O. M. DU BRAU.

SCAFFOLD.

APPLICATION FILED NOV. 18, 1915.

1,279,299.

Patented Sept. 17, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

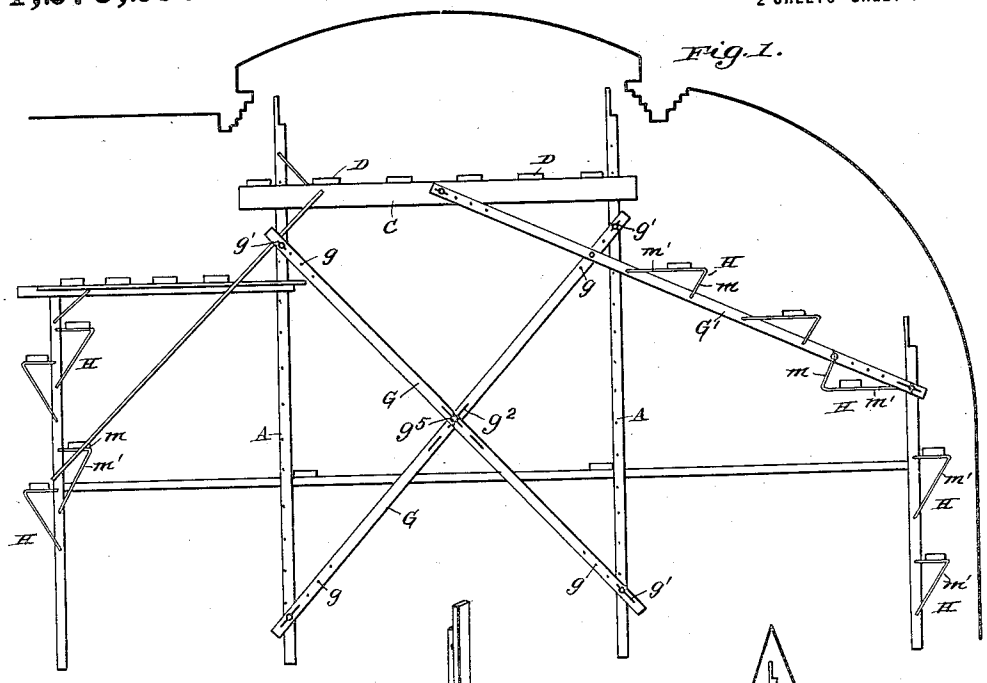


Fig. 3.

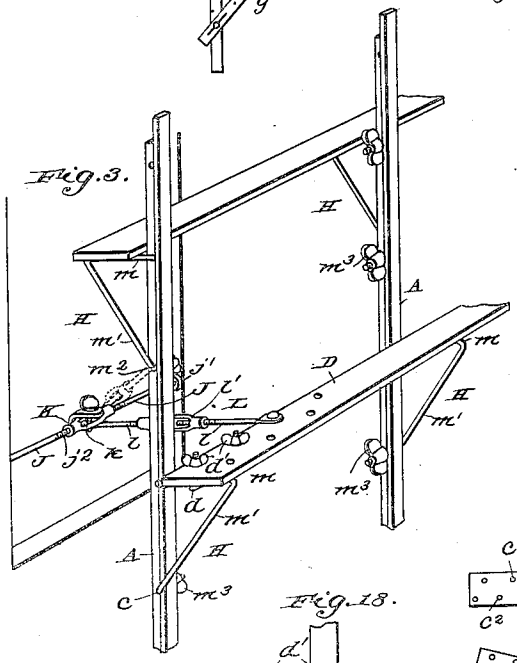


Fig. 2.

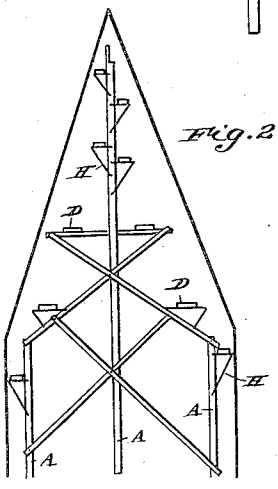


Fig. 17.

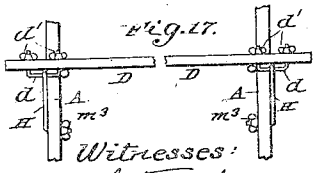


Fig. 18.

