

Oct. 14, 1969

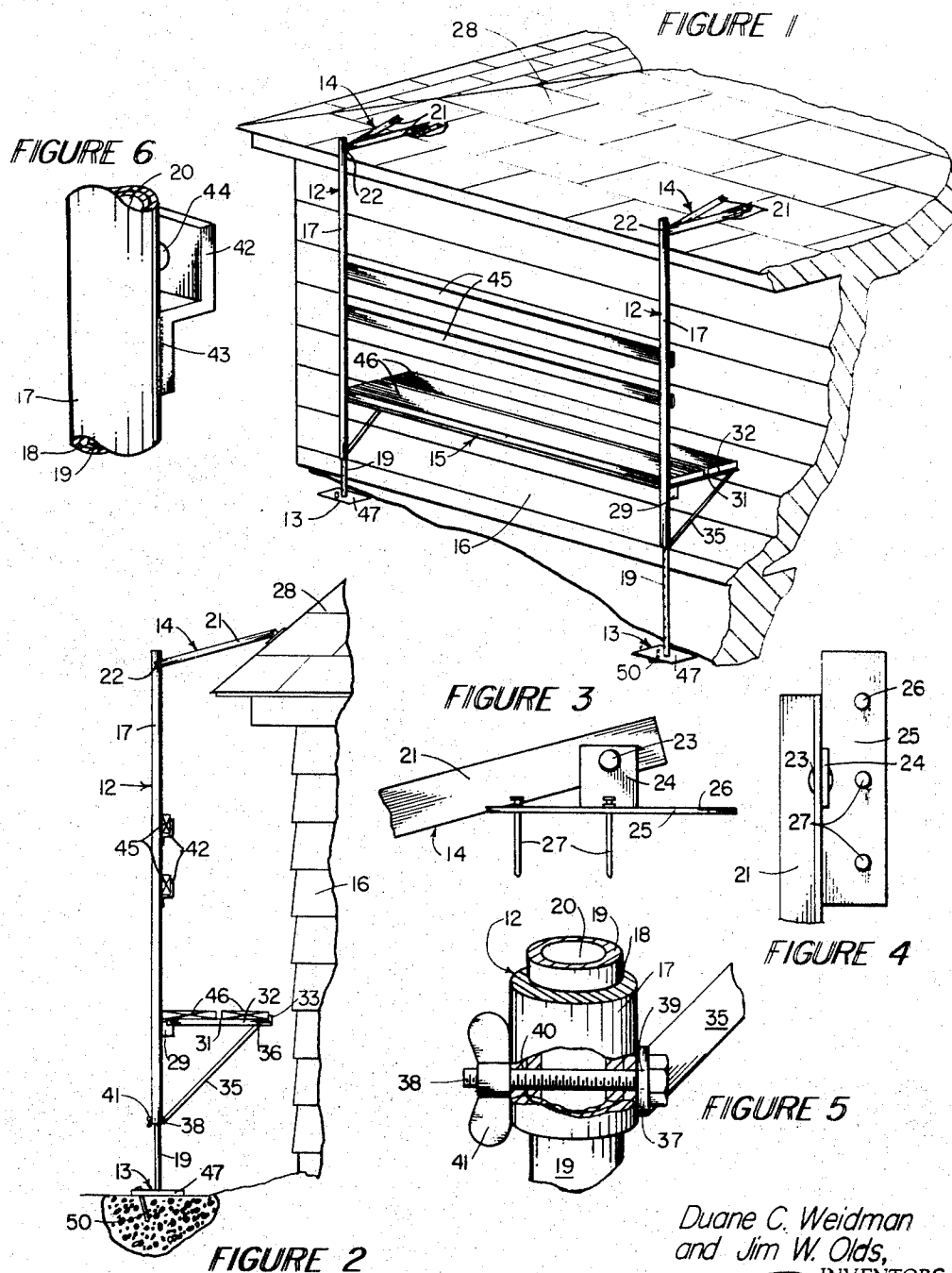
D. C. WEIDMAN ET AL

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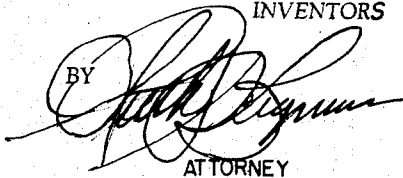
CLEAR STANDING ADJUSTABLE SCAFFOLD

