Aug. 23, 1949. A. M. PAULSON 2,479,962

SCAFFOLD CONSTRUCTION

Filed Oct. 17, 1946

3 Sheets-Sheet 1

FIG. 1

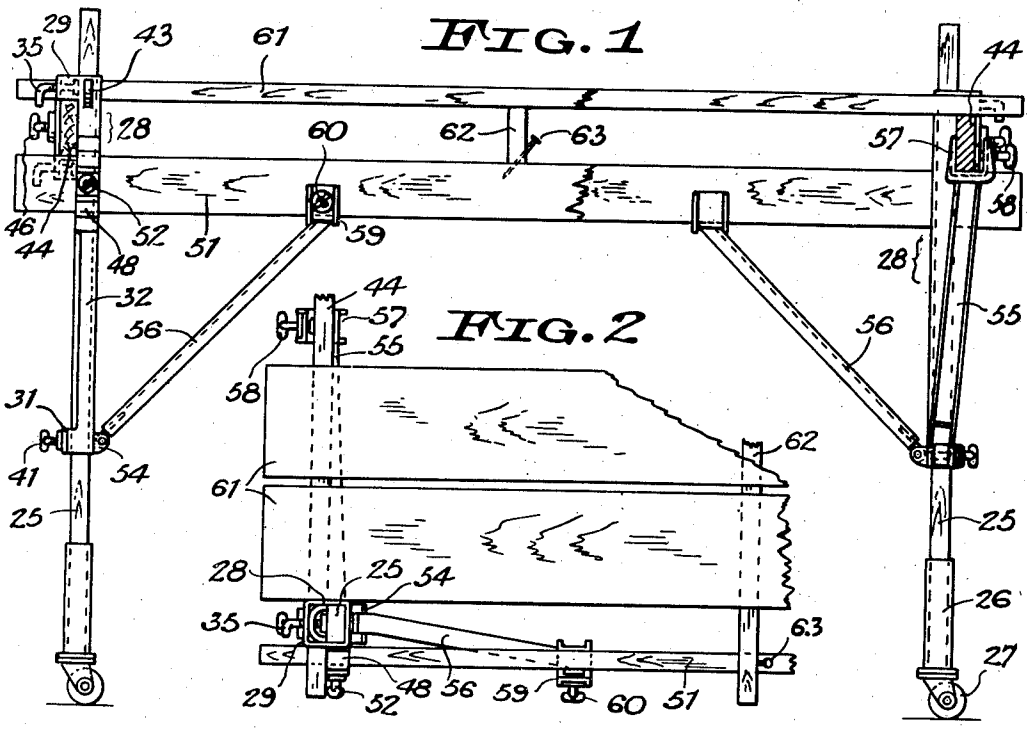


FIG. 2

FIG. 3

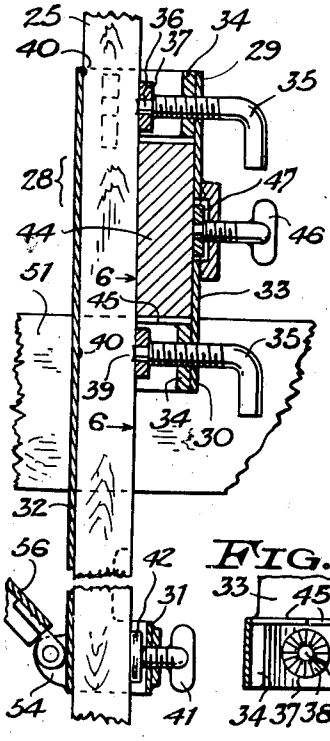


FIG. 4

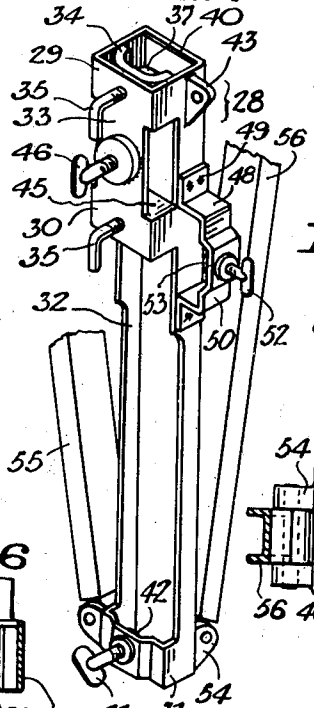


FIG. 6

FIG. 7

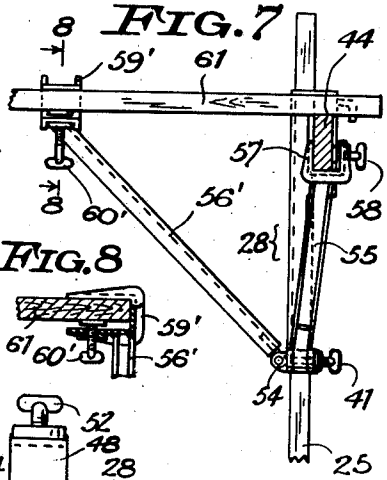
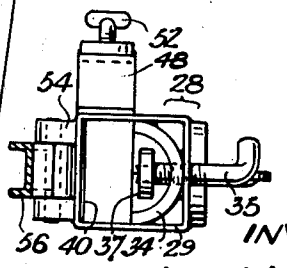


