



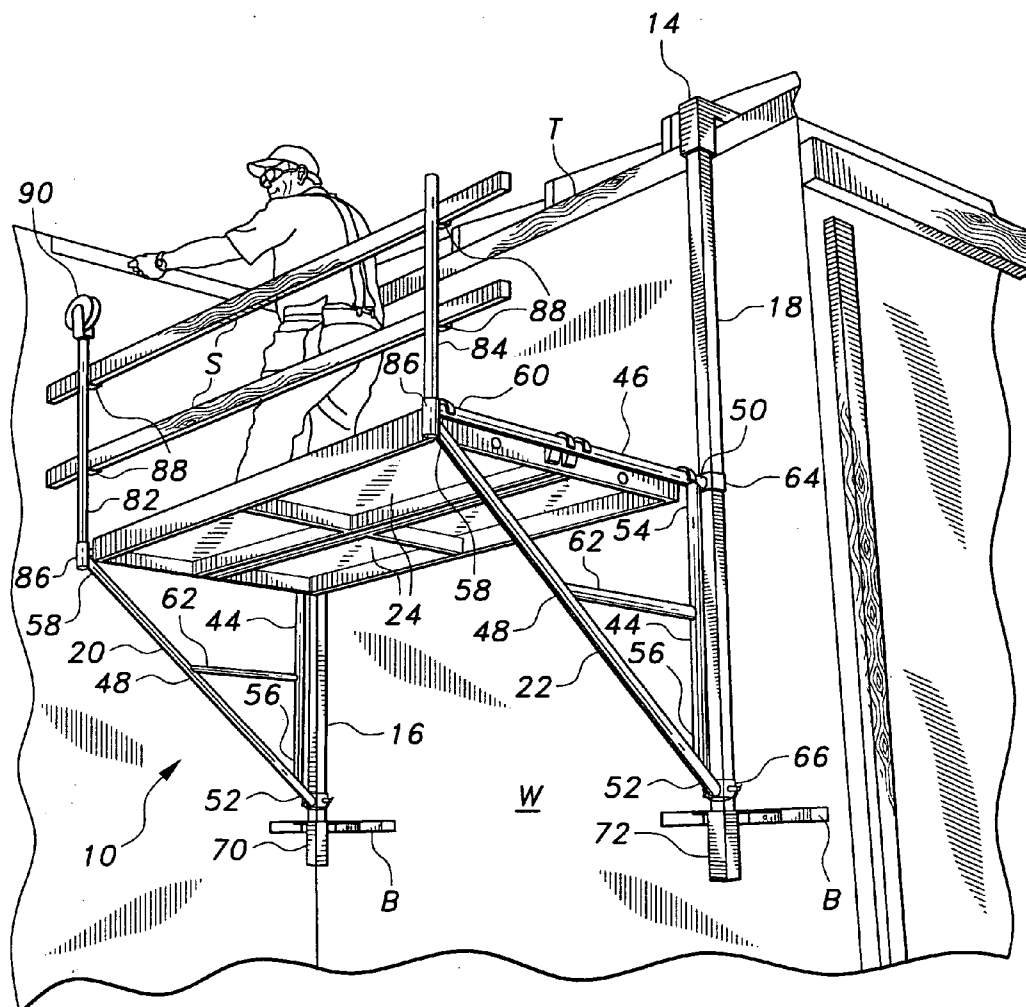
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(19) **United States**(12) **Patent Application Publication**
Pozell(10) **Pub. No.: US 2006/0163001 A1**(43) **Pub. Date: Jul. 27, 2006**(54) **WALL HANGING SCAFFOLD**

(57)

ABSTRACT(76) Inventor: **Charles A. Pozell**, Glen Dale, WV
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The wall hanging scaffold includes a pair of vertical support poles, which hang from top plate attachment brackets along the wall of a building structure. Each pole has a rigid, monolithic, triangulated brace removably and vertically adjustably secured thereto, with a support platform extending across the braces. Additional safety structure, i.e., safety posts, may be installed in the outboard ends of the braces, with safety rails being installed across the safety posts. A pulley may also be placed in the upper end of a safety post for lifting material and equipment up to the scaffold from the underlying surface. A diagonal brace(s) may be secured to one or more of the upper top plate hanger brackets to relieve stress on the otherwise unbraced wall due to the scaffold resting thereon during construction. The scaffold may remain in place up to closure of the eaves and soffit of the structure.