Filed Oct. 9, 1967

2 Sheets-Sheet 1



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CLEAR STANDING ADJUSTABLE SCAFFOLD

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2 Sheets-Sheet 2

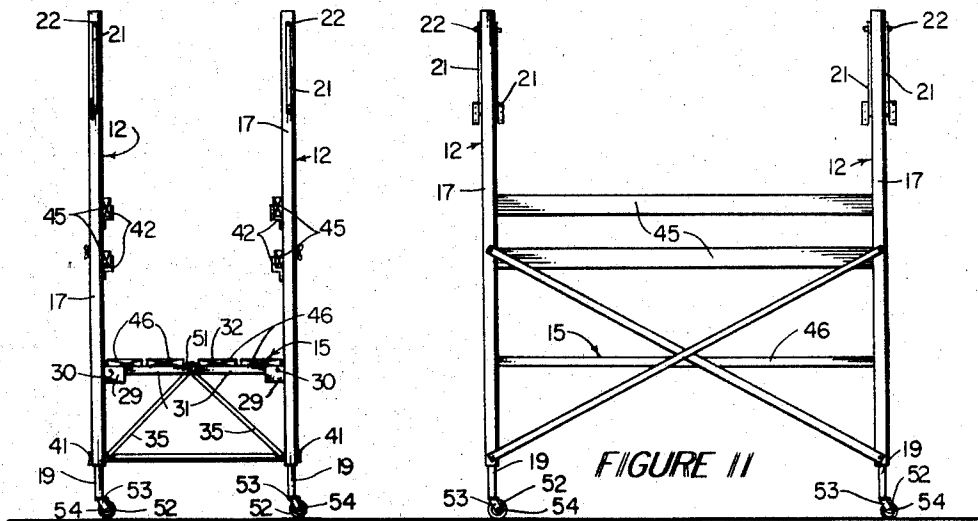


FIGURE 10

FIGURE 11

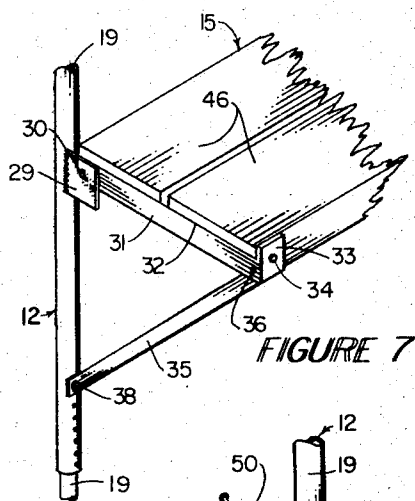


FIGURE 7

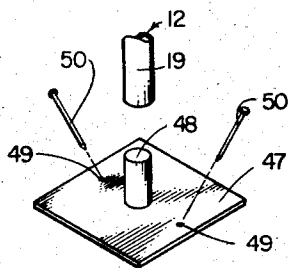


FIGURE 9

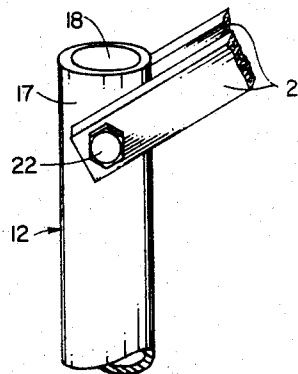


FIGURE 8

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CLEAR STANDING ADJUSTABLE SCAFFOLD
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Filed Oct. 9, 1967, Ser. No. 673,648

Int. Cl. E04g 1/16

U.S. Cl. 182—82

2 Claims

ABSTRACT OF THE DISCLOSURE

Scaffold structure embodying lineally adjustable upright elements supported at two points by the earth or similar horizontal surface therebeneath and the roof of a structure to support a horizontal walk and provide a clear work area therebetween. The uprights have adjustable feet to maintain a scaffold board level above an uneven supporting surface. Uprights may be joined in opposed pairs to form upright elements of a free standing scaffold structure.

