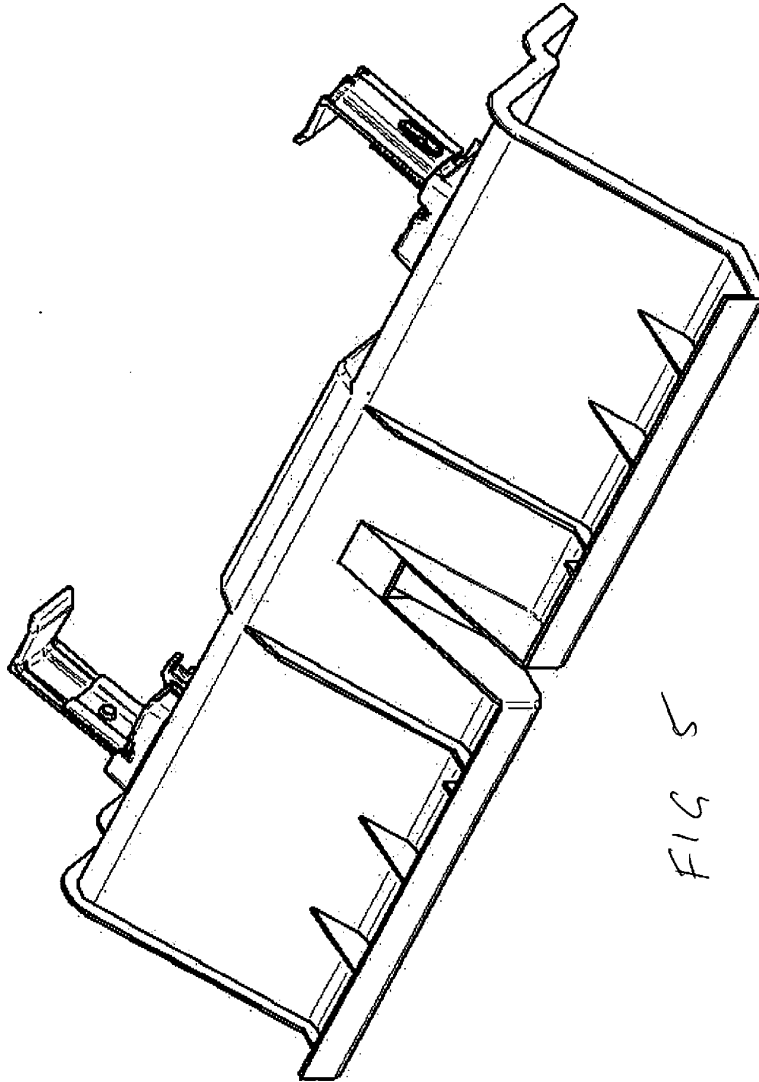
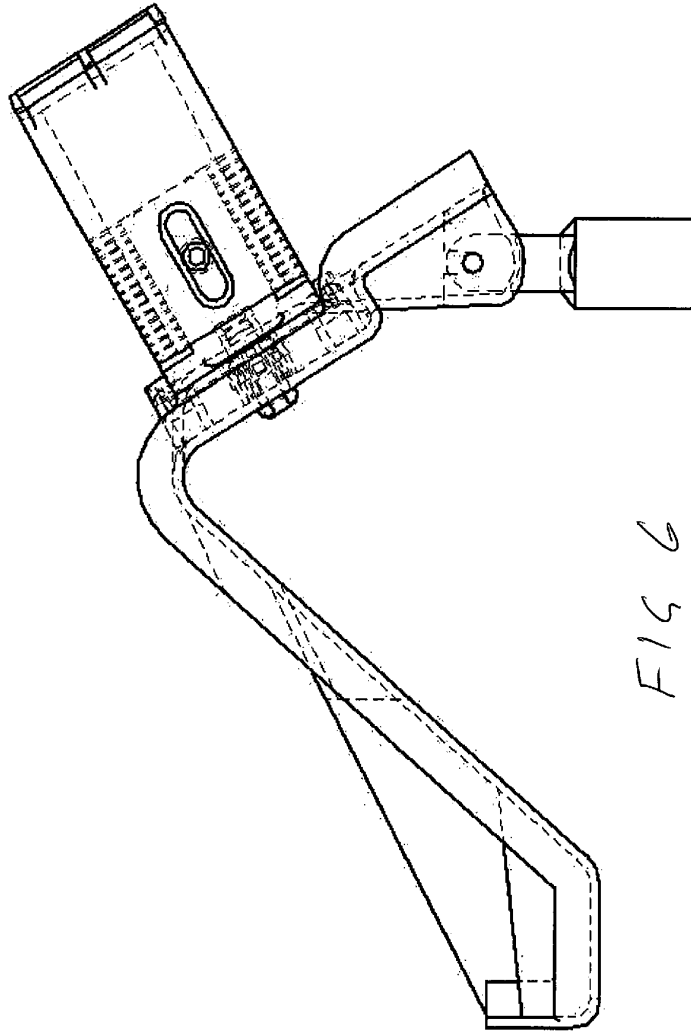