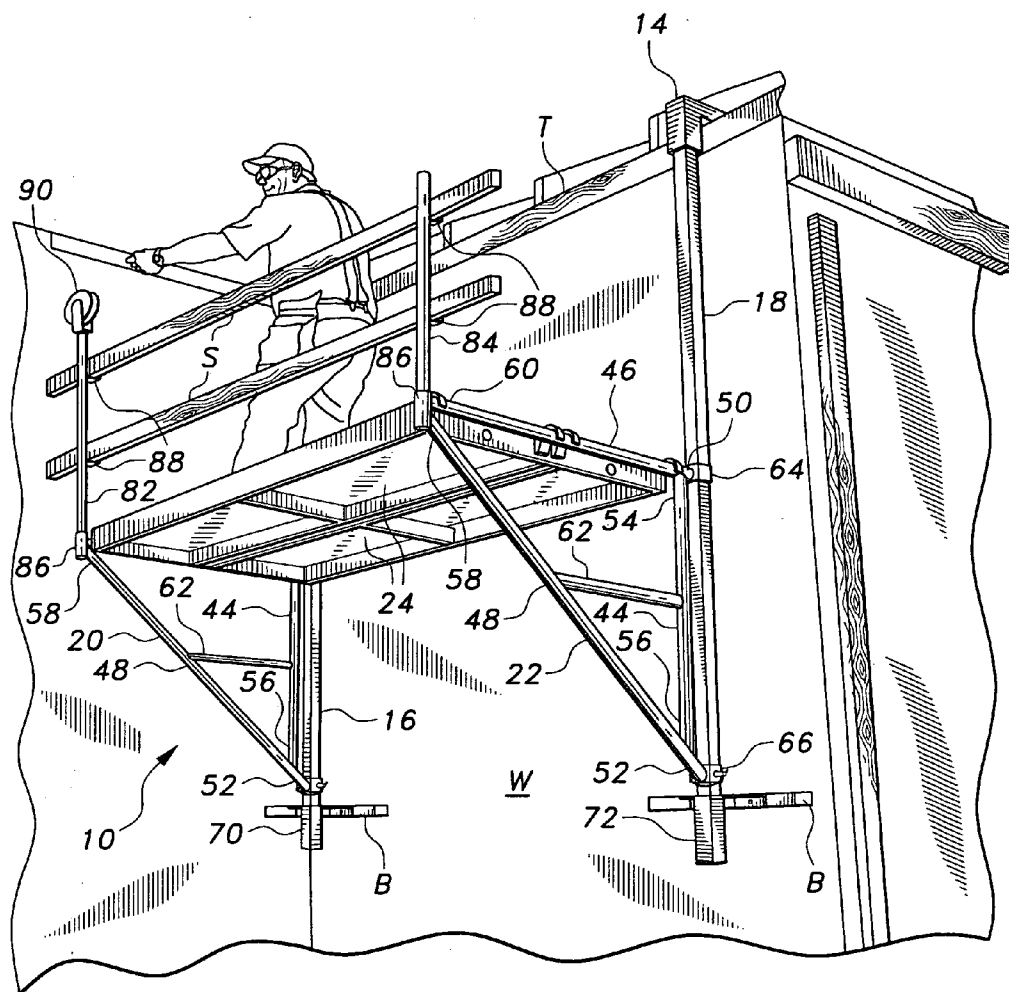


FIG. 1

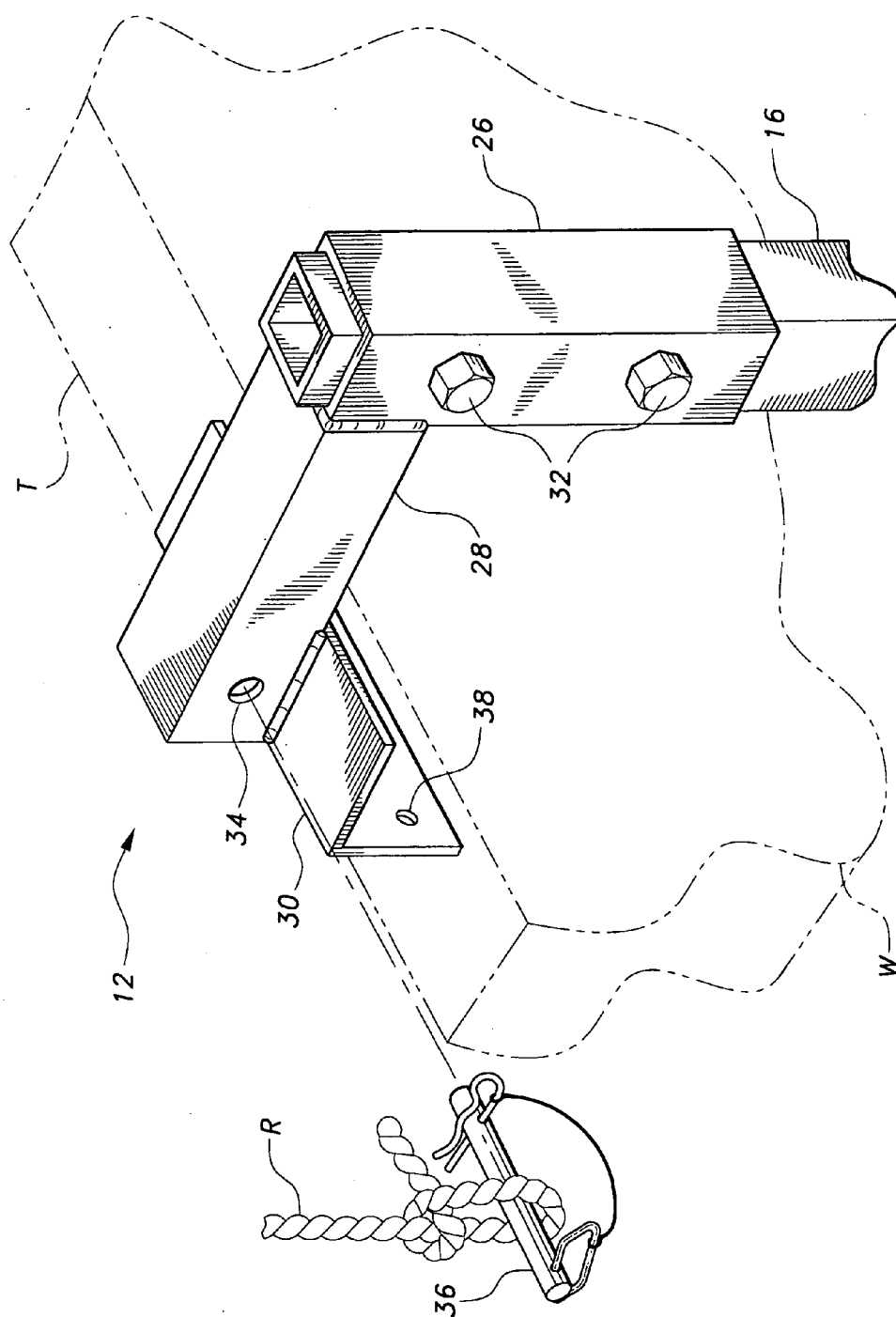


FIG. 2

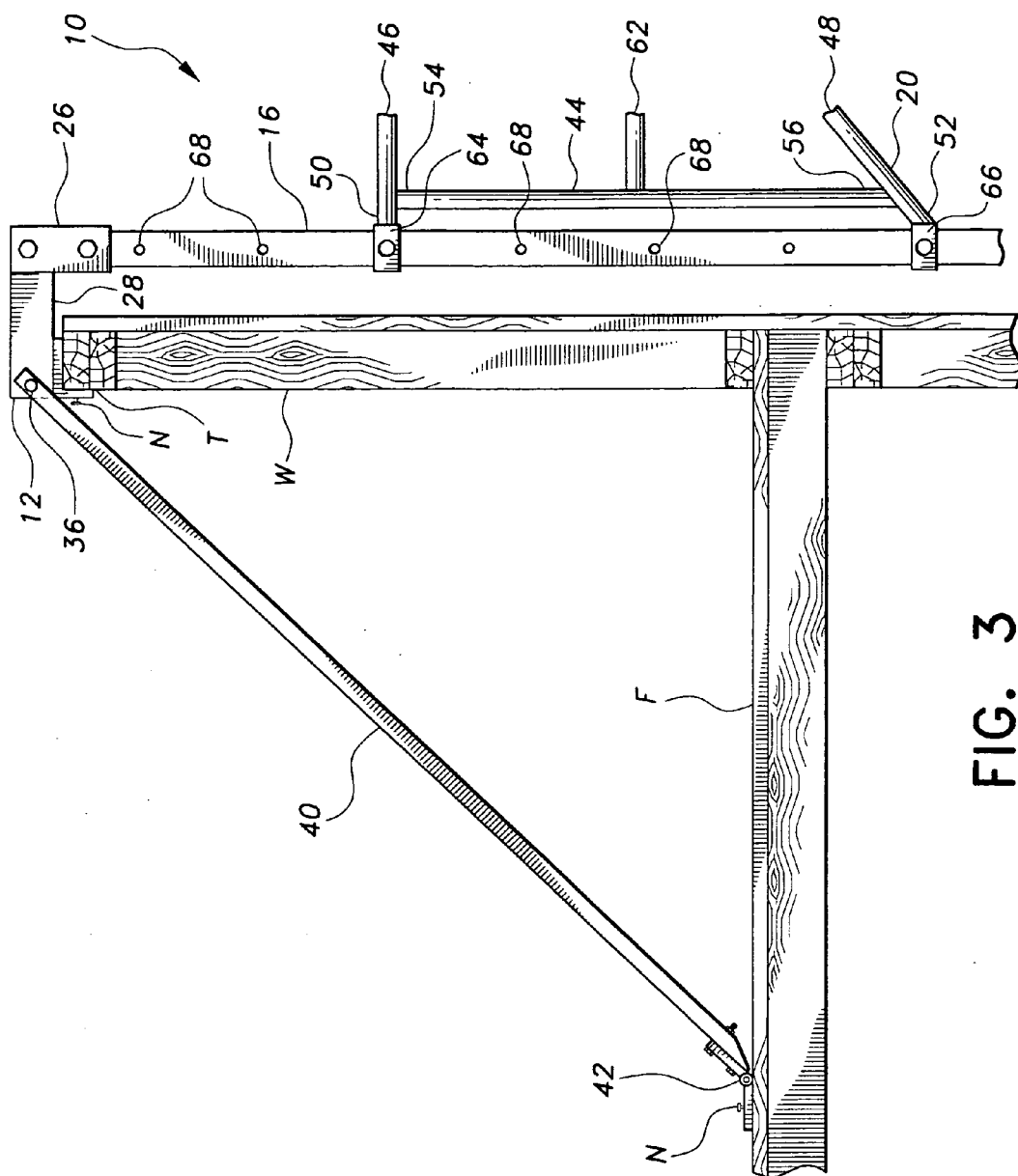


FIG. 3

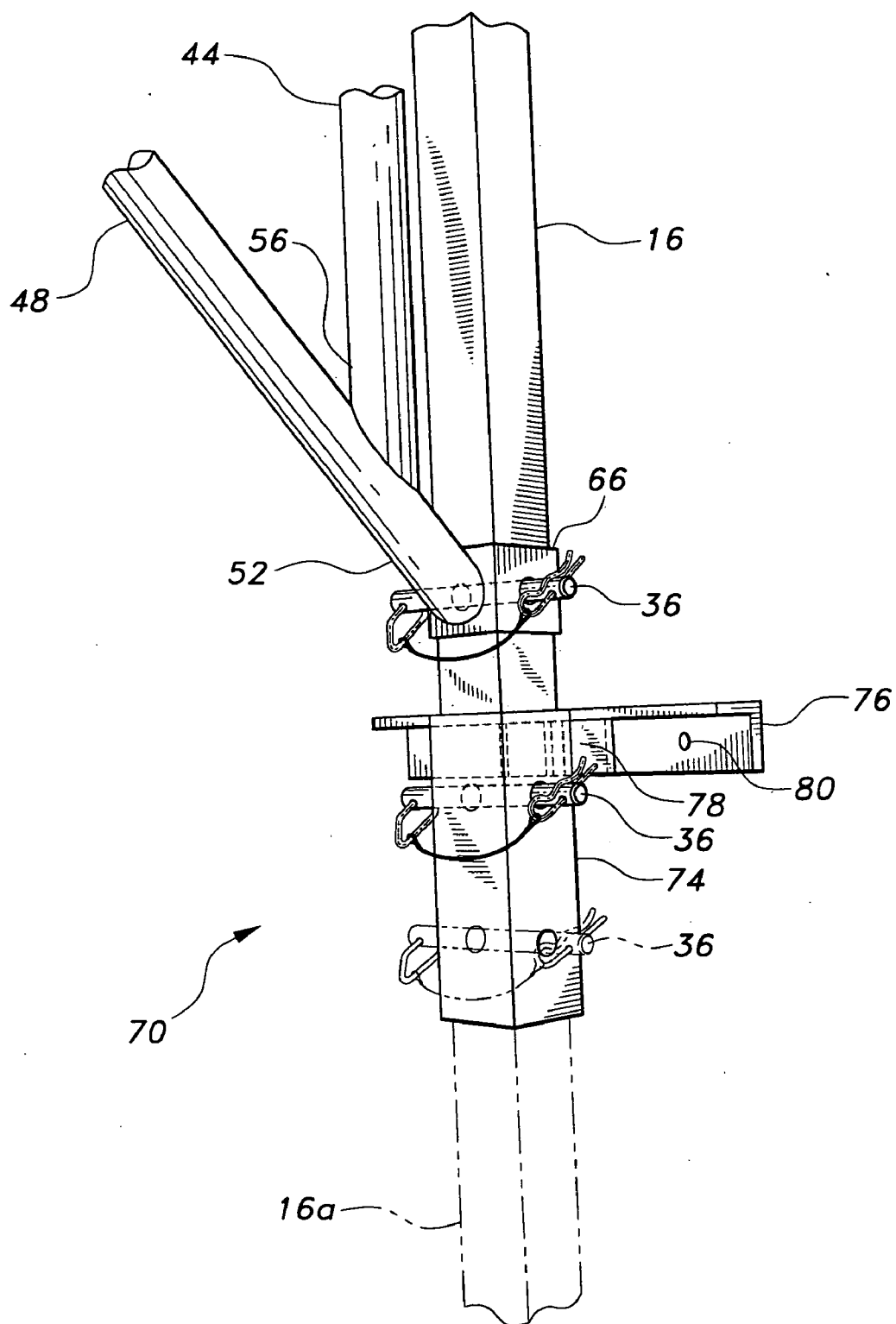


FIG. 4

WALL HANGING SCAFFOLD

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates generally to scaffolds and similar supports for use in building construction, maintenance, and repair. More particularly, the present invention relates to a scaffolding assembly that may be hung or suspended from the top plate of a wall for use during construction of a building.

