

PORTABLE SCAFFOLD.
APPLICATION FILED APR. 17, 1908.

4 SHEETS—SHEET 1.

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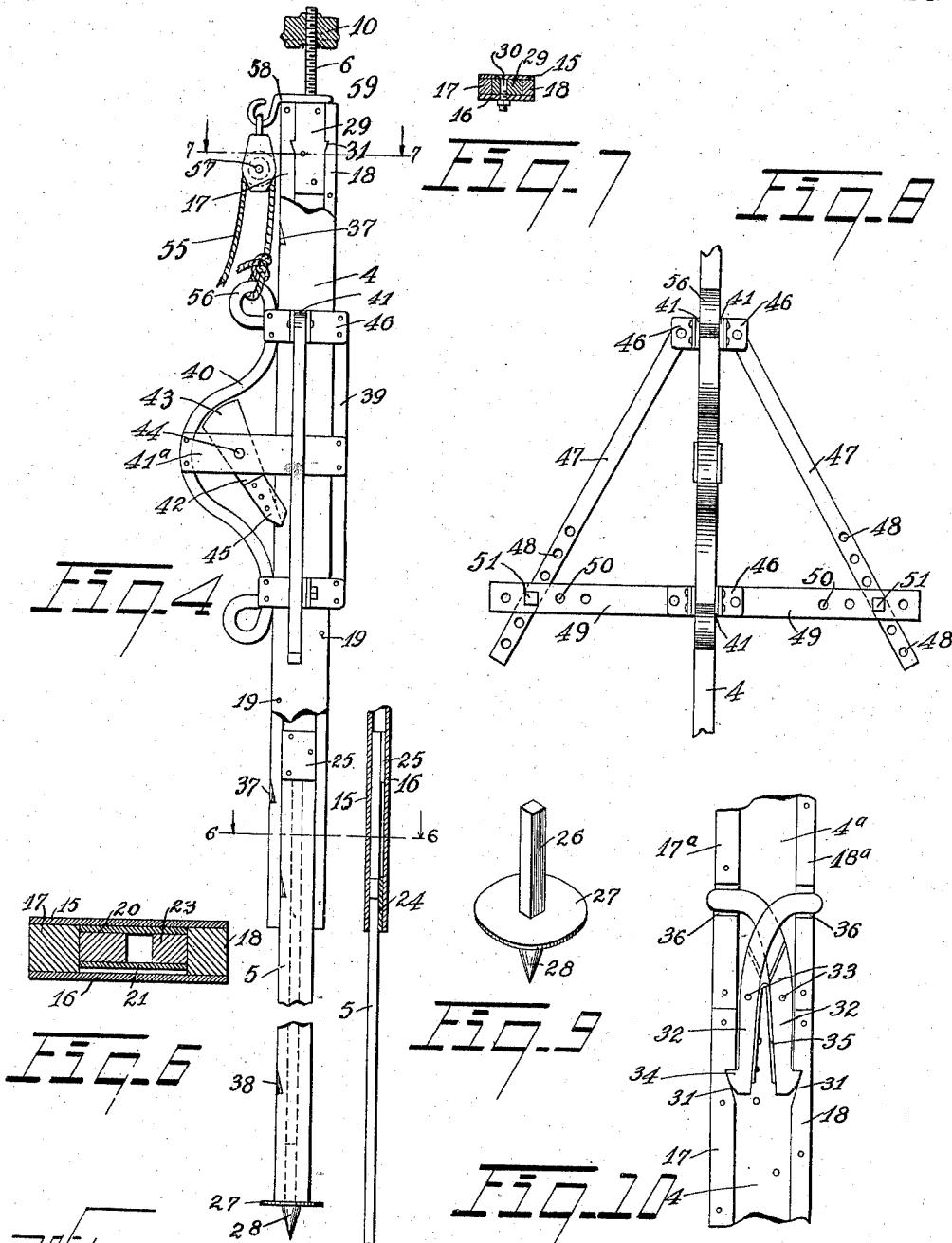