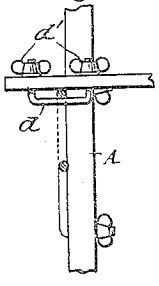
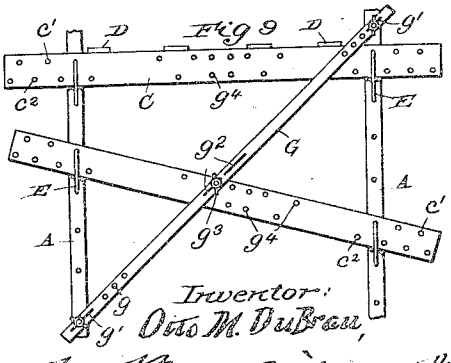


Fig. 9



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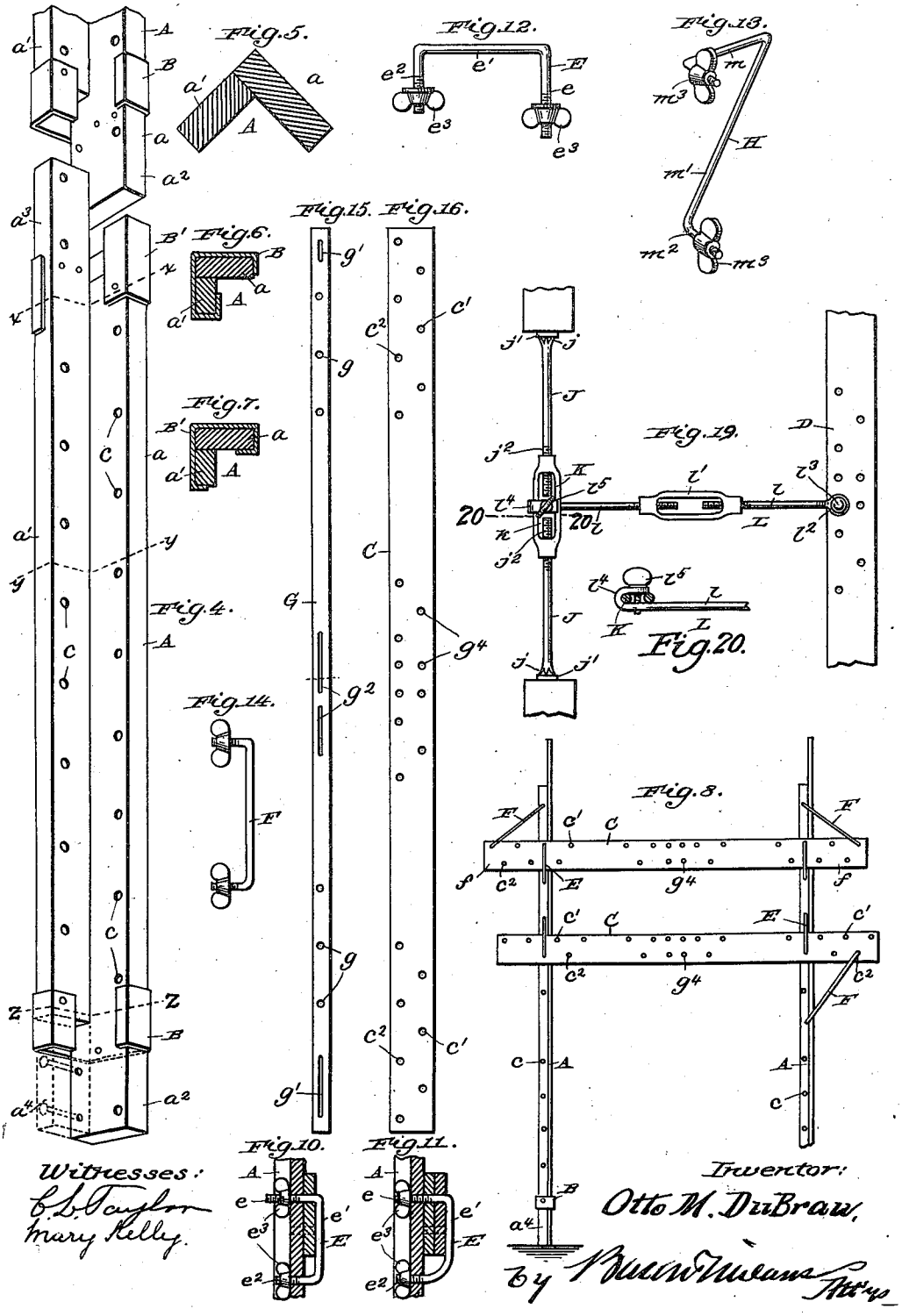
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

OTTO M. DU BRAU, OF BALTIMORE, MARYLAND.

