

Jan. 5, 1965

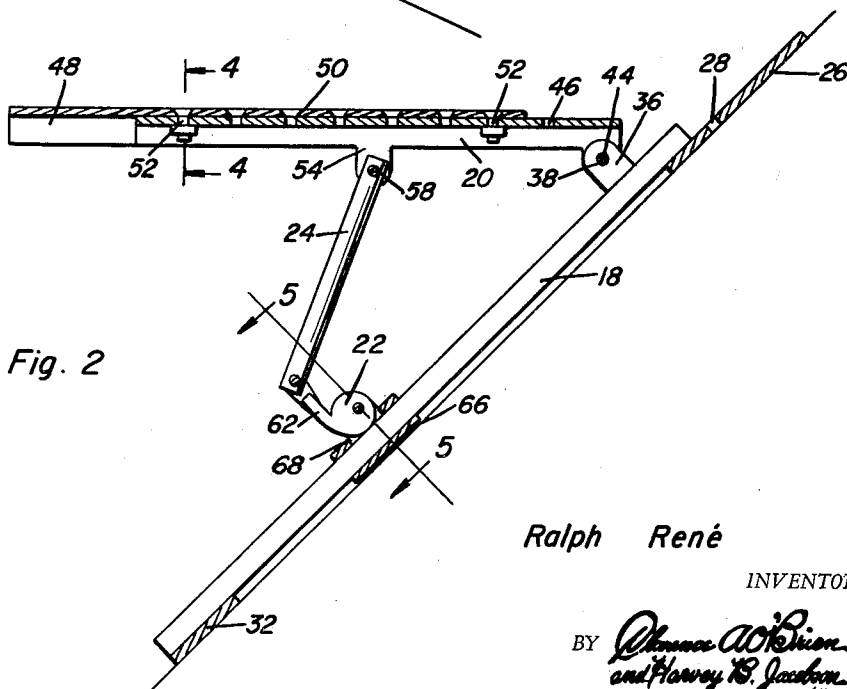
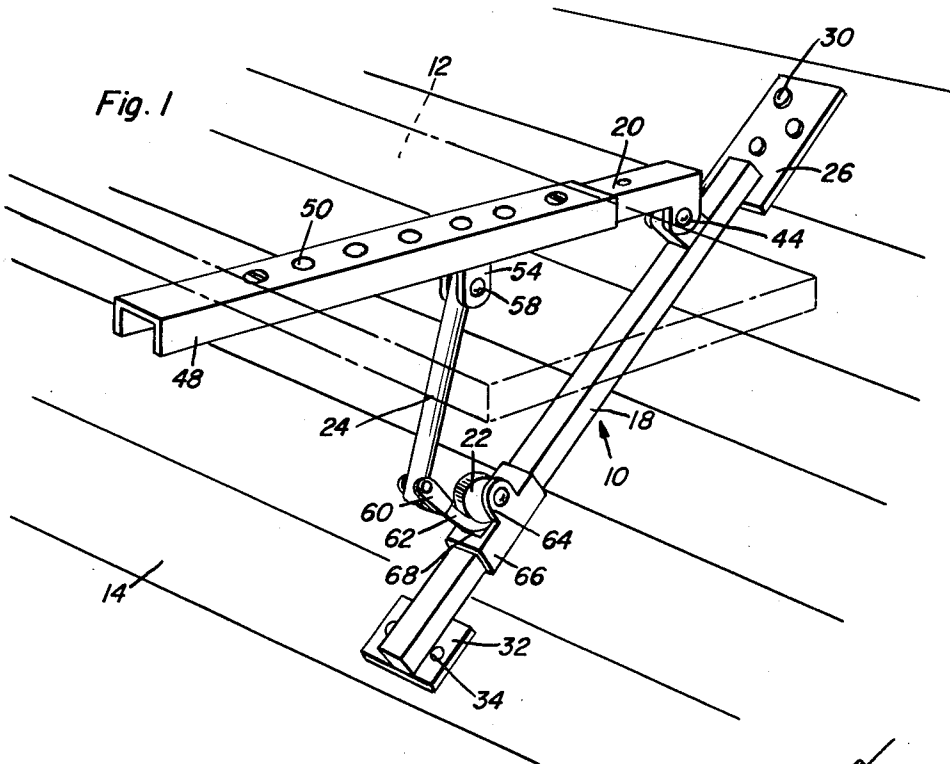
R. RENÉ

3,164,353

VARIABLE PITCH ROOF BRACKET

Filed Jan. 7, 1963

2 Sheets-Sheet 1



Ralph René

INVENTOR.