J. KITSTEINER, JR. & J. T. UEBBING.
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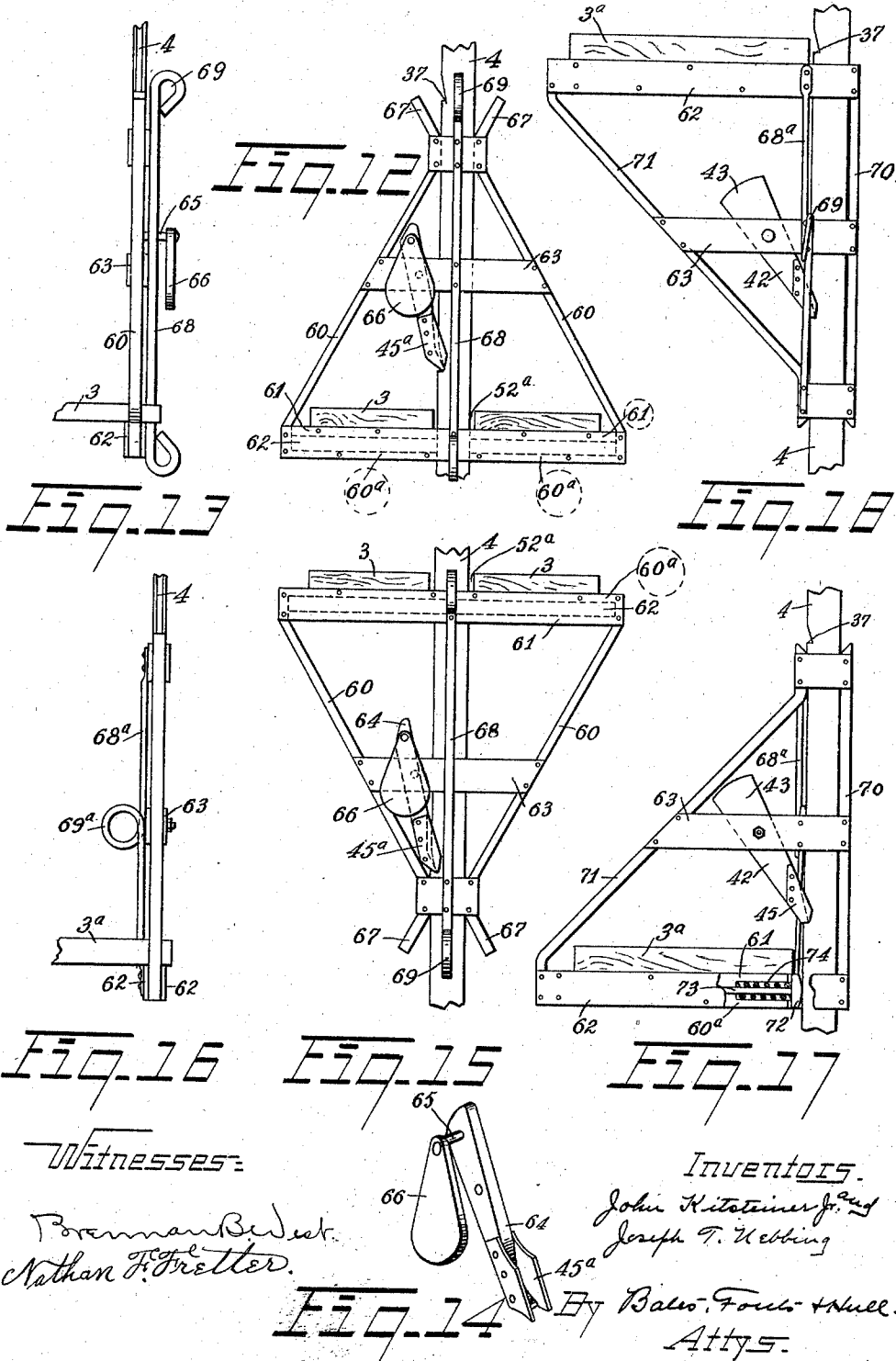