SCAFFOLD.

1,279,299. Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed November 18, 1915. Serial No. 62,194.

To all whom it may concern:

Be it known that I, OTTO M. DU BRAU, citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Scaffolds, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to the art of scaffolds, and has for its primary object the provision of a scaffold the parts and attachments of which possess improved characteristics enabling expeditious assembling and the taking apart of the structure without liability to distort, or otherwise impair, or destroy the parts, whereby the scaffold is capable of repeated usage and long service, with the attending advantages of compact and ready storage and shipment in a "knocked down" state.

The invention embraces instrumentalities, enabling by the mere duplication of parts in number required, the quick assembling of a scaffold of any width or height desired in keeping with the uses to which the same is to be put, and the adjustable relation of the parts being such that the scaffold may assume various shapes to meet the conditions confronting its service; for example, uniform and straight to suit a vertical wall being treated, inclined to suit a rounded or narrowing ceiling, or tall and tapering to suit a spire, tower, or the like.

The invention also comprehends means for adjustably supporting ledges which are designed to in turn bear the platform members, where employed, to the end that said ledges may be disposed at substantially any elevation desired to meet the requirements or whim of the workman or artist, and permitting the ledges to occupy either horizontal or slanting positions; as well as allowing for the locating of the ledges at opposite sides of the supporting means therefor, the latter being found useful under certain conditions apparent to persons skilled in this art, and later to be pointed out.

The invention still further includes improved devices for anchoring the scaffolding proper to the building or wall, or equivalent structure, adjacent to which the scaffold is placed.

The foregoing, and also, many other improved and important details in construction and combination of parts, will be clearly understood from the specific description hereinafter contained, when read in connection with the accompanying drawings forming part hereof, and wherein, for the sake of illustration, I will disclose the preferred embodiment of my invention. Generally speaking, among these details will be noticed a special construction of main supporting upright or scantling, formed of sections with interfitting end portions adapted to hold the sections in alinement to obtain any length desired and needing no extraneous fastening means to prevent separation of the sections under working conditions; a special fastening device for the ledges adapted to receive either edge of the latter to secure the same at different elevations, and more specifically, capable of securing a single ledge or a pair of ledges where their ends overlap; a peculiarly shaped bracket having a long and a short arm, capable of attachment at various points on the scaffold, for instance the uprights or ledges for an additional platform board or boards, this bracket acting according to its position to support the board on its longer arm, or its shorter arm, or interiorly of the bracket; braces for the opposite ends of the ledges, connecting them to the respective uprights, and improved diagonal braces for the uprights, to more effectually tie the parts together and preventing swaying of the uprights when subjected to their expected load; and adjusting means for the anchoring devices herein above mentioned, facilitating the placing and securing of the latter to a point of attachment located anywhere within approximately the area of a globe defined by the length and range of movement of the anchoring device; also improved means for securing in adjustable positions platform boards to the brackets herein referred to.

In the drawings,

Figure 1 is an elevation of the upper portion of a scaffold embodying some of my present improvements;

Fig. 2 is a similar view, showing a modified arrangement of the parts to suit a differently shaped structure being treated;

Fig. 3 is a perspective view, illustrating still another assembling of the parts, and also showing the anchoring element;

Fig. 4 is a perspective view of one com-

plete and the adjacent end of an adjoining upright member in spaced relation to show the manner of interfitting them;

Figs. 5, 6, and 7, are respectively cross-sectional views taken on the lines, y—y, z—z and x—x in Fig. 1;

Figs. 8 and 9 are elevations representing several ways of securing the supporting ledges in place by the same fastening means;

Fig. 10 is a sectional view showing a single ledge fastened in place, and Fig. 11 is a similar view showing a pair of ledges fastened in place by the same character and size of fastener;

Fig. 12 is a detached view of the fastener;

Fig. 13 is a perspective view of one of the brackets;

Fig. 14 is a detached view of one of the ledge braces;

Fig. 15 is an elevation, enlarged, of one of the upright diagonal braces;

Fig. 16 is a side view of one of the ledges;

Fig. 17 is a front view of one of the platform boards secured to the brackets as attached to the uprights; and

Fig. 18 is an end view of the same;

Fig. 19 is a plan view of the anchoring means;

Fig. 20 is a partial sectional view taken on the line 20—20 of Fig. 19.