FIG. 8

FIG. 5



INVENTOR

ALF M. PAULSON

BY Christopher L. Waal

ATTORNEY

Aug. 23, 1949. A. M. PAULSON 2,479,962

SCAFFOLD CONSTRUCTION

Filed Oct. 17, 1946

3 Sheets-Sheet 2

FIG. 9

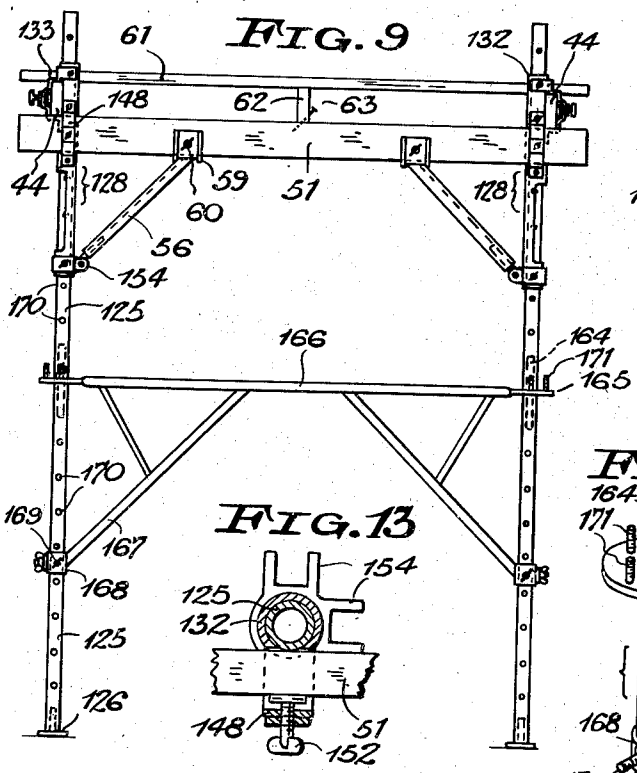


FIG. 11

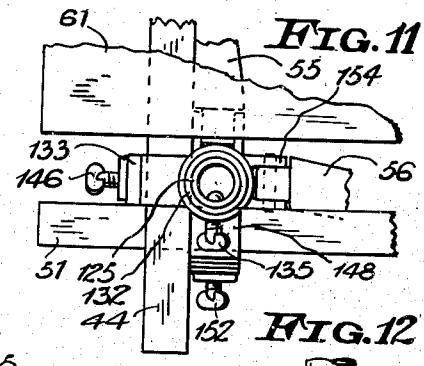


FIG. 12

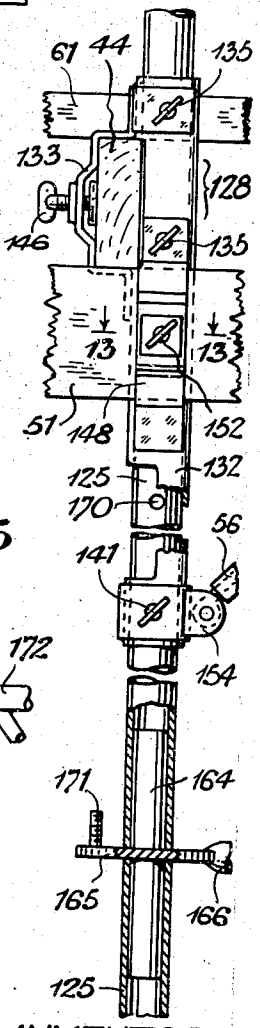


FIG. 13

FIG. 14

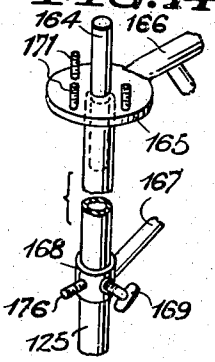


FIG. 10

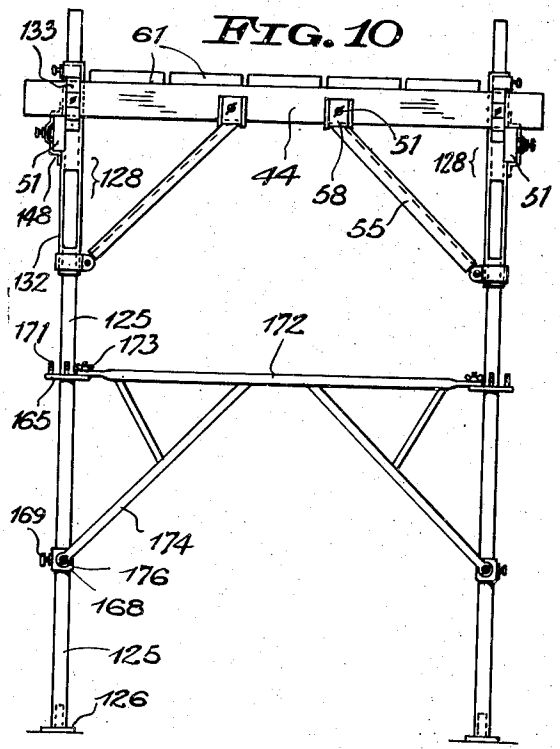
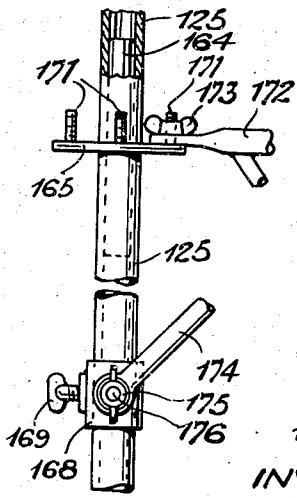