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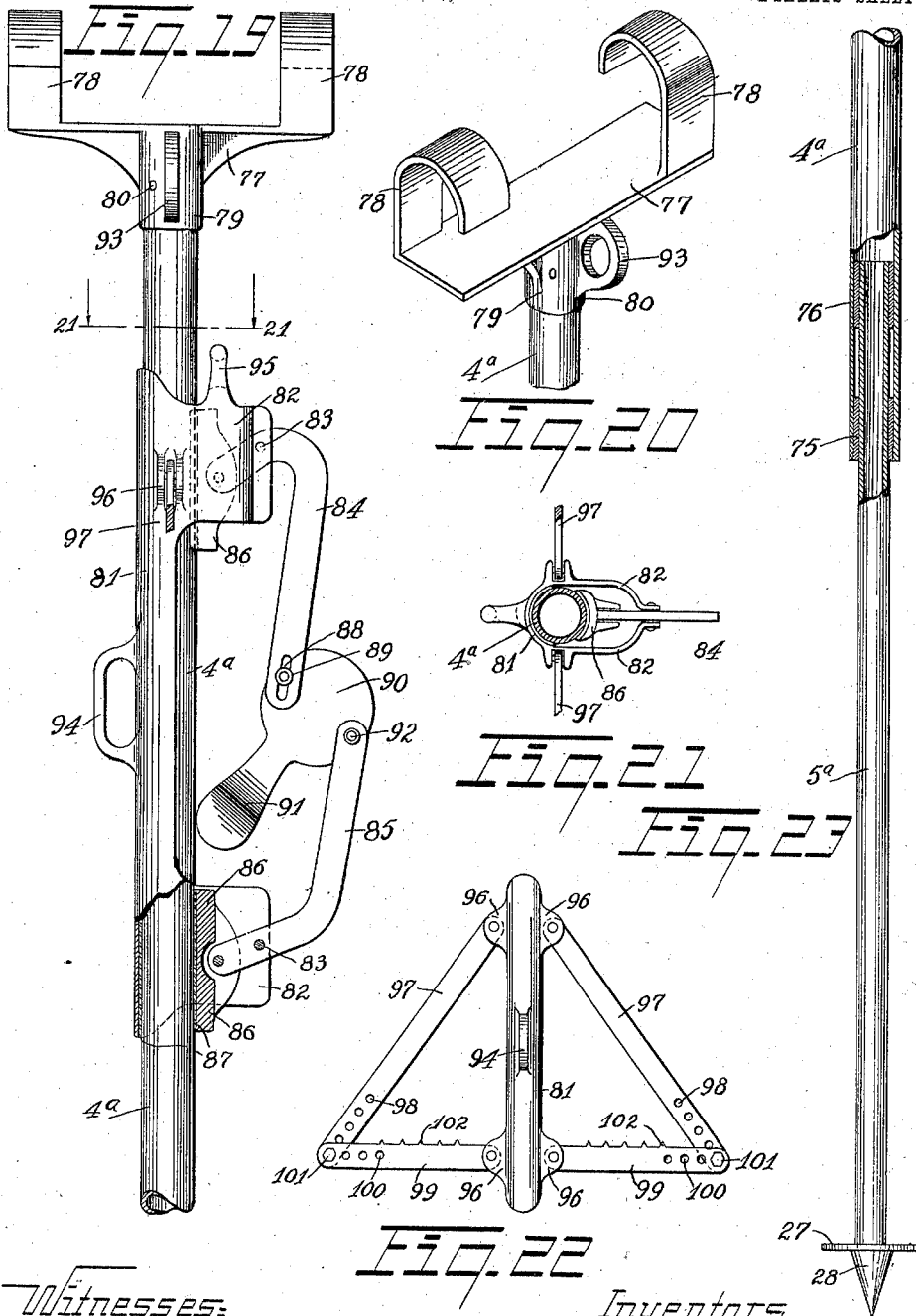
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UNITED STATES PATENT OFFICE.

