

May 29, 1923.

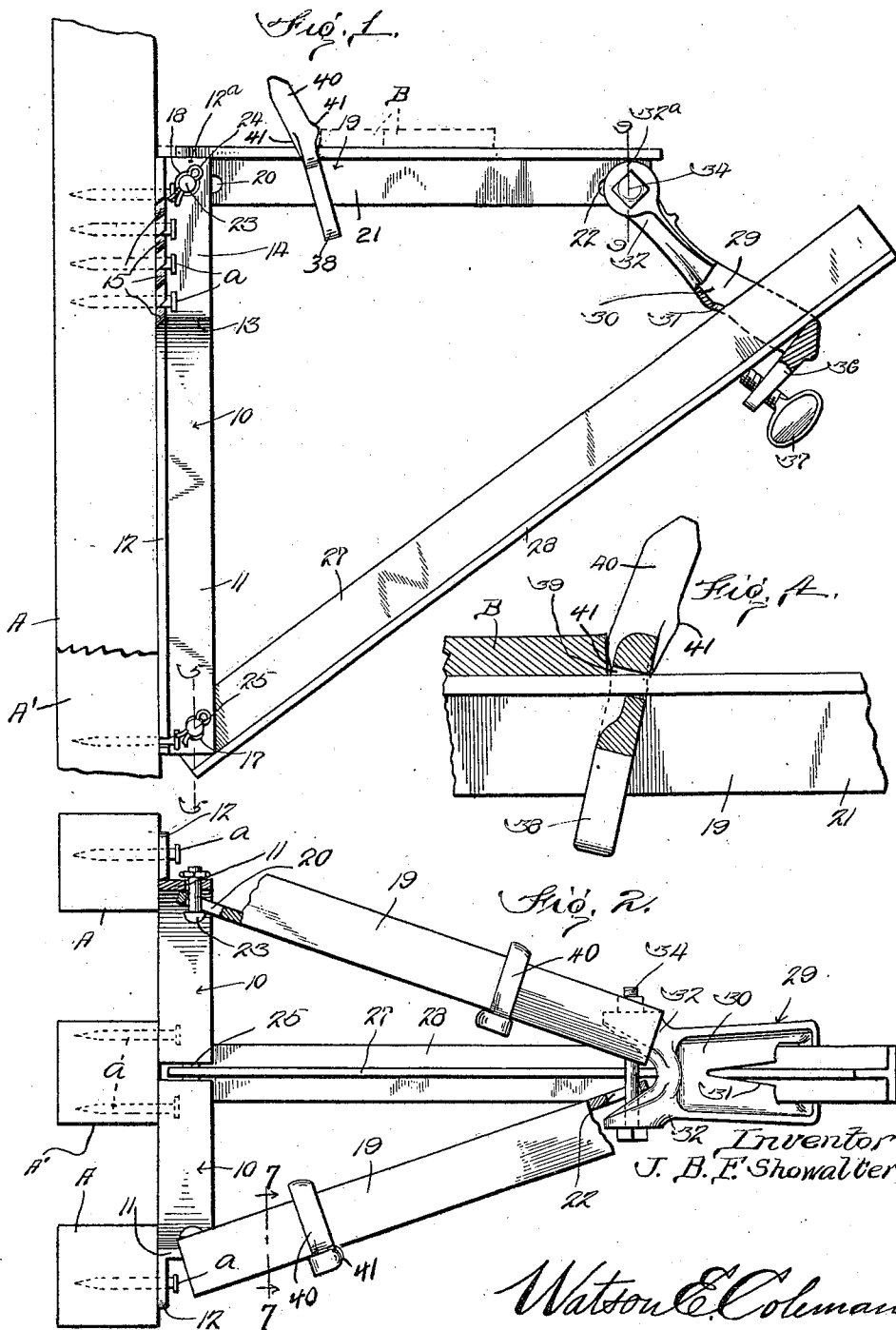
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J. B. F. SHOWALTER