FIG. 15



INVENTOR

ALF M. PAULSON

BY Christopher L. Waal

ATTORNEY

Aug. 23, 1949. A. M. PAULSON 2,479,962

SCAFFOLD CONSTRUCTION

Filed Oct. 17, 1946

3 Sheets-Sheet 3

FIG. 16

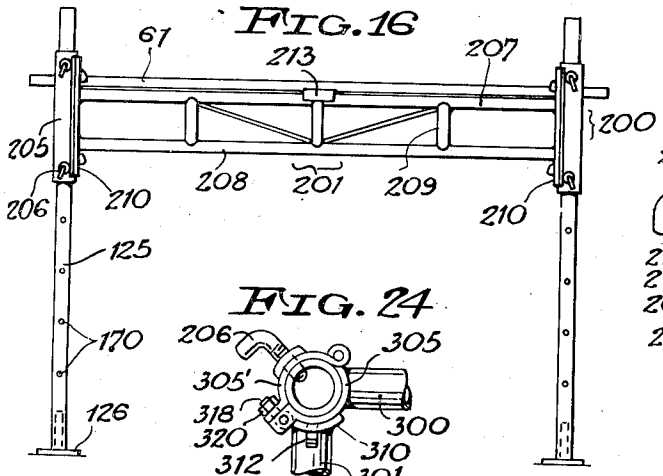


FIG. 24

FIG. 18

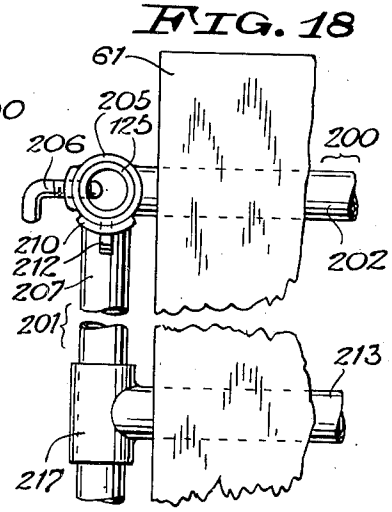


FIG. 17

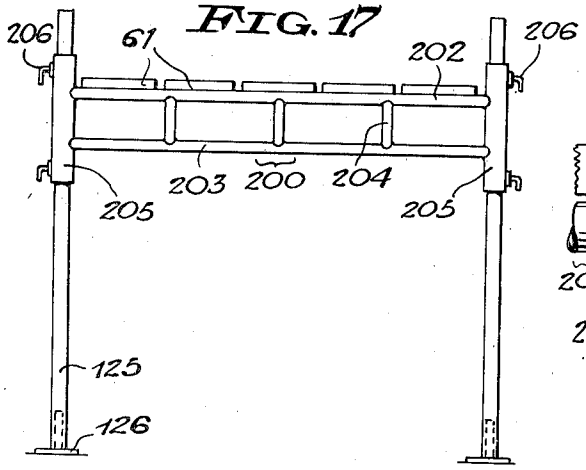


FIG. 19

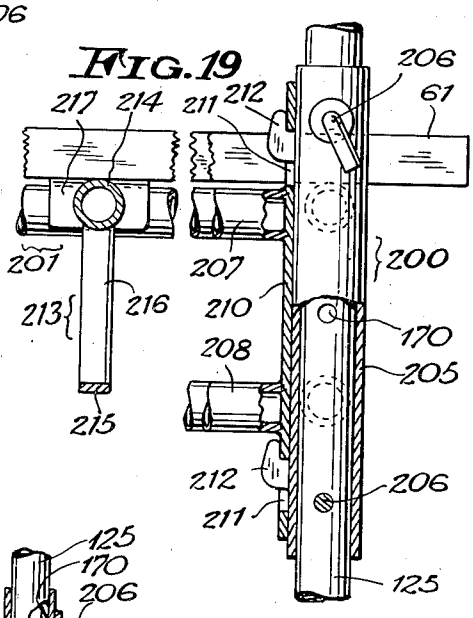


FIG. 21

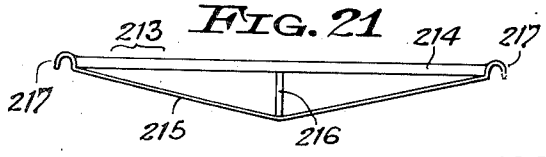


FIG. 22

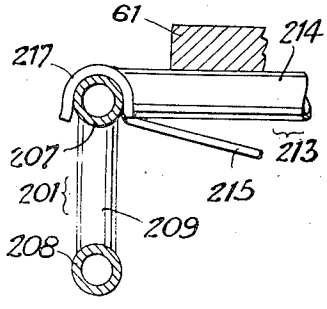


FIG. 23

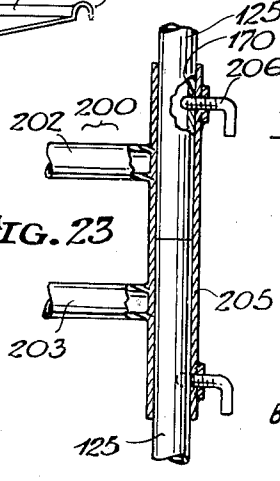
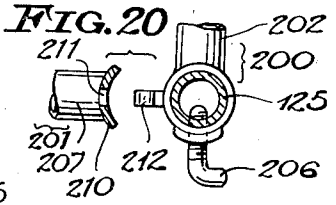


FIG. 20



INVENTOR
ALF M. PAULSON
BY Christopher L. Waal
ATTORNEY

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2,479,962

UNITED STATES PATENT OFFICE

2,479,962

SCAFFOLD CONSTRUCTION

Alf M. Paulson, Milwaukee, Wis.

Application October 17, 1946, Serial No. 703,785

5 Claims. (Cl. 304—2)

1

The present invention relates to scaffold construction and has for an object to provide an improved scaffold which is of strong and durable construction, which can be easily assembled and dismantled, and which can be inexpensively manufactured.

Another object is to provide scaffold fittings which are readily attached to posts or uprights in vertically adjustable relation.

A further object is to provide a scaffold construction which by simple modification can utilize posts or uprights of either wood or metal.