BACKGROUND OF INVENTION

Related applications

There are no applications related hereto filed in this or any foreign country.

Field of invention

This invention relates generally to the field of scaffolds and more particularly to lineally adjustable scaffold uprights supported at two points by a horizontal surface therebeneath and the roof of a structure to support a walkway and provide a clear work area on one side of the supports between the supporting points.

DESCRIPTION OF PRIOR ART

In the construction industry generally, and particularly in the light frame branch thereof, it is oftentimes necessary to provide temporary scaffolding to allow workmen to gain access to various portions of a structure, particularly the upper portions of exterior vertical walls. Since this activity is required in most light frame construction, it has also been found economically feasible to provide a reusable type scaffold, or at least a scaffold with reusable elements, to make the operation more economical.

Heretofore various scaffold structures have become known to accomplish these results. These structures may be conveniently classified into a first class embodying scaffolds supported at least to some degree by some part of the structure being serviced thereby and into a second class embodying free standing structures not supported or attached to the structure being serviced. Heretofore, such scaffold structures as known have generally required some attachment to the vertical side wall of a serviced structure or have required supports in front of the supported walkway and this has encumbered the facility with which a wall may be worked and operated upon, if it has not completely prevented certain types of activities.

The instant invention is of the first class of the prior art, but distinguishable from the other members of it in that it provides an upright scaffold element supported at two points—on a horizontal surface therebeneath and by the peripheral portion of a sloping roof thereabove—to provide an unobstructed, clear working area between the scaffold and adjacent vertical structural wall so that a workman supported by the scaffold is free to work on all parts thereof. Secondly, the instant structure provides a positive means of attachment of the scaffold upright, at both its lower and upper support, to prevent possible

torque in the upright tending to overturn it in any direction. The structure disclosed further provides a vertical scaffold support that is adapted to accept horizontal scaffold elements of ordinary commerce and is further adapted to be joined in paired fashion with similar vertical elements to provide a typical self-supporting scaffold structure heretofore known.

The instant invention is distinguished from the free standing scaffold art of the second class in that it presents a totally unobstructed working area facing the vertical wall of a structure being serviced thereby to allow free operation thereupon by workmen, while yet being rigidly supported, whereas, the various forms of free standing scaffolds heretofore known either provide some sort of obstruction between the horizontal scaffold platform and the wall being serviced thereby or else provide a vertical element with a potential tipping torque, caused by the horizontal scaffolding element, that might allow the upright to turn and cause the scaffold to accidentally collapse.

SUMMARY OF INVENTION

The instant invention was conceived to provide the vertical element for a scaffold structure that has a clear working area facing the vertical wall of a structure serviced thereby to allow complete operation thereon by a workman supported by the scaffold and at the same time prevent any torque in the vertical scaffold elements that might tend to accidentally collapse the scaffold structure.

This function is accomplished by a compound upright structure allowing slidable vertical adjustment between upper and lower elements for adjustment of element length relative to the level of the horizontal supporting surface therebeneath to allow horizontal support of an elongate walkway above an undulating surface. The lower portion of the vertical element is releasably supported on an upwardly projecting pin carried by a flat plate releasably but positively positioned by the earth or other surface therebeneath. The upper portion of the upper vertical element pivotably communicates with paired support arms extending to fastening means releasably communicating with the sloping roof of a structure being serviced thereby. The lower part of the upper portion of the vertical support is provided with a horizontally extending shelf to support a horizontal scaffold walkway and with brackets to carry elongate railings above the horizontal scaffold support to prevent workmen from falling rearwardly from the scaffold. This structure provides a clear working area between the scaffolding and the vertical structural wall adjacent thereto.

A plurality of such vertical supports may be positioned at spaced distances about the periphery of a structure to provide a scaffolding thereabout in the normal fashion common in the art.