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PORTABLE SCAFFOLD.

965,717.

Specification of Letters Patent.

Patented July 26, 1910.

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To all whom it may concern:

Be it known that we, JOHN KITSTEINER, Jr., and JOSEPH T. UEBBING, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have
5 invented a certain new and useful Improvement in Portable Scaffolds, of which the following is a full, clear, and exact description, reference being had to the accompanying
10 drawings.

This invention relates to portable scaffolds, and it has for its object the production of a device of this character which shall be light and simple in construction and yet strong
15 and rigid when in use. The scaffold is extensible to any desired length, and the platform may be adjusted in position as desired throughout the entire length of the scaffold, means being provided for holding the platform securely in any position at which it may
20 be placed.

More specific objects and advantages of the construction will appear from the following specification and from the claims appended
25 thereto.

In the drawings forming a part of this application, Figure 1 is a general perspective view showing one end of the scaffold and the ladder for supporting the same; Fig. 2 is
30 a perspective view of the hanger yoke by means of which the scaffold is attached to the rung of the ladder; Fig. 3 is a perspective view of a nut for holding the scaffold standard to the hanger yoke; Fig. 4 is a side elevation of the scaffold standard with the scaffold bracket in the position thereon, said
35 view being partly in section and partly in elevation and showing the construction and relation of the outer and inner members of the standard; Fig. 5 is a vertical longitudinal section taken at right angles through the lower end of the scaffold standard shown in
40 Fig. 4; Fig. 6 is a transverse sectional view through Figs. 4 and 5 on the line 6—6; Fig. 7 is a transverse section through the standard on the line 7—7 of Fig. 4; Fig. 8 is a side elevation of the scaffold bracket; Fig. 8^a is
45 a view of the bracket shown in Fig. 8 in which the bracket is inverted; Fig. 9 is a perspective view showing the lower end of the inner member of the scaffold standard; Fig. 10 is a view showing the adjacent ends of two members of the scaffold standard as employed
50 when necessary for using a tall scaffold, one of the side plates of each of said members

being removed so as to disclose the hooked pawls for holding said sections together; Fig. 11 is a perspective view of a clamp for holding the scaffold platform to its bracket; Figs. 12 and 13 are side and edge elevations respectively of a modified form of scaffold
60 bracket, said figures also showing a modified form of holding pawl for holding the bracket to the scaffold standard; Fig. 14 is a perspective view of the form of holding
65 pawl shown in Figs. 12 and 13; Fig. 15 shows the form of bracket illustrated in Fig. 12 inverted so that the scaffold platform is supported upon the upper portion of the bracket, the holding pawl being inverted; Figs. 16
70 and 17 are edge and side elevations respectively of a modified form of bracket in which the platform is supported entirely on one side of the scaffold standard; Fig. 18 is a view of the structure shown in Fig. 17 with
75 the bracket inverted; Fig. 19 shows a modified form of construction in which the standards are made of tubing and the scaffold brackets are held in position by friction clutches or shoes, said view being partly in
80 section and partly in elevation; Fig. 20 is a perspective view of the hanger yoke that is employed in connection with the tubular standards; Fig. 21 shows a section through Fig. 19 on the line 21—21 looking down-
85 wardly; Fig. 22 is a side elevation of the standard bracket shown in Fig. 19, and Fig. 23 is a view, partly in section and partly in elevation, showing the two members composing the tubular standards as employed in the
90 construction shown in Fig. 19.

Taking up a more detailed description by reference to the drawings, in which the same reference characters designate the same parts throughout the several views, 1 represents the side rails or stiles of a ladder and 2 the rungs thereof. 3 is the scaffold platform or planking, 4 and 5 represent the
95 outer and inner members respectively of the scaffold standard which supports the platform.

The upper end of the scaffold standard is provided with a threaded bolt or extension 6 which is adapted to be projected through an opening 7 in the hanger yoke 8, said yoke,
100 shown in perspective in Fig. 2, having the upper ends of its arms bent into hooks at 9 so that the same may be hooked over a rung 2 of the ladder. A nut 10, see Fig. 3, screws onto the bolt or extension 6 and rests against
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the hanger yoke and thus supports the scaffold standard from the ladder. In order to prevent the nut 10 from accidentally turning and screwing off of the bolt, the yoke 8 is provided with upwardly projecting lugs or studs 11, which engage with a ratchet 12 on the underside of the nut. The weight of the scaffold causes the nut to press against the yoke so that the studs engage the ratchet and thus prevent the nut from turning. To steady the upper end of the standards, the yoke 8 has one of its side arms provided with a hooked member 13, which extends over the upper or front edge of the side rail or stile of the ladder, and said member has a thumb screw 14 which may be screwed into contact with the ladder and thus hold the yoke and the standard against vibration.

As appears from Figs. 6 and 7, the members 4 and 5 of the scaffold standards are of built-up construction, the member 4 consisting of side plates 15 and 16 and edge bars or strips 17 and 18, said plates and bars being held together in any suitable manner as by screws or rivets 19, and being so arranged as to provide an open tubular structure within which the member 5 of the standard is adapted to move longitudinally. The inner member 5 is likewise composed of side plates 20 and 21 and edge bars 22 and 23, said plates and bars being held together in any suitable manner and also providing an opening through the center of this member. The structure thus described combines great strength and rigidity with lightness. It will be understood, however, that the member 5 may be formed of a single solid bar if desired.

To prevent the member 5 from being drawn entirely out of the member 4, I secure within the outer member a plate 24, and attach to the upper outer side of the member 5 a similar plate 25, said plates 24 and 25 engaging with each other and forming a stop for the inner member. Within the lower end of the tubular opening of the member 5 projects the shank 26 of the ground plate 27 of the standard, said plate being of sufficient area to prevent the standard from sinking into the ground. On the lower side of said plate is a conical projection or spike 28 which may be sunk into the ground for holding the lower end of the standard from slipping.