[0003] 2. Description of the Related Art

[0004] Scaffolding and similar supports are universally used in the construction, maintenance, and repair of various building structures where it is necessary to work above ground level. Typically, scaffolds are supported by the underlying surface, which may lead to various problems in leveling and stabilizing the scaffold. As a result, some scaffolds have been constructed to hang from some portion of the structure in order to avoid the need for ground support.

[0005] Of these various structure-supported scaffolds, many attach temporarily to the roof of the completed, or nearly completed, structure and, as a result, require some means of clearing the outwardly extended eaves of the roof. Other wall supported scaffolding uses permanent anchors to secure to the completed wall structure. A few devices have been constructed for suspension from the top plate of a building structure, but most such devices have very little vertical span from their upper ends and the platform supports, and no vertical adjustment. Thus, they can only be used for work along the lower edge and eaves of the roof, as there is insufficient clearance between the eaves and the platform for workers. Where vertical height adjustment is provided for the platform in such top plate suspended scaffolds, relatively cumbersome, multiple piece braces are used, which are difficult to assemble in place along the vertical wall of a building structure.

[0006] One such building supported scaffold structure is shown in International Patent Publication No. WO 94/17,264 published on Aug. 4, 1994. This publication describes (according to the drawings and English abstract) a roof-mounted support with a cantilever structure extending outwardly therefrom. An adjustably extendable beam extends from the roof-mounted structure, with a scaffold-supported pulley depending therefrom. No means is apparent for suspending the device from the top plate of a wall.

[0007] None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed. Thus, a wall hanging scaffold solving the aforementioned problems is desired.

SUMMARY OF THE INVENTION

[0008] The wall hanging scaffold is configured for suspension from the top plate of the wall of a structure under construction. The wall may be finished or unfinished, and the upper support is configured to provide for removal with the roof structure and sheathing in place. A pair of spaced apart vertical support poles extends downwardly along the wall, with each pole having a rigid, monolithic triangular brace removably installed thereto. The braces, in turn, support a horizontal platform thereacross, with no requirement for any

form of support from the underlying surface. The braces may be adjustably installed on the support poles in order to position the platform at the desired working height.

[0009] A number of additional features may be incorporated into the wall hanging scaffold. Provision is made for additional bracing within the building structure, to preclude undue outward loads on an otherwise unsupported wall during construction. Moreover, the scaffold may include safety posts that may support safety rails, and which may also support a winch pulley to facilitate the lifting or raising of material and equipment from the underlying surface to the scaffold.

[0010] These and other features of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is an environmental, perspective view of a wall hanging scaffold according to the present invention, showing its operation and use.

[0012] FIG. 2 is a detailed perspective view of a single upper, top plate hanger bracket used with the present scaffold.

[0013] FIG. 3 is a side elevation view of the present scaffold, showing the addition of a diagonal internal building structure brace to preclude undue lateral stresses on the wall.

[0014] FIG. 4 is a detailed perspective view of the lower standoff for one of the vertical support poles, with an optional additional support pole shown depending therefrom in broken lines.

[0015] Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] The present invention comprises a wall hanging scaffold assembly configured for hanging or suspending from the top plate of a wall during construction. The device may include various additional features, such as a safety post and railing assembly, one or more winch pulleys, additional bracing, and/or means for suspending additional scaffolding from the topmost assembly, if so desired.

[0017] FIG. 1 provides an environmental perspective view of a hanging scaffold assembly 10 of the present invention, supported from the top plate T of a wall W of a structure under construction. The scaffold 10 includes a first and a second top plate hanger bracket, respectively 12 and 14 (the first bracket 12 is illustrated in FIGS. 2 and 3), from which corresponding first and second scaffold poles 16 and 18 depend. Each of the poles 16 and 18 in turn supports a rigid, monolithic triangular platform support brace, respectively 20 and 22, which support one or more removable scaffold worker support platforms 24 thereacross, generally as shown in FIG. 1.

[0018] FIG. 2 provides a detailed perspective view of an exemplary top plate hanger bracket, e.g., the first bracket 12. It will be understood that the two brackets 12 and 14 are identical and interchangeable between their first and second positions, as desired. The brackets 12 and 14 are each

formed of a tubular vertical member 26, with a tubular horizontal member 28 extending from one end thereof. A plate or wall-gripping angle 30 extends from the distal end of the horizontal member 28 to hook over the top plate T opposite the vertical member 26 to capture the wall W between the angle 30 and vertical member 26. The two components 26 and 28 may be formed of square or round cross section stock, as desired, and may be formed of steel, aluminum, or other suitable material as desired.