BY *Thomas A. O'Brien*
and Harvey B. Jacobson
Attorneys

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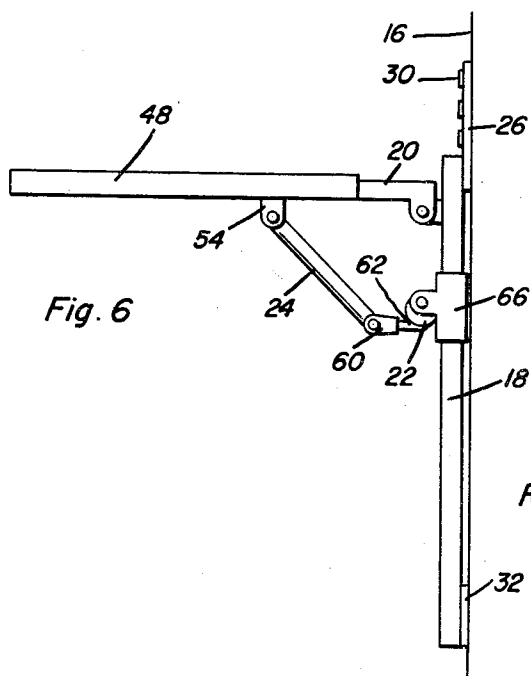
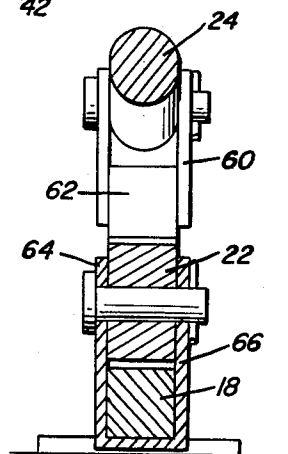
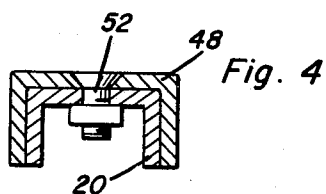
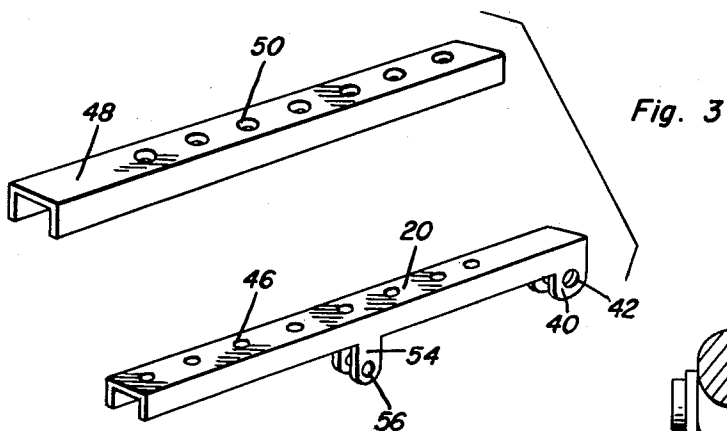
R. RENÉ

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VARIABLE PITCH ROOF BRACKET

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2 Sheets-Sheet 2



Ralph René

INVENTOR.

BY *Charles A. Krieger*
and Harvey E. Jackson
Attorneys

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3,164,353

VARIABLE PITCH ROOF BRACKET

Ralph René, Clifton, N.J.

(455 Paulison, Apt. 3, Passaic, N.J.)

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5 Claims. (Cl. 248—237)

The present invention generally relates to roof brackets of the type used to support scaffolding, and more particularly relates to a scaffold supporting roof bracket which is completely adjustable for use on roofs having a wide range of different pitches.

While it is appreciated that various types of scaffold supporting roof brackets are known, some of these even allowing for an adjustment of the pitch, these known brackets are, if adjustable at all, difficult to adjust, incapable of adjustment through a full range of positions, and, in some instances, capable of being accidentally loosened or released. Accordingly, it is one of the primary objects of the present invention to provide a roof bracket which, though relatively simple in construction, provides a fail proof support capable of minute and exact adjustment through the complete range desired, from the lowest pitch roof on which a bracket is necessary, a 4 to 12 pitch, up to and including a vertical wall.