The bolt or extension 6 is preferably formed on the upper end of a bar or block 29 which fits within the upper end of the standard member 4 and is secured in position by bolts 30, as shown in Fig. 7. Within the inner faces of the edge bars 17 and 18 near their upper ends are notches 31, see Figs. 4 and 10. When the bolts 30 and the block 29 are removed, a scaffold standard member 4^a, similar to the member 4, may

be joined to the latter member so as to extend the length of the standard when a high scaffold is required. For joining these members, pawls 32 are pivoted at 33 within the lower end of the member 4^a, said pawls having their lower ends provided with hooks 34 that are adapted to engage with the upper portions of the notches 31, said hooks being pressed into engagement with the notches by a spring 35 which may be attached to one of the pawls and caused to bear against the inner face of the adjacent pawl. The edge bars 17^a and 18^a of the member 4^a are provided with slots 36 through which the upper ends of the pawls project, so that the projecting ends of the pawls may be pressed inwardly and the hooks 34 disengaged from their notches whenever it is desired to separate the members 4 and 4^a.

One of the edges of the scaffold members 4 and 5 is provided with a series of notches or teeth, the teeth in the member 4 being shown at 37 and those in the member 5 at 38. These teeth or notches are adapted to be engaged by pawls which are carried by the scaffold brackets for the purpose of holding the brackets and the platform at any desired position along the standards.

The standard brackets are composed of vertical bars 39 and 40 which bear against the edges of the members 4 and 5, said bars being held together at their ends by side plates 41, which bear against the sides of said members. The bars and plates thus form a frame which surrounds the said members 4 and 5 and which is adapted to be adjusted to any position desired along the length of the standard. The bar 40 is curved outwardly at its center, to which curved portion there are attached side plates 41^a, between which is pivoted the pawl 42 for engaging with the notches 37 and 38. This pawl is, therefore, pivoted within the curved portion of the bar 40 which, with the side plates 41^a, forms a protecting housing therefor. The upper end of the pawl is weighted at 43 in order that the pawl may be swung to either side of its pivot 44 and be maintained in the position to which it is thus swung. For holding the pawl in proper engaging position with respect to the edge of the members 4 and 5, guide plates 45 are attached to the opposite sides of the lower end of the pawl, said guide plates extending on opposite sides of the standard member.

To each of the side plates 41 there is attached a pair of L-shaped plates or brackets 46, between which pairs on the upper side plates these is pivoted a downwardly extending brace-arm 47, the lower ends of said arms being perforated at 48. Between the pairs of L-shaped plates on the lower side plates there are likewise pivoted arms 49,

having their outer ends perforated at 50. The arms 47 and 49 are held together at their free ends by bolts 51 which pass through the perforations in said arms; and by placing these bolts through the different perforations, various adjustments of the arms may be secured. Upon the upper faces of the arms 49, and between the arms 47, the scaffold platform or planking 3 is adapted to lie, said platform being preferably slotted at 52 so that the platform may extend on both sides of the standard. As shown in Fig. 1, the standard member 4 is preferably turned so that it will extend edgewise into the slot, this being the preferable construction for the reason that the slot may then be made narrow and the platform will not be unduly weakened. It will be understood, however, that the standard members may be turned at right angles to this position, such an arrangement being shown in Figs. 12 and 15 of the drawing and being more fully described hereinafter.

For holding the platform 3 in position, clamps 53 may be employed, see Fig. 11, said clamps having at their lower ends a pivoted cam lever 54 that is adapted to engage with the lower face of one of the arms 49. By turning the cam lever, the clamp is forced down upon the upper surface of the platform, which is thus securely clamped to said arm.

The scaffold bracket and the platform may be raised and their downward movement controlled by any suitable means, that shown consisting of a rope 55 that is secured into an eye 56 formed in the upper end of the curved bar 40, and passes upwardly about a pulley 57 and thence downwardly so as to be secured to the scaffold bracket or to any other suitable part in any desired manner. The pulley 57 is carried by a hook 58 on a plate 59 that surrounds the bolt or extension 6. It will be understood that a plurality of pulleys may be employed with the rope 55 if found necessary or desirable for lifting the platform.