[0019] The angle 30 is formed of a compatible material to that used for the other two components 26 and 28. The angle 30 may be elongated, with one flange attached medially to the distal end of horizontal member 26 and the other flange depending from the distal end of horizontal member, presenting elongated surfaces for greater surface area contact with the top and inner faces of the top plate T, thereby assuring that vertical member 26 is supported normal to, and offset from, the top plate T. The three components 26 through 30 may be welded together, as shown in FIG. 2, or otherwise permanently and securely fastened together, as desired.

[0020] Each of the vertical members includes at least one (preferably two) hole(s) formed laterally therethrough, for the installation of bolt(s) 32, hitch pins, etc. for the removable attachment of the upper end of the corresponding scaffold pole thereto. The scaffold poles are also preferably formed of a suitable metal material, e.g., steel or aluminum, and are formed or shaped to fit closely within the interior shape or passage of the vertical members 26 of the top plate or wall hangers 12 and 14.

[0021] Each of the horizontal members 28 of the hangers 12 and 14 also includes a passage 34 formed laterally through its distal end. This passage 34 may be used for different purposes, with one purpose being to lift or pull the scaffold assembly into place over a previously raised wall structure. To accomplish this, a hitch pin 36, or bolt, etc., is inserted through the passage 34 and a rope R, or cable, etc., is secured to the pin 36. The rope R is passed over the top plate T of the wall W and used to pull the scaffold assembly 10 into position from the opposite side of the wall W. The scaffold assembly 10 may be positively secured in position by a nail N (FIG. 3) or other suitable fastener temporarily driven into the top plate T through a nail hole 38 formed through the top plate grip angle

[0022] The passage 34 may also be used for the temporary attachment of a diagonal brace thereto. FIG. 3 illustrates the attachment of a diagonal brace 40 to the installed wall hanging scaffold assembly 10 to brace the otherwise poorly supported wall W while construction is underway. In FIG. 3, the scaffold assembly 10 is supported by the top plate T of the wall W, with the vertical member 26 and a portion of the horizontal member 28 of the top plate hanger bracket 12 and corresponding scaffold pole 16 being suspended over or along the outer side of the wall W. The outward load of the scaffold assembly 10, along with any workers and/or equipment thereon, could produce a sufficient outward load on the wall W to pull the wall W down in its unsupported state before construction has been completed. Accordingly, a diagonal brace 40, comprising an angle, tube, or other suitable stock of aluminum, steel, or other suitable material, is pinned to the distal end of the hanger bracket horizontal member 28 and extended downwardly and inwardly into the

building and secured temporarily to the floor or subfloor F of the structure. A hinge 42 may be bolted, welded, or otherwise secured to the distal end of the diagonal brace 40, to adjust for different angles of the brace 40 according to the height of the top plate T above the floor F. One or more nails N or other suitable fasteners may be driven through one or more of the conventional holes provided in the free leaf of the hinge 42, to secure the brace 40 temporarily in place.

[0023] FIG. 3 also illustrates the attachment of the platform support brace 20 to its corresponding scaffold pole 16. Each platform support brace 20 and 22 comprises a vertical member 44 disposed parallel to its corresponding scaffold pole 16 or 18 when the brace is installed thereon, and a horizontal member 46 and diagonal member 48 extending away from the wall W when the scaffold assembly is installed thereon. The vertical member 44 is disposed between the first end 50 of the horizontal member 46 and the opposite first end 52 of the diagonal member 48, with the first end 54 of the vertical member 44 being permanently and immovably affixed (welded, etc.) to the first end 50 of the horizontal member 46, and the opposite second end 56 of the vertical member 44 being permanently and immovably affixed to the first end 52 of the diagonal member 48. The opposite distal second ends 58 and 60 of the horizontal and diagonal members 46 and 48 are permanently and immovably affixed to one another, to complete the rigid, monolithic, triangular periphery of each of the platform support braces 20 and 22. An additional intermediate horizontal brace member 62 may be installed between the vertical member 44 and the diagonal member 48 to provide further rigidity to the platform support braces 20 and 22, and also to serve as a step for workers using the scaffold assembly 10 (the brace member 62 may have a non-skid material applied thereto, as desired).