A still further object is to provide a scaffold which can be firmly assembled in two or more superposed sections.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawings, illustrating certain embodiments of the invention,

Figure 1 is a side elevational view of a scaffold constructed in accordance with the invention, parts being broken away and parts being shown in section;

Fig. 2 is a fragmentary top view of a corner portion of the scaffold;

Fig. 3 is a sectional elevation of a corner portion of the scaffold, parts being broken away;

Fig. 4 is a detail perspective view of one of the corner post fittings, bracket arms thereof being shown in folded position and parts being broken away;

Fig. 5 is a detail top view of one of the corner post fittings, parts being shown in section;

Fig. 6 is a detail sectional view taken on the line 6—6 of Fig. 3;

Fig. 7 is a fragmentary sectional elevational view of a modified form of scaffold structure;

Fig. 8 is a detail sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a side elevational view of another modified form of scaffold;

Fig. 10 is an end elevational view of the scaffold of Fig. 9;

Fig. 11 is a fragmentary top view of a corner portion of the scaffold of Fig. 9;

Fig. 12 is an elevational view of a corner portion of the scaffold of Fig. 9, parts being broken away and parts being shown in section;

Fig. 13 is a detail sectional view taken on the line 13—13 of Fig. 12;

Fig. 14 is a detail perspective view of a corner structure of the scaffold of Fig. 9;

Fig. 15 is a detail elevation of a portion of the corner structure, parts being broken away and parts being shown in section;

2

Fig. 16 is a side elevational view of still another modified form of scaffold;

Fig. 17 is an end elevational view of the scaffold of Fig. 16;

Fig. 18 is a fragmentary top view of the scaffold of Fig. 16;

Fig. 19 is an elevational view of a corner portion of the scaffold of Fig. 16, parts being broken away and parts being shown in section;

Fig. 20 is a top view of a corner structure with elements separated, parts being shown in section;

Fig. 21 is a side elevation of a platform-supporting truss;

Fig. 22 is a detail view of one end of the truss, parts of the scaffold structure being shown in section;

Fig. 23 is a top view of a modified form of corner construction, and

Fig. 24 is a fragmentary top view of a further modified form of scaffold.

Referring to Figs. 1 to 8 of the drawings, 25 designates corner posts or uprights usually formed by wooden 2 x 4 studs. Four posts are normally provided, opposite corner posts being shown in Fig. 1. For some types of work the lower ends of the posts are seated in socket members 26 provided with caster wheels 27.

Ledger supports 28 are carried by the respective posts in vertically adjustable relation and each comprises a sleeve member having vertically spaced upper loop portions 29 and 30 and a lower end loop portion 31, all of rectangular shape, connected by a vertical bar 32 which is here shown to be of channel shape to receive the post. The sleeve member is formed of heavy sheet metal bent to shape and welded together. The loop portions 29 and 30 are slightly wider than the 2 x 4 post and have a depth of about twice the thickness of the post, the parts of these loops spaced outwardly from the post being connected by a vertical plate 33. Arched metal spacers are secured in the loop portions 29 and 30, as by welding, to present guide surfaces for the post. Horizontal clamping screws 35 are threaded through the loop walls and the spacers and each has a reduced inner end 36 which is pivotally connected to a clamping button 37 provided with a roughened or radially ribbed face 38, Fig. 6, to engage a side face of the post. In some instances, the reduced screw ends may each have a concave face 39 to engage the post, and the opposite faces of the loop portions 29 and 30 may have shallow ribs 40 to engage the post. The lower end loop portion 31 of the ledger support has a horizontal clamping screw 41 with

a pivotally connected button 42 to bear against the post. In some instances, the upper end of the ledger support is provided with a hoisting ear 43.

A ledger 44, such as a 2 x 6 plank, has one end entered between the loop portions 29 and 30 and fits between the post and the vertical plate 33, the lower edge of the ledger resting on inturned flanges 45 formed on the loop portion 30. The ledger is clamped to the post by a horizontal clamping screw 46 threaded in a reinforced part of the plate 33 and having a pivotally connected clamping button 47 bearing on the adjacent vertical face of the ledger. The other end of the ledger is similarly mounted in a ledger support on another post.

A bent metal strap 48 has top and bottom end ears 49 secured to one of the side flanges of the ledger support, as by welding, and has a vertical wall 50 spaced from the support flange, the strap forming with the flange and aperture for receiving the end portion of a ledger 51 such as a 2 x 6 plank, which rests on edge on the lower part of the strap, and extends at right angles to, and immediately below the ledger 44. The strap wall 50 has a clamping screw 52, similar to the screw 46, with an end button 53 bearing on the ledger 51 for clamping this ledger against the ledger support flange. The other end of the ledger 51 is similarly clamped to the ledger support of another corner post.