In Figs. 12 and 13 a modified form of scaffold bracket is shown, the same having edge bars or braces 60 which are connected at their upper ends so as to bear against the edges of the member 4, and which extend outwardly and downwardly about the scaffold platform 3 and thence inwardly at 60^a until they substantially abut against the edges of the member 4. 61 represents short bars which extend from the braces 60 inwardly to the standard, said bars being parallel with the parts 60^a of the braces, and said bars and braces being secured together by plates 62 on opposite sides of the latter, said plates also guiding the brackets alongside the standards. About midway the length of the sides of the braces, the latter are connected by cross plates 63, which also

form guides for the bracket, between which plates there is pivoted a pawl for engaging with the notches 37 and holding the bracket in position. This pawl is also different from the pawl 42, being shown in perspective in Fig. 14, from which it will be seen that the pawl proper 64 is provided with a pin 65, from which is suspended a weight 66. This weight is so positioned that it will hold the pawl in either position to which it may be swung about its pivot so as to maintain the pawl either in or out of operative engagement. The engaging end of the pawl is provided with guide plates 45^a of substantially the same construction and having the same function as the guide plates 45. The upper ends of the edge bars or braces 60 are flared outwardly from the standard at their upper ends, as shown at 67, in order that the standard may be more readily inserted through the bracket. The bracket may be moved upwardly by the rope and pulley construction hereinbefore described, and for the purpose of attaching the rope to the bracket a bar 68 is provided, said bar having an eye piece 69 in which the rope may be secured.

Fig. 15, shows the same bracket as that just described, the same being inverted, the platform 3 being placed above the bracket, and the pawl 64 being also inverted so as to maintain its former position. When used as shown in Fig. 12, the pawl is more easily accessible to a person standing on the platform than is the case when the bracket is inverted as in Fig. 15, and for this reason it is preferable to use the bracket in the manner shown in Fig. 12 unless it be desired to bring the platform 3 to its highest possible position, in which case the bracket may be inverted as in Fig. 15.

In both forms of scaffold bracket thus far described, the platform 3 extends on both sides of the standard, which projects through a slot 52^a in the platform. This arrangement is not necessary, however, and in Figs. 16, 17 and 18 there is shown a form of bracket that projects from one side only of the standard. In said figures, 70 is a plate or bar which slides along the edge of the standard opposite the platform 3^a, and 71 is a brace bar similar to the brace bar 60 of Fig. 12, except that it projects a somewhat greater distance from the standard. This form of bracket may be provided with either form of holding pawl that has been described, that shown being the form that is shown in Figs. 1 and 4 of the drawing. 68^a is a rod or bar having a loop 69^a into which the rope may be secured for raising the bracket.

In using the bracket shown in Figs. 17 and 18, in which all of the weight is on one side of the standard, there is a jar or jolt when the bracket moves from the upper member 4 to the lower member 5 of the

standard. To obviate this jar as much as possible, a friction shoe 72 may be employed to bear against the edge of the standard members, said shoe having a stem 73 projecting between the plates 62 and the parts 61 and 60^a, around which stem is a coiled spring 74 which presses the shoe against the standard.

Fig. 17 shows the platform 3^a resting in the lower part of the bracket, while Fig. 18 shows this bracket inverted, with the platform on the upper part thereof.

In Figs. 19 to 23 a modified form of device is shown, in which the standards are formed of tubular members 4^a and 5^a, the latter member telescoping within the member 4^a, and being prevented from complete withdrawal therefrom by a sleeve 75 within the lower end of the member 4^a, and a sleeve 76 which surrounds the upper end of the member 5^a, said sleeves being adapted to engage when the member 5^a is drawn outwardly to its limit. The lower end of the member 5^a is provided with the ground plate 27 and the conical spike 28 that are shown in Fig. 9 and hereinbefore described. The hanger yoke for this form of device consists of a horizontal member 77, the opposite ends of each of its side edges having hooks 78 for hooking over the rung of the ladder, said hooks being preferably turned in opposite directions, as shown in Fig. 20. At the center of the member 77 on its lower side there is formed a tubular extension 79 into which the upper end of the member 4^a is inserted and secured in any suitable manner, as by a pin 80. The bracket for this form of construction consists of an elongated concaved shoe-plate 81 which partially surrounds the member 4^a and which is adapted to slide along the same. Near each of its opposite ends, this shoe-plate has a pair of arms 82 which extend beyond the standard 4^a and which have pivoted therebetween at 83 levers 84 and 85. Each of said levers extends downwardly below its pivot point, and at their inner ends they are each provided with a friction shoe 86, said friction shoe and the shoe-plate 81 being preferably lined with some suitable friction material, as shown at 87. The outer end of the lever 84 is slotted at 88, through which slot projects a pin 89 on a disk-like member 90, said member being provided with an operating handle 91. The outer end of the lever 85 is pivoted to the member 90 by a pin 92.