The vertical support elements may be joined in opposed pairs by joining the outwardly projecting ends of the horizontal scaffold support elements to provide a free standing scaffold of the type common in the scaffold art of the present day.

In providing such a structure, it is:

A principal object of our invention to provide a vertical support element for a scaffold structure that is supported at two points by a horizontal surface therebeneath and the sloping roof of a structure serviced thereby to provide a clear work area between the horizontal scaffold platform and a vertical structural wall serviced thereby.

A further object of our invention to provide such a scaffold upright that is of compound structure allowing vertical adjustment between elements to allow a plurality of such elements to be positioned at spaced distances about the periphery of a structure on an undulating supporting surface but yet maintain a bracket fixed to

the lower portion of the upper element of the vertical support at the same relative horizontal elevation about the entire structure.

A still further object of our invention to provide such a vertical scaffolding support that is adapted to function with the normal horizontal scaffolding walkways heretofore commonly used in the scaffolding arts.

A still further object of our invention to provide such a vertical scaffolding structure that allows joinder of two vertical elements to form an H shaped supporting structure adapted to cooperate with other similar structures and horizontal elements to form a self-supporting scaffold as presently known in the scaffold arts.

A still further object of our invention to provide such a device that is of new and novel design, of sturdy and durable nature, of simple and economic manufacture, and one that is otherwise well adapted to the uses and purposes for which it is intended.

Other and further objects of our invention will appear from the following specification and accompanying drawings which form a part of this application. In carrying out the objects of our invention, however, it is to be understood that its essential features are susceptible of change in design and structural arrangement with only one preferred and practicable embodiment being illustrated in the accompanying drawings, as required.

BRIEF DESCRIPTION OF DRAWINGS

In the accompanying drawings, wherein like numbers of reference refer to similar parts throughout:

FIGURE 1 is an isometric view of a scaffold structure in place in operative position to service the vertical wall of a typical light frame structure.

FIGURE 2 is an orthographic end view of the structure of FIGURE 1 showing its various parts, their configuration and relationship from this aspect.

FIGURE 3 is an orthographic side view of the roof fastening means of our invention.

FIGURE 4 is an orthographic top view of the same roof fastening means as shown in FIGURE 3.

FIGURE 5 is an enlarged, partially cutaway, isometric view of the fastening structure between upper and lower horizontal support elements showing the detailed nature of this joinder.

FIGURE 6 is an enlarged, partial orthographic view of the handrail support structure showing its communication with the upper portion of a vertical support.

FIGURE 7 is an enlarged, partial orthographic view of a horizontal bracket support with walkway in place, supported thereby.

FIGURE 8 is an enlarged, partial orthographic view of the joining portions of roof arms and upper vertical support.

FIGURE 9 is an enlarged, expanded orthographic view of the bottom fastening plate, showing particularly its relationship with the lower portion of the vertical support.

FIGURE 10 is a side view of a specie of our invention showing pairs of vertical supports fastened in opposed relationship to form a vertical support for a free standing scaffold structure.

FIGURE 11 is an orthographic side view of two of the structures of FIGURE 10 joined by horizontal elements to form such a free standing scaffolding unit.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in more detail and particularly to that of FIGURE 1, it will there be seen that our invention includes generally vertical support elements 12, positioned adjacent structure 16 to be serviced, by foot support structure 13 and roof support structure 14 to support horizontal scaffold walk 15 in operative position.

Vertical support elements 12 include upper elongate body portion 17 of pipe-like configuration in the embodiment illustrated, slidably communicating within cen-

tral chamber 18 with lower body portion 19, again preferably of pipe-like configuration or at least having a central void 20 in its lowermost part.

As shown, especially in the detail of FIGURE 8, paired cooperating elongate roof support arms 21 pivotably communicates by nut-bolt combination 22 with the uppermost extension of upper body portion 17. As shown in FIGURES 3 and 4, the outwardly extending end portion of each roof support arm 21 pivotably communicates by rivet 23 with fastening bracket 24 of roof fastening shoe 25, having plural holes 26 therein adapted to releasably receive nails 27, preferably of the double-headed form type, to temporarily fasten the shoe to the structural elements of roof 28. Two similar somewhat angled roof support arms are positioned on each vertical support element by the same nut-bolt combination to prevent any rotary torquing of the upper portion of the vertical support.