Referring more specifically to the drawings, wherein like reference characters refer to the same parts in the several views, A represent suitable uprights or standards, preferably formed of two members disposed at right angles to each other and secured in abutting relation to present a V-shaped cross section, possessing considerable strength and furnishing important advantages when used as I propose. The two members of each upright are reperesented respectively at a and a' the former extending below the latter as at a^2 and the member a' extending above the member a as at a^3, thereby providing tongues at the opposite ends of each upright member, it being understood that the uprights as an entirety may be of any length made up of sections similar to the one section now being particularly defined.

B and B′ are socket members formed of sheet metal as illustrated in detail, Figs. 6 and 7, encompassing the V-shaped body of the upright section, and covering the junctures between the body and tongues thereof, and projecting outwardly a substantial distance beyond said junctures to present open receiving portions for the tongues on adjoining upright sections. The upper socket member B′ projects upwardly a distance somewhat greater in extent than the extent to which the lower socket member depends, so that when assembling the sections the tongue a^2 of the section to be added may, from a tilting or inclined position be preliminarily introduced into the socket B′ to center the section, when the entrance of the tongue a^3 into the socket B will follow.

The members of the upright sections are apertured as at c substantially throughout the length of the same, these apertures being approximately equi-distant, but the apertures in one of the members of the section are disposed in staggered relation to the apertures in the other member so that different elevations may be obtained within narrow limits by simply turning the upright around with respect to the other parts now to be described, which obviates the weakening of either member as would transpire if all of the, then closely associated, apertures were formed therein.

As a filler for the socket at the bottom of the lowermost section, which rests upon the ground, and to complete the V-cross section at this point I provide an insert a^4 to constitute a continuation of the member a', and temporarily detachably bolt the same to the member a as is clear from the drawings.

C represent supporting ledges for platform members or boards D. These ledges are furnished with two series of apertures c' and c^2 at the opposite ends thereof, one series being arranged near each edge of the ledge, and the two series occupying a staggered relation, Figs. 8 and 9.

E are clamping members having one terminal e adapted to pass through registering apertures in the ledge and upright, an intermediate or connecting portion e' adapted to pass over the surface of the ledge and beyoud the free edge thereof, and an opposite terminal portion e^2 adapted to pass through other apertures in the uprights beyond the free edge of the ledge, either above or below the ledge, dependent upon which marginal series of apertures in the ledge are engaged, in obtaining the desired adjusted elevation of the platform (Figs. 8 and 9), it being apparent that in either position of the clamp the forcing home of the binding nuts e^3 which engage the terminals e, e^2,—the latter being threaded to this end,— will flex and draw that portion of the clamp that projects beyond the free edge of the ledge around said edge so as to create a wedging action by the ledge between the clamp and upright, thus adding to the security of the fastening and the firmness or rigidity of the entire structure. The terminal e, owing to its greater length, possesses the additional function of passing through overlapping end portions of ledges as shown, when occasion demands the additional building or extension of width of the scaffold.

Particularly where the scaffold is carried to considerable height, it is desirable to further

safeguard the structure against the tendency to sway, and with this in mind the ledges may be disposed with relation to the uprights to extend beyond the sides of the uprights, as indicated at *f*, and braces F, (Figs. 8, 9 and 14), are adapted to be clamped in position with one end in the apertures of the uprights and the other end in either the upper or lower series of apertures in the ledge, either inside or outside of the uprights, as the case may be, in keeping with the adjustment of the parts as disclosed in either Figs. 8 or 9. These facilitate the squaring of the scaffold in its building.

G are diagonal brace members provided with apertures *g* and slots *g'*, at opposite ends thereof, and intermediate slots g^2, one of which passes over the center of the brace. These braces may be employed in crossed relation, as shown in Fig. 1, or alone as shown in Fig. 9, in which latter instance the ledge C occupies a position inclined somewhat from the horizontal, when the brace may be detachably bolted to the ledge as at g^3 through the medium of the slotted portion g^2 and intermediate series of apertures g^4 in the ledge, the disposition of the slots and apertures being such as to enable the clamping of the ledge and diagonal brace together whatever be the adjustment of the parts. Of course when the braces are crossed as in Fig. 1, they are similarly clamped together by bolt and nut g^5 engaging the slotted portions of the braces.