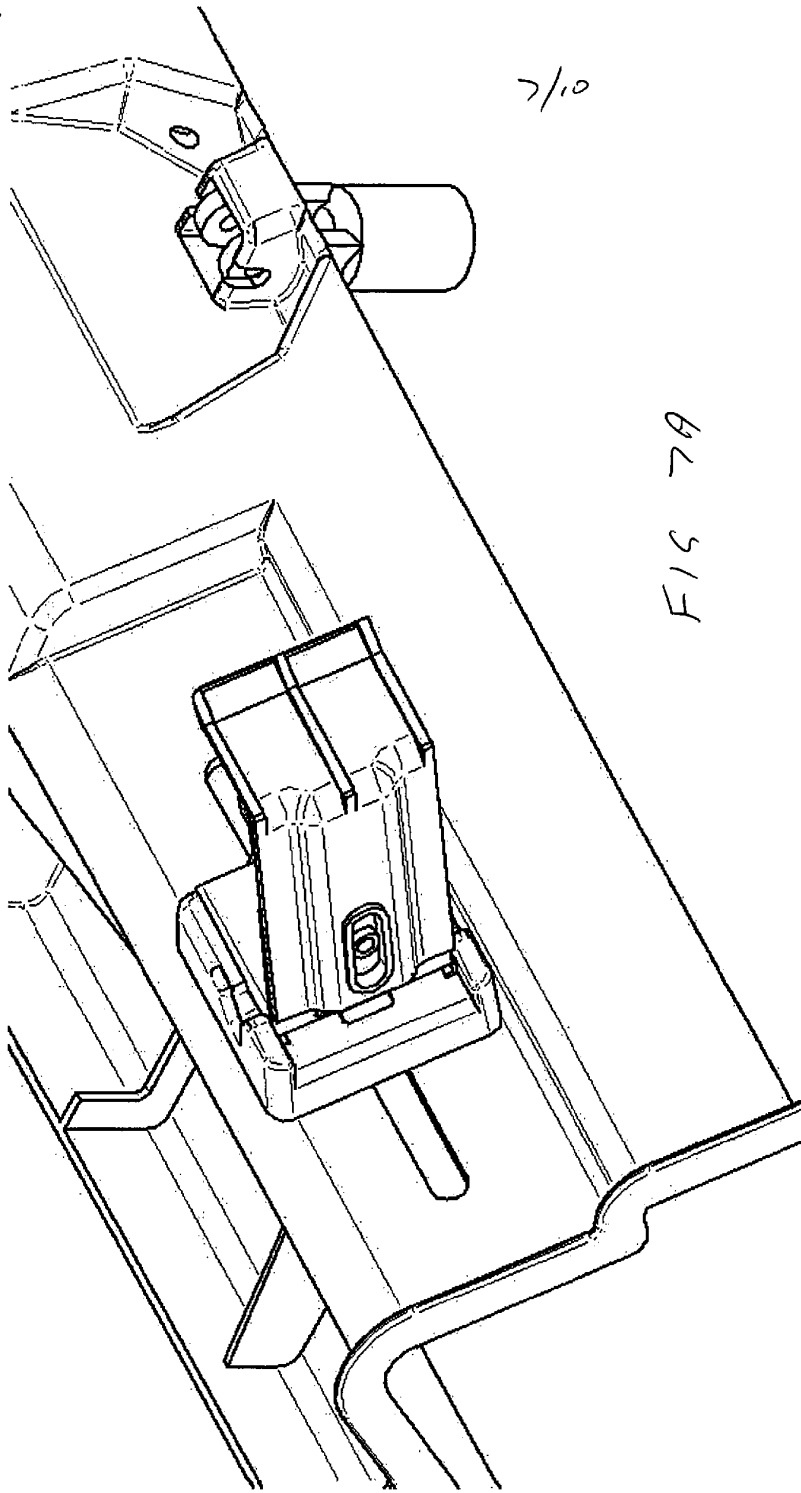