Another significant object of the present invention is to provide a roof bracket wherein an increase in the load on the superimposed scaffold will result in a greater locking of the bracket.

In conjunction with the above objects, an object of the present invention is to provide a scaffolding bracket wherein no amount of pounding or vibration resulting from the movement or working of those using the scaffold will result in a loosening of the bracket, nor, will grease or any other foreign substance, such as might be present at the worksites, adversely affect the locking action.

Furthermore, it is an object of the present invention to provide a roof bracket which, because it is capable of minute adjustment, can be adjusted with the platform supporting arm located slightly above level or horizontal so as to direct a component of the superimposed load toward the roof itself thus tending to maintain the bracket in contact with the roof surface.

In accomplishing the above objects, the specific structure of the invention is generally simple, inexpensive to manufacture, and capable of being accurately and safely installed by unskilled laborers.

Briefly, the variable pitch roof bracket of the present invention includes an elongated preferably rectangular rod forming a base or backbone and being adapted for securement directly to the roof surface, a platform arm, which might include one or more extensions, pivotally mounted to the upper end of the base member, a locking cam positioner slidably movable on the base member, and a rigid pivotally mounted linkage interconnecting the platform arm and cam for effecting a locking of the cam upon a slight downward movement of the platform arm.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view illustrating the roof bracket mounted in position on a pitched roof with a scaffold plank being shown thereon in phantom lines;

FIGURE 2 is an elevational cross-sectional view through the bracket as shown in FIGURE 1;

FIGURE 3 is a group perspective of the platform support arm and one extension therefor;

FIGURE 4 is an enlarged cross-sectional view taken

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substantially upon a plane passing along line 4—4 in FIGURE 2;

FIGURE 5 is an enlarged cross-sectional view taken substantially upon a plane passing along line 5—5 in FIGURE 2; and

FIGURE 6 is a diagrammatic view illustrating the use of the bracket of the present invention on a vertical surface.

Referring now more particularly to the drawings, reference numeral 10 generally indicates the roof bracket comprising the present invention, this bracket 10 being equally adaptable for use in the support of scaffolding planks 12 on pitched roofs 14, as illustrated in FIGURE 1, or on vertical walls 16 as illustrated in FIGURE 6.

The scaffold supporting roof bracket 10 consists basically of an elongated rod-like base member or backbone 18, a platform support arm 20, a locking cam 22 and a link or rod 24 interconnecting the support arm 20 and the base member 18 through the locking cam 22.

The base member 18, preferably of solid rectangular cross-section, is of a length so as to allow for a full range of adjustment for positioning on surfaces of any degree of slope between a vertical surface and a surface having an approximately 4 to 12 pitch, this being the lowest pitch upon which a bracket or scaffold is deemed necessary. The upper end of the base member 18 has a rectangular nailing plate 26 welded thereto, this nailing plate 26 being provided with apertures or holes 28 therethrough for the reception of nails or other fastening means 30 used to secure the base member 18 to the supporting surface. The other end of the base member 18 is also provided with a rectangular plate secured thereto, as by welding, this plate, referred to by reference numeral 32, functioning as a bearing plate and also including apertures 34 therethrough in the event that one desires to also secure this lower end to the supporting surface. Positioned adjacent the upper end of the base member 18 is an outwardly or upwardly projecting lug 36 having a transverse aperture 38 extending therethrough.

The platform support arm 20 is preferably channel-shaped and includes, at its rear end, two depending ears 40 having aligned apertures 42 therethrough and being positionable on opposite sides of the lug 36 with the apertures 42 being aligned with the aperture 38 for the reception of a pin 44 therethrough, this pin 44 allowing pivotal movement of the support arm 20 relative to the base member 18.

The platform support arm 20 also includes a plurality of holes 46 through the upper or bight portion thereof for the purpose of adjustably fastening an extension arm 48 thereto. This extension arm 48 is generally similar in shape to the platform arm 20 however of slightly greater width so as to allow for its reception over the platform arm 20 in the manner illustrated in FIGURE 4. Suitable holes 50, preferably countersunk, are also provided through the extension arm 48, these holes 50 being alignable with the holes 46 in a plurality of adjusted positions for the reception of a flat-headed bolt 52 or other fastening means therethrough so as to quickly and easily vary the width of the scaffolding plank supporting portion thus enabling the easy accommodation of various standard width planks 12. In addition to varying the width of the plank supporting portion by the provision of an extension arm 48, the present invention also contemplates the provision of a plurality of different sized interchangeable platform arms 20, the interchanging of these arms being both simple and rapid due to the fact that only two pivot joints are involved.