Horizontal scaffold walk structure 15 includes walk bracket 29 structurally attached to the lower medial portion of upper body 17, preferably by welding. This bracket provides pivotable support by means of rivet 30 for scaffold walk support arm 31 adapted to extend substantially perpendicularly outward from vertical support element 12 to present planar upper surface 32 to support a scaffold walk. A perpendicularly upwardly projecting end stop 33, preferably with hole 34, aids in maintaining the scaffold walkway in proper position relative the bracket. Angled scaffold walk brace 35 pivotably communicates by rivet 36 from the outwardly extending end portion of the scaffold walk support arm to the lower part of upper body portion 17 of the vertical support element by its lower flanged portion. This later communication is by bolt 38 extending through an appropriate hole 39 in flange 37 and thence through holes 40 in both upper body portion 17 and lower body portion 19 of the vertical support element to come into threaded engagement with winged nut 41 to releasably maintain all parts in this position. By this fastening, bolt 38 not only maintains brace 35 in communication with the lower portion of upper body 17 of the vertical support element, but also maintains the lower body portion and upper body portion of the support element in appropriate adjustable vertical relationship with each other, to adjust the height of scaffold walk support arm 31 relative a supporting surface of the vertical support element.

Preferably the length of lower body portion 19 of the vertical support element is such that it extends a substantial distance upwardly within upper body portion 17 to allow a relatively great vertical adjustment in the structure and also provide additional rigidity to it.

Handrail brackets 42, preferably two in number, are provided at spaced distances above scaffold walk support arm 31 on upper body portion 17 of the vertical support to receive railings to prevent workmen from falling backwardly off the scaffold. Preferably these brackets are joined by welding 43 and an appropriate hole 44 is provided in the railing arm to receive a nail to releasably position wooden railing members 45 therein. Preferably the wooden railing members are of common two-by-four size to provide a railing of sufficient rigidity to accomplish its purpose that is yet of available and economic nature.

Horizontal walkway 46 is not a necessary part of our invention and may be of any of the common commercial types available, although that illustrated is merely two rectilinear boards. If the spans between vertical supports be great, it normally would be advisable to use some sort of a trussed walk member to avoid unnecessary deflection and vibration.

Foot support structure 13, in FIGURE 9, is seen to include footing plate 47 having centrally positioned upwardly extending pin 48 adapted to slidably fit within central void 20 of lower body portion 19 to position the lower body portion relative the foot plate. Preferably at least one pin hole 49 is providing in footing plate 47 to slidably receive pin 50 adapted to pass therethrough into

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engagement with the supporting surface thereunder to maintain footing plate 47 in place upon that supporting surface, especially against any horizontally oriented thrust or turning moments created therein by vertical support 12.

Having thusly described the structure of our invention, its operation can now be understood.

To service a light frame structure as illustrated in FIGURE 1, a plurality of vertical supports are provided according to the specification aforesaid. These supports are positioned at spaced distances along the peripheral wall of the structure and adjusted for appropriate vertical height by removing bolts 38 and slidably adjusting upper body portion 17 relative lower body portion 19 to provide a vertical support element with the walkway support arm at appropriate vertical height.

When this position is attained bolt 38 is replaced and the winged nut 41 threadedly engaged thereon to releasably maintain the members in this condition. Thereupon, the various foot plates 47 are established firmly on the earth, or other horizontal supporting surface, and maintained in appropriate position by inserting pins 50 through holes 49 into engagement therewith. The central void 20 in the lowermost part of lower body portion 19 is then positioned over pin 48 of the footing plate and thereafter the vertical support positioned substantially vertically and roof fastening shoe 25 fastened to the roof structure, commonly under a shingle to avoid future roof leaks, by means of nails 27. We have found it convenient to use the common two-headed type form nail illustrated to fasten the roof shoe, so that these nails might readily be removed after use. The plurality of vertical supports are similarly configured and positioned about the periphery of the structure to be serviced.