In some instances similar braces G' suitably apertured may be utilized as inclined supports for supplemental platform members,—see the upper right hand portion of Fig. 1.

Adapted to be positioned in various relations to either the upright members, or other supporting members such as G', are brackets H. Said brackets, illustrated in detail Fig. 13 are fashioned by bending rods of suitable strength and character to form a relatively short straight arm *m*, a longer inclined arm *m'*, and offset alined terminals m^2 provided with clamping nuts m^3 engaging the terminals which are threaded for that purpose. As has perhaps already been observed, these brackets are capable of many practical adaptations in my scaffold structure, it being simply necessary to secure the brackets in place by introducing the terminals through the apertures provided for their reception, as shown, and clamping the same in place. At the right of Fig. 1, these brackets are shown with the shorter arm *m* horizontal and supporting platform boards thereon, the longer arms *m'*, serving as diagonal braces. The same idea is incorporated at the left of Fig. 1 and Fig. 3. Here, however, the additional proposition is presented of having the brackets project alternately from front to rear or even also from side to side, which will be found particularly desirable in decorating work where the platforms must be relatively close together so that the artist can keep his eyes in line with his work, this relatively close association of the platforms which would otherwise make the artist stoop, affords adequate working space as an incident to the positioning of the intermediate platform behind the uprights. The latter, although under this arrangement, being projected farther away from the wall or surface being treated, will, however, not seriously interfere with the work because the difference is only a matter of a few inches.

Without the platform boards on the brackets, or even with the platform boards thereon, it will be appreciated that the same will constitute quite an efficient ladder by means of which the workman may climb from the ground to any elevated place desired, and the upper platform boards may constitute convenient and practical handrails.

At the top of Fig. 1, it will be seen that the longer arm *m'* of the bracket is used as the platform support and the shorter arm *m* as the brace. Again, in the same figure, the bracket is shown as suspended below its support, where the short arm *m* constitutes a hanger and the longer arm *m'* the bearing for the platform board, it being noted that here the end of the platform board passes through and occupies a position interiorly of the bracket.

In any of the positions of the brackets H the platform board may be secured for both lateral and lengthwise adjustment by means of elongated U-bolts *d* having the opposite ends thereof pass through the platform board and clamped by nuts *d'* in any position lengthwise of the connecting portion of the U-clamp and also any desired position lengthwise of that arm of the bracket below which the clamp passes and against which it is bound when in locked condition.

At times it is necessary and at other times desirable to anchor the scaffold proper to the wall of the building, or its equivalent, and for this purpose, I provide a device comprising a pair of foot members J having projecting or toe portions *j* adapted to impinge against the surface (the brick wall, for example) to which the device is to be attached, with or without an interposed friction pad of rubber *j'*, the foot members having threaded shanks j^2 coupled together and adjustable by means of a turn-buckle K having an open or eye portion *k*. The turn-buckle is initially adjusted to determine the approximate separation of the foot members, and upon the placing of the device between the abutments, the turn-buckle is further manipulated to secure the binding action intended.

L is a connecting rod composed of two

threaded shank portions l adjustably connected by a turn-buckle l'; the outer end of the connecting rod being bifurcated to receive therebetween, for instance the edge of one of the uprights, platform boards, or ledges and present perforated ears l^2 at opposite surfaces thereof so as to be held in place by a pin or bolt l^3 passing through the ears and a registering opening in the member to which the connecting rod is attached; the opposite end of the connecting rod being formed into a hook l^4 adapted to be engaged over the turn buckle K and be locked through the open portion thereof by a pin l^5 detachably inserted into the opposite members of the hook. The relation of parts is such as to constitute a lock secure against casual meddlers.

The foregoing construction possesses the advantage flowing from a great range of adjustment. The length of the connecting rod, being adjustable, said rod may be thrown to various lateral positions owing to the loose connection afforded at the hook end of the device; and the rod may also be turned to any position in a vertical direction, or axially of the turn buckle K by simply appropriately adjusting the turn buckle at the outset, and forcibly turning the same a slight additional amount to give the turn buckle the proper angularity in keeping with the angularity desired to be assumed by the connecting rod. These combined lateral horizontal and vertical adjustable characteristics of the connecting rod will enable the positioning of the rod to connect with any point of attachment located within the area circumscribed by an imaginiary globe drawn by the connecting rod in its maximum lengthwise adjustment.