The lower end of each ledger support 28 has ears 54 on two adjacent sides to which a pair of bracket arms 55 and 56 are pivotally secured. The arm 55 has a U-shaped upper end 57 embracing the lower edge portion of one of the ledgers 44 and provided with a button-ended clamping screw 58 engaging the side of this ledger and the arm 56 has a similar U-shaped upper end 59 and clamping screw 60 for similarly engaging one of the ledgers 51. The arms 55 and 56 restrain both downward and lateral displacement of the ledgers.

The four post-supported ledgers or beams 44 and 51 form a rectangular frame, and the parallel ledgers 44 at the opposite ends of the frame support thereon a number of parallel platform planks 61. The planks are supported at their intermediate portions by a ledger 62, such as a 2 x 6 plank, the ends of which rest on the ledgers 51 and are releasably secured thereto, as by partially driven nails 63. The scaffold thus formed may be moved about as required. For short scaffolds the intermediate ledger 62 may be omitted.

In assembling the scaffold, the ledger supports 28 are slipped over the respective posts 25 and are secured thereto in adjusted relation. This may be done while the posts are in horizontal position. The ledgers 44 are secured to the respective pairs of spaced posts to form end frames, the roller sockets 26 being applied to those posts. The ledgers 51 are then secured to the spaced end frames, and the arms 55 and 56 are clamped to the ledgers. After attaching the intermediate cross ledger 62, the platform planking is set in place. The scaffold is firmly braced and the clamping devices hold the ledger supports securely on the posts. Dismantling of the scaffold is also easily and quickly effected. The ledger supports 28 may or may not be removed from the corner posts, and in either case the arms 55 and 56 can be folded close to the supports, as seen in Fig. 4. In cases where the wooden parts of the scaffold are available on a construction project, it is only necessary to furnish and carry the metal corner fittings.

The modified form of scaffold shown in Figs. 7 and 8 is similar to the scaffold of Fig. 1 except that the ledgers 51 are omitted, and an arm 56' pivotally mounted on each ledger support 28 has a laterally hooked upper end 59' which embraces the outer edge portion of an outer plateform plank 61 and is secured thereto by a screw 60'.

The modified form of scaffold shown in Figs. 9 to 15 is generally similar to that of Fig. 1 except that it includes ledger supports 128 constructed to cooperate with tubular metal corner posts 125 which are here shown to be formed in aligned detachable sections. The upper post sections carry the ledger supports 128, as hereinafter described, and the lower post sections are provided with suitable bearing feet 126. The complementary sections of each post are joined by a coupling comprising a dowel 164 having an intermediate annular flange 165. The dowel flanges of two adjacent corner posts are welded or otherwise rigidly connected to the opposite ends of a horizontal truss 166 formed of metal tubing, and the other two corner posts are similarly connected. Each truss 166 includes inclined downwardly diverging members 167, the lower ends of which are welded or otherwise rigidly secured to respective collars 168 surrounding the posts and clamped thereto by screws 169. If desired, the screws may enter holes 170 formed in the post. Each dowel flange 165 has one or more upstanding screw studs 171, three being shown in the present instance. The other two sides of the scaffold frame have respective trusses 172, the ends of the upper tubular members of which are secured to a pair of the screw studs 171 by wing nuts 173. Each truss 172 has inclined downwardly diverging members 174, the lower ends of which are secured by nuts 175 to radial studs 176 on the collars 168.

Each ledger support 128 includes a metal sleeve or pipe 132 which is slidable on the corresponding post and carries a pair of screws 135 which selectively enter radial holes 170 in the post. Metal straps 133 and 148, generally similar to the straps 48 of Fig. 4, are welded to the sleeve to receive the upper and lower ledgers 44 and 51 and have respective clamping screws 146 and 152 for these ledgers, the straps being secured 90° apart and at different elevations, so that the ledger 44 will pass over the ledger 51. Preferably, the sleeve is cut away at each strap so that the ledgers will bear directly against the post 125. The sleeve may also be cut away below the ledger-supporting strap 148. Ears 154 are welded to the reinforced lower end of the sleeve 132 for pivotal attachment of ledger-bracing arms 55 and 56, as in the device of Fig. 1. For a low scaffold, the upper post sections and the connecting parts therefor may be omitted, and for a higher scaffold each post may have two or more sections.