SCAFFOLD AND ROOF BRACKET

Filed May 11, 1921

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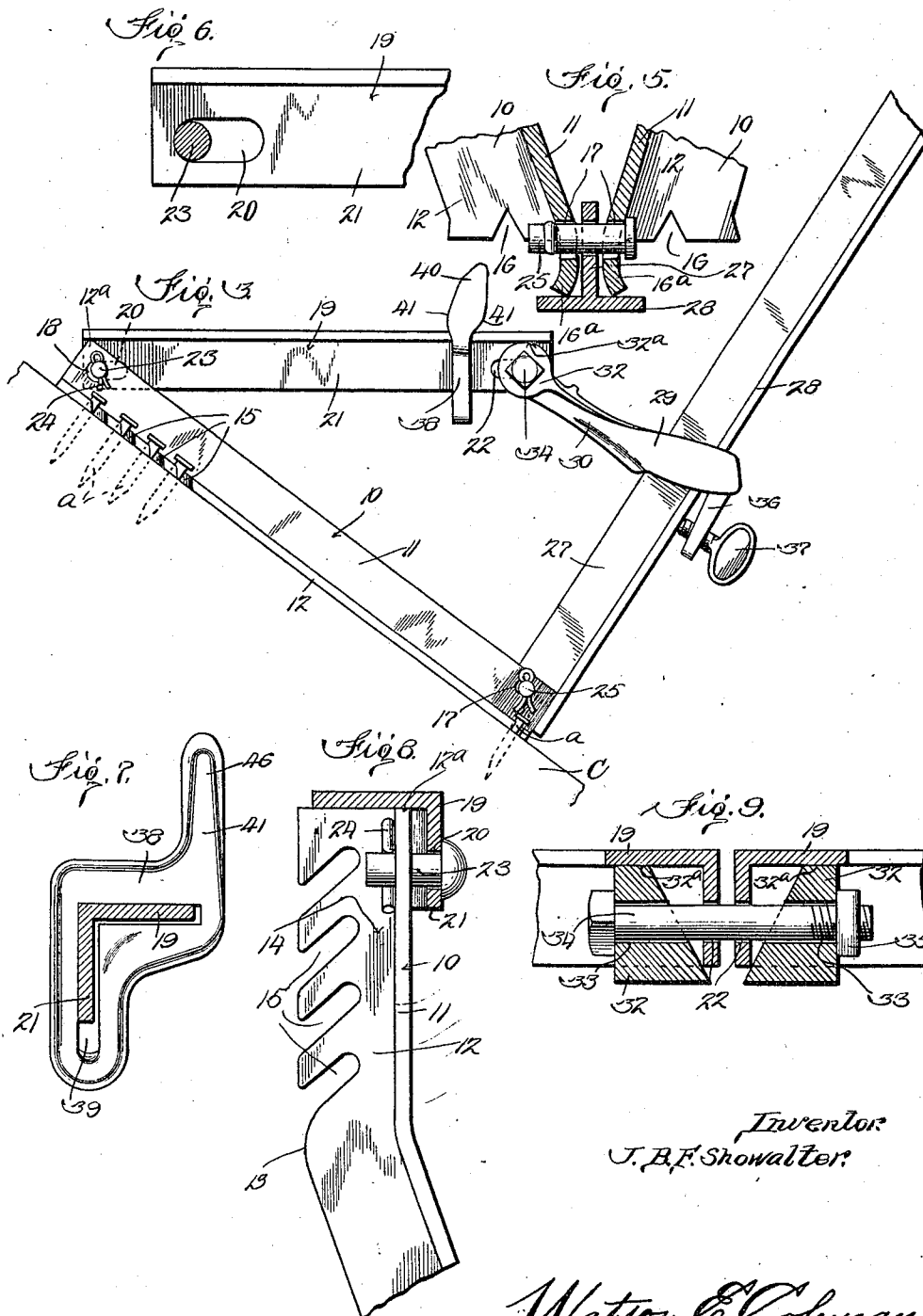
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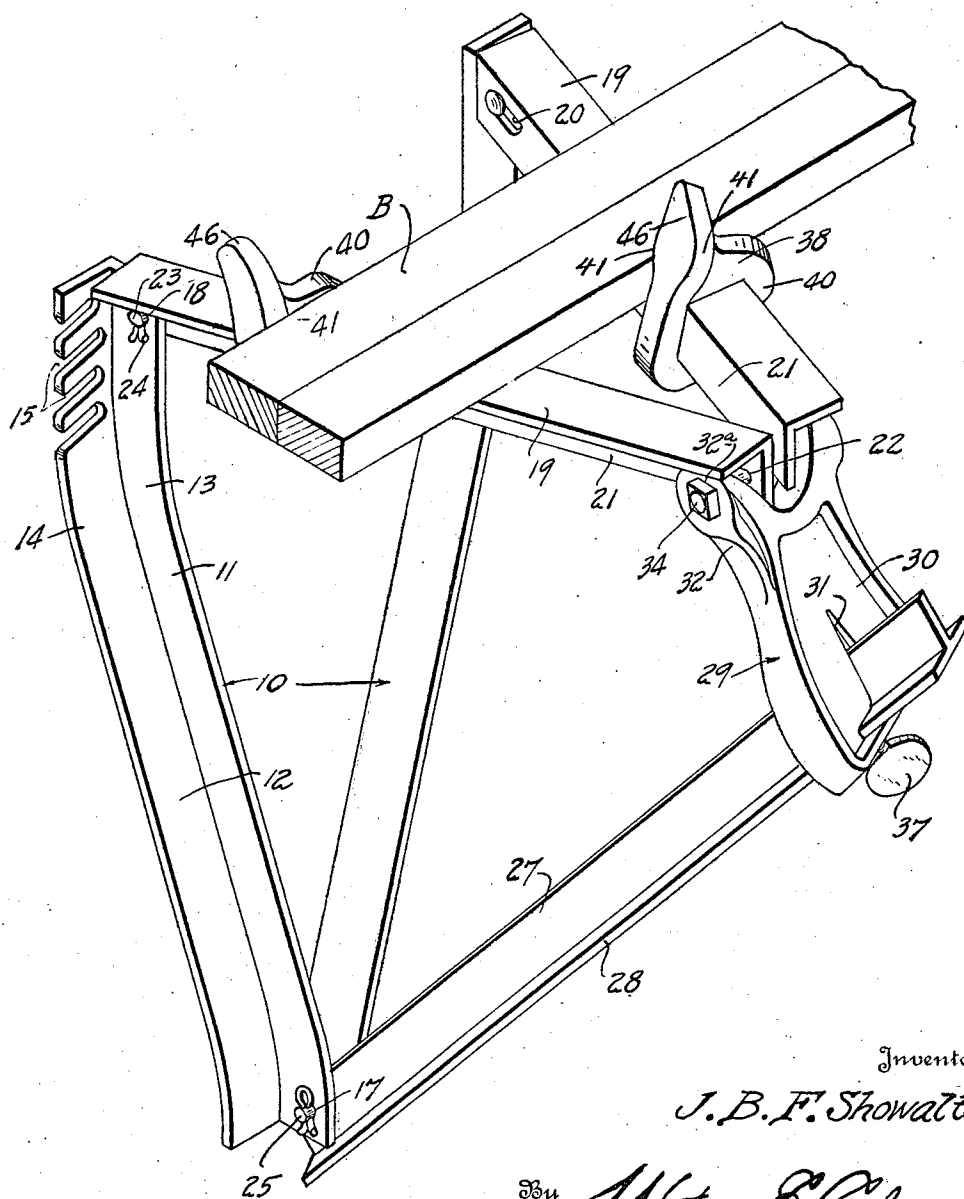
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3 Sheets-Sheet 3