I believe I have now abundantly described those features of my scaffold construction constituting material advances in the art to which the invention appertains, to enable workers in the art to utilize to the best advantage the improvements set forth, in meeting the varying conditions to be overcome, and usually attending the use of any scaffold requiring any substantial amount of assembling and dismantling. It is instantly seen that the present scaffold is susceptible of practical universal application. In Fig. 1 the interior of an auditorium with rounded or irregular ceiling is diagrammatically depicted and the scaffold contoured to accord therewith; in Fig. 2 a spire is diagrammatically illustrated, and the scaffold formed in tapering or tree-like fashion to enable the remotest parts of the interior of the spire, or equivalent tower or confined space to be accessible to the workman or artist; and in Fig. 3 a simple uniform and straight scaffold is shown for the use of an artist in fancifully decorating a wall, requiring such care as suggests the close association of the platform boards in their oppositely projecting relation as before pointed out.

Refined adjustments of the platform boards to attain the proper elevation thereof with reference to the ground is accomplished by means of careful calculation and disposition of the various apertures, and the therewith engageable parts in predetermined manner. These measurements it is hardly believed necessary to recite at length herein, but it may be mentioned that the positioning of the various apertures and slots in the ledges and braces and the aperturing of the two members of the uprights in alternate relation so that the uprights may be turned and either member thereof used for supporting and fastening purposes, all lend to the successful results to be derived from the appropriation of my improvements in actual practice.

While I have herein disclosed the preferred form of my invention, it will be understood by persons skilled in the art that said invention is capable of embodiment in still other forms and devices without departing from the spirit thereof, and as may be embraced within the terms and scope of the hereto appended claims.

What is claimed as new is. —

1. In a scaffold, a suitable platform, and means for supporting the same including V-shaped uprights composed of sections each having both a tongue and a socket portion at each end adapted to interfit to detachably secure the adjoining upright sections together substantially as described.

2. In a scaffold, a suitable platform, and means for supporting the same including V-shaped uprights composed of sections each having both a tongue and socket portion at their ends adapted to interfit to detachably secure the sections together, the socket and tongue members on one of the sections being of a depth relative to the corresponding members of the other section to permit the preliminary insertion of one of the tongue members on one section into the socket member of the other section substantially as and for the purpose described.

3. In a scaffold, suitable supporting and platform members, means for anchoring the same to a wall or the like comprising oppositely disposed foot members, means for securing the same in place, a connecting rod extending to the scaffold structure, the said connecting rod being attached to the securing means and capable of a swinging adjustment to meet various conditions.

4. In a scaffold, a suitable platform, and means for supporting the same including uprights composed of sections each having both a tongue and socket portion at adjacent ends adapted to interfit to detachably secure the sections together substantially as described.

5. In a scaffold, a suitable platform, and means for supporting the same including uprights composed of sections each having both a tongue and socket portion at one end adapted to interfit to detachably secure the sections together substantially as described, the socket and tongue members on one of the sections being of a depth relative to the corresponding members of the other section to permit the preliminary insertion of one of the tongue members on one section into the socket member of the other section substantially as and for the purpose described.

6. In a scaffold, a suitable platform member and means for supporting the same including a plurality of V-shaped uprights each having both tongue and socket portions at its opposite ends, each tongue and socket portion adapted to coöperate with complemental tongue and socket portions on an adjoining section, in combination with a supplemental filler member adapted to fit the socket of the lower section and to be secured in place to complete and fill the V-shaped section of the tongue, when the lower end of the upright is intended to rest upon the ground.

7. In a scaffold, suitable supporting and platform members, and means for anchoring the same to the wall of a building or the like comprising oppositely disposed foot members, an adjustable connection therebetween, a connecting rod extending to the scaffold structure adapted to be detachably connected to the adjusting means of the foot members.

8. In a scaffold, a suitable platform member and means for supporting the same including a sectional V-shaped upright having normally interfitting tongue and socket portions at the meeting ends thereof, the tongue portions of each projecting beyond the socket portions, in combination with a supplemental filler member adapted to fit the socket of the lower upright section to fill said section when the lower edge of the upright is intended to rest upon a supporting surface.

9. In a scaffold, suitable supporting and platform members, and means for anchoring the same to a wall or the like comprising oppositely disposed foot members, adjustable connecting means therebetween including a turn-buckle, a connecting rod leading from the turn-buckle to the scaffold structure and connected to the turn-buckle by a loose connection, permitting lateral movement of the connecting rod with the turn-buckle.