The platform support arm 20 is additionally provided with two depending ears 54 at approximately the center thereof, these ears 54 having aligned apertures 56 therethrough and pivotally mounting the upper end of the rod 24 by means of a pin 58. The lower end of the rod 24

is also pivotally mounted between two projecting ears 60, these ears being rigidly affixed to an arm 62 forming an extension of and controlling the movement of the cam 22 whereby a downward force on the platform arm 20 will be transmitted through the link 24 and the arm 62 to the cam 22 causing a pivoting thereof so as to tightly engage the projecting or lobe portion of the cam with the base member 18. It will be noted that the cam 22 is pivotally mounted between two upwardly projecting ears 64 on a rectangular sliding cam guide 66, which is engaged over the base member 18, this sliding cam guide having a cam opening 68 through the upper portion between the ears 64 so as to allow direct engagement of the cam with the base member 18. Because of the upper nailing plate 26 and the lower bearing plate 32, it will be appreciated that there is no chance of the guide 66 accidentally slipping from the base member 18.

In operation, it will be recognized that the adjustability of the bracket is not limited to any predetermined angles or series of angles, but rather can be minutely and exactly adjusted at any conceivable angle between the extreme limits thereof. This is deemed highly significant in that the proper positioning of the scaffolding planks, regardless of the roof pitch, is essential if the safety of the workman is to be insured. In insuring this safety of the workman, it will be appreciated that in addition to being quickly and easily adjustable, the use of the novel locking cam and guide interconnected by suitable linkage to the platform portion of the bracket has resulted in a positive locking means whereby any increase in the superimposed load or any vibration such as might occur by one walking on the platform, will only tend to tighten the lock. Along these same lines, it is also preferred that the platform supporting arm be orientated slightly above level or horizontal so as to direct a portion of the superimposed load to a horizontal component directly toward the supporting surface thus preventing any tendency for the bracket to rotate away from the top supporting nails. The complete adjustability of the bracket enables the user thereof to always provide this desired orientation regardless of the specific roof pitch.

In adjusting the bracket, the platform arm is pulled upwardly until the cam disengages, the platform arm is then held a few degrees above level and the cam assembly slid along the base member until the desired position is reached after which the platform arm is lowered so as to effect an engagement of the cam with the base member thus immediately locking the bracket in its adjusted position.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A variable pitch roof bracket consisting of an elongated base member, a platform support arm pivotally secured adjacent the upper end of said base member, a cam guide slidably mounted on said base member, a locking cam pivotally mounted on said guide and engageable with the base member so as to lock the guide relative thereto, and rigid pivotally connected linkage means interconnecting said support arm and the cam for effecting a locking of the cam upon a pivotal movement of the arm toward the base member, said arm upon the locking of the cam being rigidly fixed relative to the base member, said linkage means consisting of a cam arm integral with and projecting from said locking cam, and an elongated rod having one end pivotally secured to the outer end of the cam arm and the other end pivotally secured to an intermediate portion of the platform support arm.

2. The structure of claim 1 including a nailing plate secured to the upper end of the base member and a bearing plate secured to the lower end of said base member.

3. The structure of claim 2 including an extension arm nestable with the platform support arm, and fastening means for securing said extension arm to the platform support arm in a plurality of adjusted positions, said extension arm being in the form of a downwardly opening channel slidably received over the support arm, said channel including a flat top overlying the top of the support arm, and spaced depending sides juxtaposed the sides of the support arm.

4. The structure of claim 3 wherein said base member is rectangular in cross-section, said guide also being rectangular in cross-section and telescoped over the rectangular base member, said guide having a flat top defining a central opening, and a pair of upwardly projecting ears on opposite sides of the opening, said cam being mounted between the ears and engageable with the base member through the opening.

5. The structure of claim 1 wherein said base member is rectangular in cross-section, said guide also being rectangular in cross-section and telescoped over the rectangular base member, said guide having a flat top defining a central opening, and a pair of upwardly projecting ears on opposite sides of the opening, said cam being mounted between the ears and engageable with the base member through the opening.

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FRANK L. ABBOTT, *Primary Examiner.*