The tubular extension 79 on the hanger yoke is provided with an eye piece 93, and the shoe-plate 81 is provided with eye pieces 94 and 95. By attaching pulleys and ropes to these eye pieces, the bracket and the platform may be raised or lowered to any desired position, and may be clamped in that position by simply turning the disk member 90 in the direction for forcing the friction

shoes 86 against the standard member 4^a. On its opposite sides, and adjacent the bases of each of the arms 82, the shoe-plate 81 is provided with a pair of pivot lugs 96, between the upper pairs of which there are pivoted brace arms or bars 97, having perforations 98 near their free ends; and between the lower pairs of lugs there are pivoted arms or bars 99 having perforations 100. The arms or bars 97 and 99 are adapted to be secured together by means of bolts 101 which may be passed through the perforations in said arms; and by employing different sets of such perforations, the said arms may be adjusted as desired. Projecting from the upper edges of the arms 99 are a series of spurs or projections 102 which are adapted to penetrate the platform or planking and thus prevent the accidental slipping of the platform on the bracket.

Having described our invention, we claim:

1. In a portable scaffold, a vertical standard, a bracket supported on said standard, a yoke from which the standard is suspended, said yoke having hooked arms that are adapted to hook over the rung of a ladder, a brace arm on said yoke that is adapted to extend over the side rail or stile of the ladder, a bolt and nut for connecting the standard and the yoke, and means for preventing the nut from accidental turning.

2. In a portable scaffold, a vertical standard, a bracket supported on said standard, a yoke from which the standard is suspended, said yoke having hooked arms that are adapted to hook over the rung of a ladder, a brace on said yoke that is adapted to extend over the side rail or stile of the ladder, a set screw passing through said brace arm and engaging with the side rail, a bolt secured to the standard and passing through the yoke, a nut on said bolt and engaging with the yoke, said nut having a ratchet on its engaging face, and lugs projecting from the yoke into engagement with said ratchet, whereby the nut is prevented from accidental turning.

3. In a portable scaffold, a vertical standard member having an opening extending longitudinally therein, means for suspending said member from its upper end, a second standard member telescoping into the other member and resting upon the ground, and a scaffold bracket movable along said standard members and supported thereby.

4. In a portable scaffold, a vertical standard member having an opening extending longitudinally therein, means for suspending said standard member from its upper end, a second standard member extending into the opening of the first member and movable longitudinally therein, said second member being adapted to have its lower end rest upon the ground, a scaffold bracket movable along said member and means for

securing said bracket to said members in any desired position.

5 In a portable scaffold, a vertical standard member having an opening extending longitudinally therein, a bolt secured within the upper end of said standard member, a yoke having hooked arms that are adapted to hook over the rung of a ladder, said bolt passing through said yoke, a nut on the bolt engaging with the yoke for holding the said standard member suspended from the ladder, a second standard member telescoping into the first standard member and resting with its lower end upon the ground, a scaffold bracket slidable along said standard member, and means carried by said bracket for securing the latter to the standard member at any desired point.

6. In a portable scaffold, a vertical standard member having an opening extending longitudinally therein, a bolt secured within the upper end of said standard member, a yoke having hooked arms that are adapted to hook over the rung of a ladder, said bolt passing through said yoke, a nut on the bolt engaging with the yoke for holding the said standard member suspended from the ladder, means for preventing said nut from accidental turning, a second standard member telescoping into the first standard member and resting with its lower end upon the ground, a scaffold bracket slidable along said standard member, and means carried by said bracket for securing the latter to the standard member at any desired point.

7. In a portable scaffold, a vertical standard member comprising side plates and edge bars so arranged and secured together as to form an elongated tube, a bolt secured in the upper end of said member, a hanger yoke that is adapted to be attached to a ladder, a nut on said bolt engaging said yoke for suspending the standard member, a second standard member telescoping into the first member and resting with its lower end upon the ground, a scaffold bracket slidable along said member, said members being provided with spaced notches on their exterior, and a pawl carried by the bracket and adapted to engage the said notches, whereby the bracket may be supported from the standard in any desired position.