[0024] The various components 44, 46, 48, and 62 may be formed of square or round tubular metal stock (e.g., steel, aluminum, etc.), and/or may alternatively be formed of angle stock, as desired. The first ends 50 and 52 of the horizontal and diagonal members 46 and 48 each include an attachment bracket, respectively 64 and 66, extending therefrom. The brackets 64 and 66 each comprise a generally U-shaped component or yoke, which fits around three sides of the corresponding scaffold pole when the platform support brace is installed thereon. Each scaffold pole 16 and 18 includes a series of platform height adjustment holes 68 therethrough (shown in FIG. 3), allowing each of the platform support braces 20 and 22 to be installed upon the corresponding scaffold pole 16 and 18 at the desired height. A hitch pin 36 or the like, similar to the pin 36 shown in FIG. 2, may be inserted through the support brace brackets 64 and 66 and desired height adjustment holes 68 of the scaffold poles 16 and 18 to lock the braces 20 and 22 at the desired height or position on the two poles, as shown in FIG. 4.

[0025] The present wall hanging scaffold assembly 10 may be temporarily installed upon walls of various thicknesses, as desired. The lengths of the horizontal members 28 of the hanger brackets 12 and 14 are preferably sufficiently long as to span an eight-inch thick wall, if necessary, and may be made even longer if so desired. However, it will be recognized that the top plate grip angle 30 of the top plate hanger bracket abuts the interior edge of the top plate T, and

thus the vertical member **26** of the hanger bracket is spaced somewhat away from the exterior surface of the wall in the case of thinner walls.

[0026] Accordingly, first and second lower wall standoff assemblies **70** and **72** are provided for attachment to the distal lower ends of the corresponding scaffold poles **16** and **18** in order to position the two poles substantially parallel to the wall **W**. **FIG. 4** provides a detailed illustration of the first standoff assembly **70**. Each standoff assembly **70** and **72** comprises a removable tubular component **74** configured to fit closely about the lower end of the corresponding scaffold pole, with a standoff bracket **76** extending therefrom and toward the wall when the assemblies **70** and **72** are properly attached to their poles **16** and **18**. The standoff bracket **76** may be formed of angle stock or other suitable material as desired. Additional reinforcement plates **78** may be installed between the tube or pipe **74** and the standoff bracket angle **76**, as required. A fastener hole **80** is provided for nailing or otherwise securing a spacer block **B** (shown in **FIG. 1**) to the bracket **76** as required, depending upon the thickness of the wall **W** upon which the scaffold assembly **10** is installed.

[0027] The tubular component **74** is preferably sufficiently long as to provide for the insertion of the end of an additional scaffold pole therein, as indicated by the secondary scaffold pole **16a** shown in broken lines in **FIG. 4**. In this manner, the present scaffold assembly may be extended to cover multiple stories of a building under construction, if so desired. The secondary pole **16a** may be removably secured to the standoff assembly **70**, and the standoff assembly **70** may be removably secured to the lower end of the first scaffold pole **16** by means of hitch pins **36**, similar to the hitch pin **36** illustrated in **FIG. 2**. Bolts or other suitable fasteners may be used alternatively.

[0028] The present wall hanging scaffold **10** may include additional safety and convenience features, as well. **FIG. 1** illustrates the installation of first and second safety posts **82** and **84** in the distal ends of the two scaffold platform braces **20** and **22**. Each brace **20** and **22** includes a vertically oriented safety post socket **86** extending from the distal joined ends of the horizontal member **46** and diagonal member **48**, opposite the corresponding scaffold poles **16** and **18** when the scaffold **10** is assembled. The safety posts **82** and **84** are deployed vertically in the corresponding sockets **86**, and secured therein e.g., by a hitch pin or the like, as in other attachments used in the assembly of the present scaffold **10**. Each of the posts **82** and **84** includes at least one (and preferably a plurality of) safety rail bracket(s) **88** extending therefrom, providing for the removable placement of a corresponding number of safety rails **S** thereacross.

[0029] Either or both of the safety posts **82** and **84** may have a pulley **90** placed thereatop, if so desired. The pulley **90** includes a plug base extending from its sheave, with the plug base being removably inserted into the upper end of the safety post **82** and/or **84**. The pulley **90** facilitates the lifting of materials and equipment from the surface below the scaffold platform **24**, up to the scaffold platform **24** and working height.

[0030] In conclusion, the present wall hanging scaffold assembly greatly facilitates the erection and installation of scaffolding on a building under construction. The relatively small size of the hanger components allows them to be

placed in position and to remain in place until construction is well along, up to the point where the eaves must be closed in. The present wall hanging scaffold is also quite versatile, with provision for additional lengths for multiple story installations and for adjusting the height of the platforms along the vertical scaffold poles. The rigid, monolithic construction of the triangular platform support braces also facilitates assembly at the worksite, yet the entire scaffold structure disassembles for storage in a relatively compact area. Accordingly, the present wall hanging scaffold will prove to be a most popular tool among contractors and others who have need of such a device.