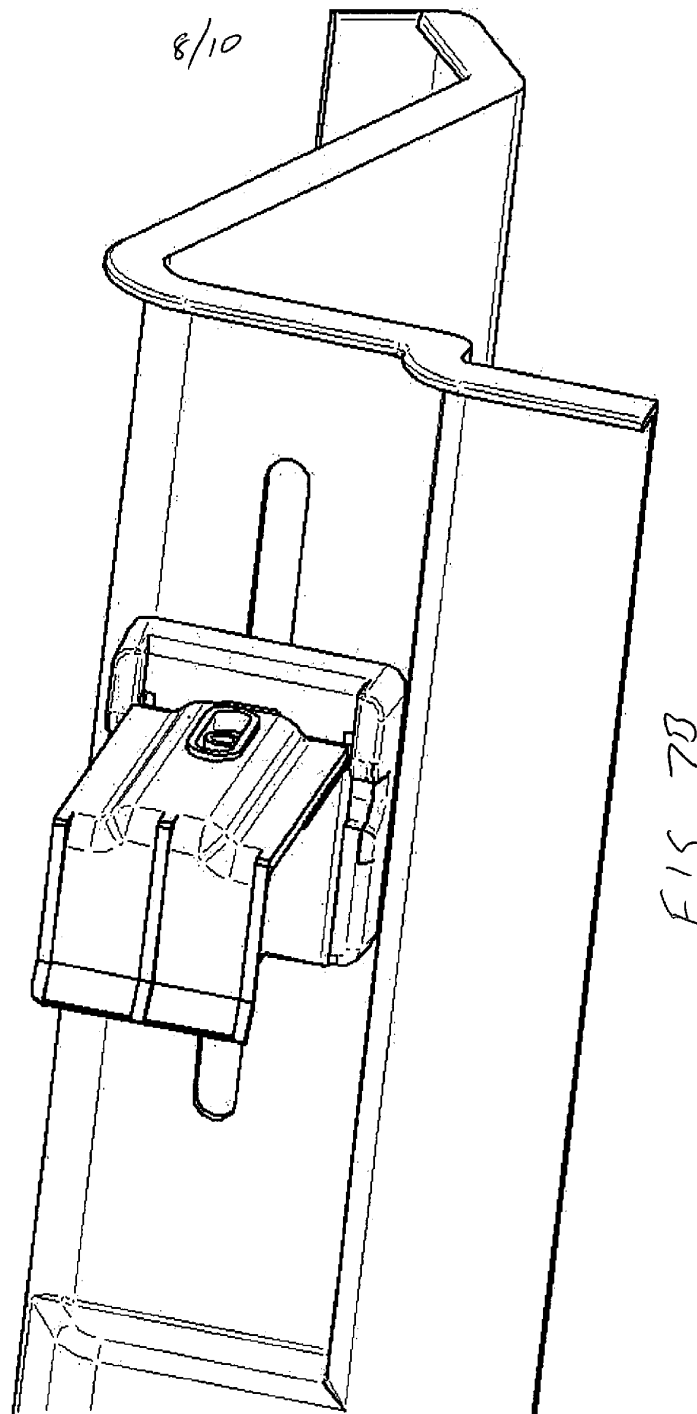


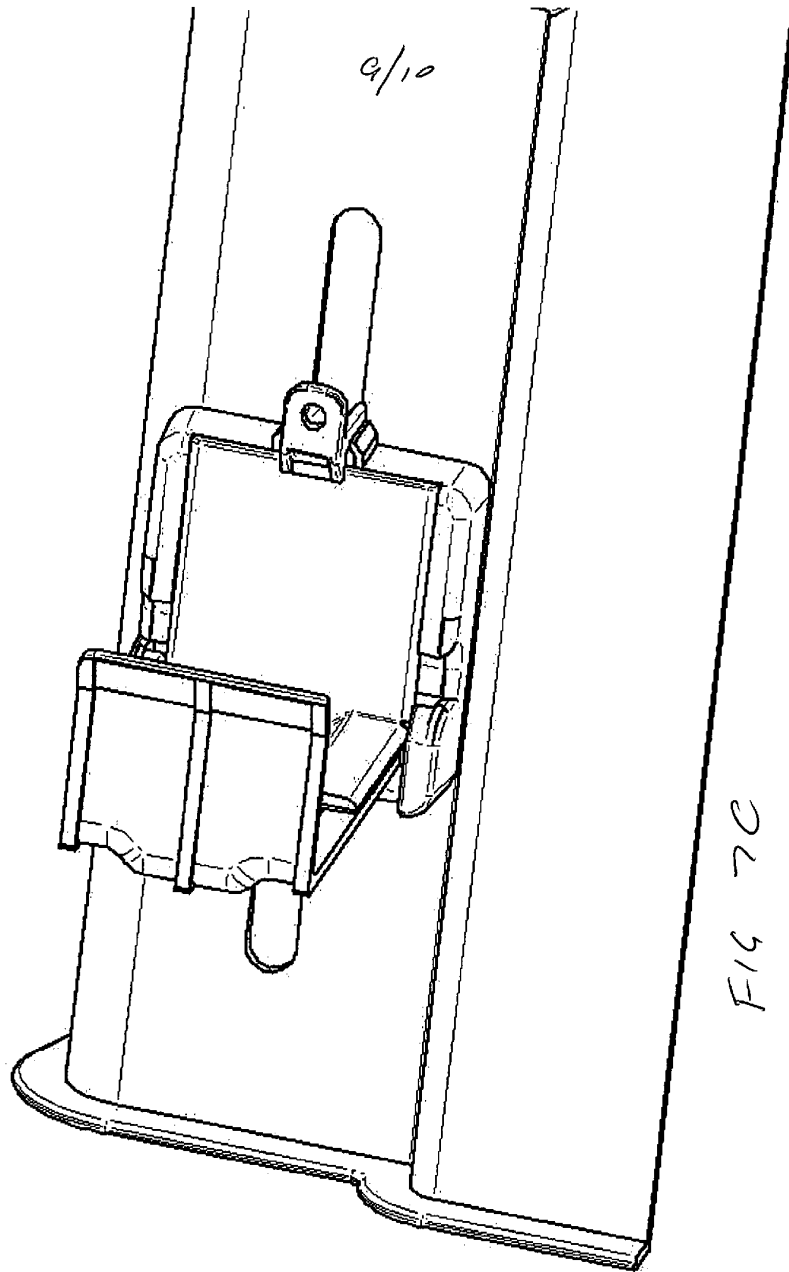
FIG 5



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FIG 8