8. In a portable scaffold, a vertical standard member comprising side plates and edge bars so arranged and secured together as to form an elongated tubular structure having comparatively wide sides and narrow edges, means for suspending said member from a ladder, a second standard member telescoping into the first member and resting with its lower end upon the ground, a scaffold bracket slidable along said members, the members each having ratchet teeth upon one of their edges, a scaffold bracket slidable along said members, said bracket including

edge bars and side plates, means for lifting said bracket, arms pivoted to the side plates, means for lifting said bracket, arms pivoted to the side plate of the bracket, means for securing said arms together at their free ends, a scaffold platform supported by said arm, said platform having a narrow slot into which the standard projects edgewise, and a weighted pawl pivoted to the side plates of the bracket and engaging the ratchet teeth, and guide plates on the pawl engaging with the sides of the standard for holding the pawl in proper engaging position.

9. In a portable scaffold, a vertical standard member comprising side plates and edge bars so arranged and secured together as to form an elongated tubular structure having comparatively wide sides and narrow edges, means for suspending said member from a ladder, a second standard member telescoping into the first member and resting with its lower end upon the ground, a scaffold bracket slidable along said members, the members each having ratchet teeth upon one of their edges, a scaffold bracket slidable along said members, said bracket including edge bars and side plates, means for lifting said bracket, arms pivoted to the side plate of the bracket, means for securing said arms together at their free ends, a scaffold platform supported by said arm, said platform having a narrow slot into which the standard projects edgewise, a pawl pivoted to the side plates of the bracket, one of the edge bars of the bracket extending about the pawl so as to form a housing therefor, and guide plates on the pawl engaging with the sides of the standard for holding the pawl in proper engaging position.

10. In a portable scaffold, a vertical standard member comprising side plates and edge bars so arranged and secured together as to form an elongated tubular structure having comparatively wide sides and narrow edges, means for suspending said member from a ladder, a second standard member telescoping into the first member and resting with its lower end upon the ground, a ground plate adjacent the lower end of the second member, a scaffold bracket slidable along said members, the members each having ratchet teeth upon one of their edges, a scaffold bracket slidable along said members, said bracket including edge bars and side plates, means for lifting said bracket, arms pivoted to the side plate of the bracket, means for securing said arms together at their free ends, a scaffold platform supported by said arm, said platform having a narrow slot into which the standard projects edgewise, a pawl pivoted to the side plates of the bracket, one of the edge bars of the bracket extending about the pawl so as to form a housing therefor, and guide

plates on the pawl engaging with the sides of the standard for holding the pawl in proper engaging position.

11. In a portable scaffold, a tubular standard member having a pair of notches on its interior near one end, a bolt normally secured in said member so as to cover the notches therein, said bolt being removable from the member, means for normally suspending the said member from the said bolt, a second member, a pair of pawls pivoted in the end of the second member, and projecting from the end, said pawls being adapted to be inserted into the first member when the bolt is removed therefrom and to engage with the notches in the first member whereby the two members are attached together end to end, and a spring for holding said pawls in the notches.

12. In a portable scaffold, a tubular standard member having a pair of notches on its interior near one end, a bolt normally secured in said member so as to cover the notches therein, said bolt being removable from the member, means for normally suspending the said member from the said bolt, a second member, having openings in its edges near one end, a pair of pawls pivoted in the end of the second member, and projecting from the end and through the said openings, said pawls being adapted to be inserted into the first member when the bolt is removed therefrom and to engage with the notches in the said first member whereby the two members are attached together end to end, and a spring for holding said pawls in the notches, those parts of the pawls that project through the openings in the second member being movable inwardly for disengaging the pawls.

13. In a portable scaffold, a vertical standard member, a yoke secured to said member,

said yoke having hooked arms which are adapted to engage the rung of a ladder, a second standard member telescoping into the first standard member and adapted to have its lower end resting upon the ground, a bracket upon said vertical standard, and means carried by said bracket for securing the latter to the standard in any desired position.

14. In a portable scaffold, a vertical standard member comprising a tube, a yoke attached to said member for the purpose of suspending the same, said yoke being provided with arms to engage the rung of a ladder, a second member telescoping in the first member and adapted to rest with its lower end upon the ground, a scaffold bracket slidable along said members, and means for securing said bracket to the members in any desired position.

15. In a portable scaffold, a vertical standard member comprising an elongated tube, means mounted upon said member by which it may be suspended, a second standard member telescoping into the first member and being adapted to rest upon the ground at its lower end, and means upon the telescoping members to prevent the complete withdrawal of the second member from the first, a bracket slidably mounted upon said standard members, and means for securing the bracket to said members in any desired position.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses.

JOHN KITSTEINER, JR.
JOSEPH T. UEBBING.

Witnesses:

S. E. FOUTS,
BRENNAN B. WEST.