[0031] It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

I claim:

1. A wall hanging scaffold, comprising:

a first and a second top plate hanger bracket;

a first and a second scaffold pole respectively depending from each said hanger bracket; and

a rigid, monolithic, triangulated platform support brace removably and adjustably secured to each said scaffold pole, and extending outwardly therefrom, the base being adapted for receiving at least one scaffold platform.

2. The wall hanging scaffold according to claim 1, wherein each said platform support brace comprises:

a vertical member disposed parallel to said scaffold pole when said platform support brace is installed thereon, said vertical member having a first end and a second end opposite the first end;

a horizontal member extending normal to said scaffold pole when said platform support brace is installed thereon, said horizontal member having a first end permanently affixed to the first end of said vertical member and a distal second end opposite the first end; and

a diagonal member permanently affixed to the second end of said vertical member and the distal second end of said horizontal member, and extending therebetween.

3. The wall hanging scaffold according to claim 2, wherein said vertical, horizontal, and diagonal members are fixed length members joined to each other by welds in order to form a rigid triangular brace.

4. The wall hanging scaffold according to claim 2, wherein each said platform support brace further includes an intermediate horizontal brace and step member extending between and permanently affixed to said vertical member and said diagonal member.

5. The wall hanging scaffold according to claim 1, further including a lower wall standoff removably secured to each said scaffold pole opposite said hanger bracket.

6. The wall hanging scaffold according to claim 5, further including a scaffold pole extension removably secured to and depending from each said lower wall standoff.

7. The wall hanging scaffold according to claim 1, further including:

a vertically disposed safety post removably attached to and extending upwardly from each said platform support brace, opposite the corresponding said scaffold pole; and

at least one safety rail removably attached to and extending between each said safety post.

8. The wall hanging scaffold according to claim 7, further including a pulley removably installed atop at least one said safety post.

9. The wall hanging scaffold according to claim 1, wherein each said top plate hanger bracket and corresponding said scaffold pole are adapted for being suspended along the outer side of a wall of a structure having a floor extending to the inner side of the wall, the scaffold further including a diagonal brace removably secured to and extending from at least one said top plate hanger bracket and adapted for being removably anchored to the floor.

10. The wall hanging scaffold according to claim 1, wherein at least said first and second top plate hanger bracket, said first and second scaffold pole, and each said platform support brace are formed of materials selected from the group consisting of steel angle and tube stock, and aluminum angle and tube stock.

11. A wall hanging scaffold, comprising at least:

a first and a second scaffold pole;

a rigid, monolithic, triangulated platform support brace removably and adjustably secured to each said scaffold pole and extending outwardly therefrom, each said platform support brace comprising:

a vertical member disposed parallel to said scaffold pole when said platform support brace is installed thereon, said vertical member having a first end and a second end opposite the first end;

a horizontal member extending normal to said scaffold pole when said platform support brace is installed thereon, said horizontal member having a first end permanently affixed to the first end of said vertical member and a distal second end opposite the first end; and

a diagonal member permanently affixed to the second end of said vertical member and the distal second end of said horizontal member, and extending therebetween, the members being fixed length members joined to each other by welds.

12. The wall hanging scaffold according to claim 11, wherein each said platform support brace further includes an intermediate horizontal brace and step member extending between and permanently affixed to said vertical member and said diagonal member.

13. The wall hanging scaffold according to claim 11, further including at least one support platform removably disposed upon each said platform support brace and extending therebetween.

14. The wall hanging scaffold according to claim 11, further including:

a first and a second top plate hanger bracket disposed atop said first and second scaffold pole, respectively; and

a lower wall standoff removably secured to each said scaffold pole opposite said hanger bracket.

15. The wall hanging scaffold according to claim 14, further including a scaffold pole extension removably secured to and depending from each said lower wall standoff.

16. The wall hanging scaffold according to claim 11, further including:

a vertically disposed safety post removably attached to and extending upwardly from each said platform support brace, opposite the corresponding said scaffold pole; and

at least one safety rail removably attached to and extending between each said safety post.

17. The wall hanging scaffold according to claim 16, further including a pulley removably installed atop at least one said safety post.

18. The wall hanging scaffold according to claim 11 wherein each said top plate hanger bracket and corresponding said scaffold pole are adapted for being suspended along the outer side of a wall of a structure having a floor extending to the inner side of the wall, the scaffold further including:

a first and a second top plate hanger bracket disposed respectively atop said first and second scaffold pole; and

a diagonal brace removably secured to and extending from at least one said top plate hanger bracket and adapted for being removably anchored to the floor.

19. The wall hanging scaffold according to claim 11, further including a first and a second top plate hanger bracket disposed respectively atop said first and second scaffold pole, at least said first and second top plate hanger bracket, said first and second scaffold pole, and each said platform support brace being formed of materials selected from the group consisting of steel angle and tube stock, and aluminum angle and tube stock.

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