Thereupon, horizontal walkway 46 is positioned in place above and supported by the adjacent cooperating scaffold walk support arms 31, and preferably maintained in releasable, immovable relationship therewith by means of additional nails 27 extending into the walkway 46 from the various scaffold walk support arms 31.

Thereafter, elongate railing members 45 are positioned in adjacent cooperating rail brackets 42 to provide a continuous railing to prevent a workman from falling rearwardly off the structure. Preferably, these wooden railing members are releasably attached to rail brackets 42 by nails 27 extending therebetween. With the structure in this condition it is now ready for use in the normal fashion.

The nailing of both the horizontal walkway 46 and railing members 45 to adjacent vertical supports creates a more rigid structure and prevents any lineal misalignment of these elements which might cause their collapse or inappropriate positioning. It is to be noted, however, that from the structure recited for the vertical support elements, these elements will remain in their position against substantial force notwithstanding the presence or condition of horizontal walkways or railing members.

It is further to be noted that the work area between scaffold, or more properly on the side of the scaffold facing structure 16, is clear of any support on the vertical wall of the structure and is free from any bracing or other structural elements of any type between the workman and the wall to be worked upon, thusly providing a clear and free access to that wall for any type of mechanical operation.

It is further to be noted that a plurality of such vertical supports as described might be variously vertically adjusted as shown in the illustration of FIGURE 1, to allow fold walkway might be maintained in a uniform horizontal plane notwithstanding the undulating or uneven nature of a supporting surface therebeneath.

It is further to be noted, as shown especially in the illustrations of FIGURES 10 and 11, that two of the horizontal support elements of our invention might be positioned ad-

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jacent each other with end stops 33 joined by some releasable fastening means such as the nut-bolt combination 51 illustrated. The footing plate 47 might also be replaced with wheels 52 rotatably carried by yokes 53 communicating with pins 54 adapted to fit within central void 20 of lower body portion 19 of the vertical support elements. A plurality of such structures, at least two, might be associated as illustrated in FIGURE 11, to form a free standing scaffolding element as heretofore known in the art. This type of scaffolding element is not per se part of our invention, but illustrated only to show that notwithstanding the foregoing new nature of our scaffolding elements, they might also be used to form this known type of free standing scaffold structure.

The foregoing description of our invention is necessarily of a detailed nature so that a specific embodiment is shown. It is to be understood that various modifications of detail, rearrangement and multiplication of parts may be resorted to without departing from its spirit, essence or scope.

Having thusly described our invention, what we desire to protect by Letters Patent, and what we claim is:

1. In a scaffold structure, a vertical support member of the nature aforesaid, comprising, in combination:

a vertical support element including an upper body portion having at least one railing support bracket adapted to cooperate with similar brackets of adjacent vertical support members to maintain an elongate railing in position therebetween, and slidably communicating with

a lower body portion with means communicating therebetween to adjustably regulate the position of one relative the other, the lower body portion having in its lower part a foot support structure including a footing plate having means of releasable positioning relative a supporting surface therebeneath and means of releasably communicating with the lowermost part of the lower body portion of said vertical support element to maintain said element in position relative the supporting surface against forces in the vertical support element;

at least one roof support element pivotably carried by the upper part of the upper body portion of the vertical support element to releasably communicate with the upper surface of the roof of a serviced structure at a spaced distance from the edge to maintain the vertical support at a spaced distance outwardly adjacent the service structure; and

a horizontal scaffold element carried by the lower part of the upper body portion of said vertical support element, said structure including a perpendicularly disposed scaffold walk support arm adapted to support a scaffold walkway in horizontal operative position.

2. Two of the vertical support structures of claim 1 joined in paired opposed fashion by the outwardmost extensions of their scaffold walk support arms to form an H shaped structure adapted to cooperate with other similar structures when joined by horizontal walkways and railings to form a self-supporting scaffold.

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U.S. Cl. X.R.