The modified scaffold of Figs. 16 to 22 includes tubular metal corner posts 125. The posts are connected by metal trusses 200 and 201 to form a rectangular scaffold frame work. Each truss 200 and its connected posts form a side frame, and the opposed side frames are connected by the trusses 201 to form the other two sides of the frame work. Each truss 200 comprises a pair of parallel upper and lower pipes 202 and 203 which are joined at intervals by vertical tubular struts 204 and are welded at their ends to vertical metal sleeves 205 slidable on the posts. Each sleeve has one or more radial screws 206 which

selectively enter openings 170 in the posts to hold the truss at an adjustable elevation. Each truss 201 comprises a pair of parallel upper and lower pipes 207 and 208 which are joined at intervals by vertical struts 209 and are welded at their ends to vertically extending abutment members or saddle plates 210 of concave or trough-shaped cross section which are adapted to seat against the vertical sleeves 205. Each plate 210 has vertical slots 211 at its upper and lower end portions which receive therein respective upwardly projecting hooks 212 laterally welded to the sleeves. The plates 210 after entry of the hooks are forced downwardly into tight wedging engagement therewith, thus firmly seating the plates on the cylindrical outer surfaces of the associated sleeves 205. Platform planks 61 rest on the horizontal top bars 202 of the end trusses 200. In some instances, an intermediate beam or truss 213 is provided to support the platform planks and comprises a horizontal top pipe 214, a bottom chord 215, and a central strut 216, the ends of the truss having hook plates 217 which embrace and seat on the top bars of the trusses 201. The truss 213 extends parallel to the end trusses 200.

The scaffold of Figs. 16 to 22 is of simple and durable construction and is easily assembled and dismantled. In some cases, trusses of various length may be provided for scaffolds of different size.

In higher scaffolds the posts may be made in two or more sections which are suitably joined or coupled as by the means provided in the scaffold of Figs. 9 to 15. Another coupling means is shown in Fig. 23, wherein aligned endwise-abutting post sections 125 are entered into the sleeve 205 of a truss 200 and are secured in place by the screws 206. The splicing trusses 200 may also be connected by a pair of the trusses 201.

The modification of Fig. 24 includes beams or trusses 300 and 301 generally similar to the trusses 200 and 201. However, the truss 300 has an end sleeve formed by two complementary hinged sections 305 and 305' secured about the associated post 125, as by one or more swing bolts 318 and nuts 320. The sleeve section 305' also has one or more screws 206 engaging the post. The sleeve section 305 has hooks 312 engaging a slotted saddle end plate 310 of the truss 301, as in the truss of Fig. 19. The truss 300 can be readily attached to and detached from the posts without requiring access to the ends of the posts.

What I claim as new and desire to secure by Letters Patent is:

1. In a scaffold construction, two pairs of spaced posts each having endwise aligned tubular sections, a pair of spacing members for said pairs of spaced posts each having vertical dowels at opposite ends extending into the post sections, said end dowels having respective horizontal

intermediate flanges between the adjacent post sections, and said spacing members further having arms with respective collars surrounding said posts in axially spaced relation to said flanges, and a second pair of spacing members at right-angles to said first-named spacing members and detachably connecting the flanges and collars.

2. In a scaffold construction, a pair of spaced platform-supporting trusses each having vertical post-receiving end sleeves with lateral upwardly projecting hooks thereon, and a pair of connecting trusses for said first-named trusses each having vertical end plates adapted to seat laterally against said sleeves and having apertured portions engageable by said hooks for rigidly securing said plates to said sleeves.

3. In a scaffold construction, a post-spacing member having vertical post-receiving sleeves at opposite ends, each sleeve having a separable section permitting lateral application of the sleeve to a post, and post-securing means on said sleeves.

4. In a scaffold construction, a pair of laterally spaced upright tubular members, a frame extending between said tubular members and having vertical end plate members with concave faces adapted to seat against said tubular members, and securing means for rigidly but detachably connecting each tubular member and the adjacent end plate member comprising vertically spaced hooks on one of said members and vertical hook-receiving slots in the other member.

5. In a scaffold construction, a pair of laterally spaced upright members, a frame extending between said members and having vertical end plate members laterally engageable with said upright members, and securing means for rigidly but detachably connecting each upright member and the adacent end plate member comprising vertically spaced hooks on one of said members and vertical hook-receiving slots in the other member.

ALF M. PAULSON.

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