Fig. 10.



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UNITED STATES PATENT OFFICE.

JAY B. F. SHOWALTER, OF PEKIN, ILLINOIS.

SCAFFOLD AND ROOF BRACKET.

Application filed May 11, 1921. Serial No. 468,790.

To all whom it may concern:

Be it known that I, JAY B. F. SHOWALTER, a citizen of the United States, residing at Pekin, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Scaffold and Roof Brackets, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to scaffold and roof brackets, and particularly to adjustable roof and scaffold brackets.

The general objects of my invention are to provide a bracket having a wide range of usefulness, which may be easily applied and securely attached to a building and which, when adjusted, has its parts so locked that it is impossible for the parts to be accidentally shifted or jarred loose.

A further and more specific object is to provide a scaffold bracket of the character above stated having means whereby the boards which may be placed upon the bracket may be automatically locked in position against shifting movement.

And a further object is to provide an improved form of lock between the board supporting beams of the bracket and a brace therefor which permits a ready adjustment of the board supporting beams into any desired angular relation to the supporting members of the bracket and which is adapted to be so engaged with the brace that accidental shifting of this point of engagement cannot occur.

Another object is to provide a bracket so constructed that the weight of the scaffold boards will not come upon the bolts by which the bracket elements are engaged.

Another object is to prevent any tilting motion of the bracket when in use if more weight should fall on one or the other of the supporting arms or beams, this tilting of the bracket being a very common fault in brackets now on the market.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of my bracket in one applied position;

Figure 2 is a top plan view of the construction illustrated in Figure 1;

Figure 3 is a side elevation of a bracket applied as a roof bracket;

Figure 4 is a fragmentary elevation of an arm 19 and sectional view of the board lock;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a fragmentary end elevation of one of the arms 19;

Figure 7 is a cross section of an arm 19 with the board lock thereon;

Figure 8 is an elevation of the upper end of one of the supporting members 10 showing an arm 19 in section;

Figure 9 is a section on the line 9—9 of Figure 1;

Figure 10 is a perspective view of the bracket.