10. In a scaffold, suitable supporting and platform members, and means for anchoring the same to a wall or the like comprising oppositely disposed frame members, adjustable connecting means therebetween including a turn-buckle, a connecting rod leading from the turn-buckle to the scaffold structure and connected to the turn-buckle by a loose connection, permitting lateral movement of the connecting rod with the turn-buckle, and also lateral movement of the connecting rod longitudinally of the turn-buckle.

11. In a scaffold, the combination with suitable supporting and platform members, means for anchoring the same to a wall or the like comprising oppositely disposed foot members, a hollow adjustable connecting member therebetween, a connecting rod running from said hollow connecting member to the scaffold structure, having a hook adapted to pass around the hollow connecting member, and means carried by the hook and passed through the hollow connecting member to interlock these parts.

12. In a scaffold, the combination with suitable uprights, of a platform including supporting ledges, and means for supporting the ledges on the uprights including U-shaped clamping bolts passing through the ledges and the uprights, and nuts for the terminals of said bolts, the connecting or intermediate portion of the bolts being of a length to receive one edge of the ledge therewithin, and the ledge having apertures near its opposite edge through which one terminal passes, so that when clamped the edge of the ledge within the intermediate portion of the bolt is wedged in place.

13. In a scaffold, the combination with suitable uprights, of a platform including supporting ledges, and means for supporting the ledges on the uprights including U-chaped clamping bolts passing through the ledges and the uprights, and nuts for the terminals of said bolts, the connecting or intermediate portion of the bolts being of a length to receive a portion of the ledge therewithin, and the ledge having apertures near its opposite edge through which one terminal passes, so that when clamped a portion of the ledge is wedged in place, the ledge having other apertures near its opposite edge so that the relative positions of the clamping means and ledge may be changed to change the elevation of the ledge and wedge in place the opposite edge of the ledge.

14. In a scaffold, the combination with supporting and platform members including suitable uprights and ledges, and means for securing the ledges to the uprights comprising U-shaped bolts having a short terminal adapted to pass through the upright, and a long terminal capable of passing through superposed end portions of a pair of adjoining ledges, the relation of the clamping members and the ledges being such that the edges of the ledges are received within the clamps and wedged in position substantially as described.

15. In a scaffold, the combination with

supporting and platform members and means for adjustably securing the two together comprising brackets on the supporting members and approximately U-shaped clamping members engaging the brackets and platform members to enable lateral and longitudinal adjustment of the latter.

16. In a scaffold, the combination with supporting and platform members, of means for adjustably connecting the two comprising brackets on the supporting members having elongated shoulders, and elongated clamping members carried by the platform members adapted to embrace said shoulders so that the platform may be adjusted laterally with respect to the shoulders, and also longitudinally with respect to the clamping members.

17. In a scaffold, suitable supporting and platform members, means for anchoring the same to a wall or the like comprising oppositely disposed foot members having an adjustable connection therebetween, a connecting rod extending to the scaffold structure and adapted to be detachably connected to said adjusting means of the foot members, said connecting rod being capable of a slight swinging movement relative to the foot members, and means for adjusting the length of the connecting rod.

18. In a scaffold the combination with suitable supporting and platform members, means for anchoring the same to a wall or the like comprising fastening devices, an adjustable connection between said fastening devices, a connecting rod attached to the scaffold support and having a curved portion passing around said adjusting member of the fastening devices, and means for fastening said curved portion of the connecting rod to the adjusting member.

19. In a scaffold, the combination with a pair of uprights, of a suitable platform, and means for supporting the platform including ledges, detachable fastening devices engaging registering apertures in the ledges and uprights, the ends of the ledges projecting beyond the uprights, and detachable diagonal brace members engaging the protruding ends of the ledges and the uprights substantially as described, the ledges being also provided with differently positioned apertures so that the position of the braces may be reversed when the ledges occupy differently elevated positions substantially as described.

20. In a scaffold, the combination with sectional detachably interfitted upright members adjustably and detachably secured ledges thereon, platform members on the ledges and detachable and adjustable cross braces substantially as described, the cross braces having an intermediate slotted portion extending over the center thereof, and the supporting ledges having intermediate apertured portions capable of registering with slotted portions of the cross braces in the various adjustable positions of the two.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

OTTO M. DU BRAU.

Witnesses:
JOS. H. MEANS,
GEO. D. RILEY.