Referring to these drawings, it will be seen that my improved bracket comprises the upwardly divergent supporting members 10. There are two of these members, both of them alike in form. Each member may be made of any suitable material and is preferably angular in cross section so as to provide the web 11 and the outwardly projecting flange 12. Each of these members 10 is angularly bent at the point 13 so that in the use of the device the part 14 lying above the bend 13 is disposed in a vertical position (see Figure 8), while the parts below these bends 13 extend downwardly and in divergent relation to each other. The web 12 of each member 10 is formed at its upper end with the upwardly and inwardly extending slots 15 adapted to engage nails whereby the bracket may be supported. The lower end of the web 11 is formed with a notch 16 or slot (Figure 5). The flange 12 at its lower end is angularly bent, as at 16^a, so as to be disposed in approximately a vertical plane when the bracket is in use. This portion 16^a is formed with a vertically elongated opening 17 for the passage of a bolt, while the upper end of the flange 11 is formed with an elongated opening 18 for the passage of a bolt.

Engaged with the upper ends of the members 10 are the supporting beams or arms 19 which are also angular in cross section, and at their inner ends have an elongated opening or slot 20 in the downwardly projecting flange 21 of the arm, while at their outer ends each flange 21 is formed with an elongated bolt opening 22. The arms 19 are connected to the upper ends of the members 10 by means of headed pins or bolts 23

which are shown as provided with heads on their inner ends and with cotter pins 24 at their outer ends. These pins or bolts 23 pivotally connect the arms 21 to the supporting members 10.

A pin or bolt 25 passes through the elongated apertures 17 at the lower ends of the members 10 and through the medial flange 27 of a brace 28 which is T-shaped in cross section. The brace is connected to the outer ends of the arms 19 by means of a locking device, designated generally 29, and consisting of a body 30 whose upper face is hollowed out and formed with a V-shaped slot 31, the middle portion of this V-shaped slot being tapered or growing less in width toward its inner end. This body 30 at its end adjacent to the arms 19 is bifurcated to provide two arms 32 which extend divergently with relation to each other, the inner faces of the arms being beveled outward and upward and the ends of these arms being formed with transverse bolt holes 33. A bolt 34 passes through these apertures 33 and through the elongated aperture 22 in the ends of the arms 19, this bolt having a head at one end and a nut 35 at its opposite end. The elongated apertures 22 permit the arms 19 to swing from a parallel position to a divergent position upon the bolt and with relation to each other.

The body 30 is provided at its outer end outward of the slot 31 with a downwardly extending lug 36, through which passes a set screw 37, which, when turned home, engages the outer face of the T-shaped brace 28.

Slidingly mounted upon each arm 19 is a board lock, designated 38, which is formed with an angular slot 39 through which the angular arm 19 loosely passes. The slot 39 is sufficiently larger than the arm 19 to permit a slight rocking movement of the lock 38 upon the arm. By reference to Figure 4, it will be seen that this member 38 is upwardly extended, as at 40, and that this upward extension is bulged outward, as at 41, on both faces and that this bulge is above the upper face of the arm 19. The object of this device is to lock any boards which may be disposed upon the arms 19 from any shifting movement. If the boards strike either face of the lock they will shift the lock to an inclined position, as indicated in Figure 4, and in this position it will bind upon the arm so that the greater the shifting thrust applied to the boards B, the tighter the locking member 38 will hold. When, however, the strain is taken away from the locking member, it may be readily shifted along the arm 19 to any desired locking position.

In Figure 2 I have illustrated this bracket as applied to three studdings A, A' or supports in any building, house or barn. It will be noted that in this case the bracket is

so applied that the upper portions of the supporting members 10 engage two of the studdings A, while the lower ends of the downwardly convergent portions of the supporting member 10 engage with the middle studding A' of the three. Nails α are driven into the studding and engage in the slots 15, while nails α' are driven into the middle studding to engage the notches 16 at the lower ends of these supporting members. In this case the arms 19 are shown as being disposed in a horizontal position and as supporting the scaffold boards, though this is only one of the uses of the bracket. The board locking members 38 are shown as disposed to engage against the outer edges of the boards B so as to hold these boards close against the house. The brace 28 is shown as extending upward and outward and as being locked both by the engagement of the V-shaped slot 31 with the flange 27 and by the engagement of the set screw 37 with the outer face of the brace. Under these circumstances the brace is held rigidly in its angular relation and the supporting arms 19 are held rigidly in their horizontal position.

It is to be particularly noted that the horizontal flange of each locking arm 19 is supported at one end upon the corner 12^a of the flange 12 and not upon the bolt or pin 23, and that at its opposite end each arm 19 is supported upon the rounded face 32^a of the head forming the end of the arm 32 and not upon the bolt 33 so that no strain comes upon either the pin 23 or upon the bolt 34, and that the weight on the bracket is transmitted to the brace 28 and thus is transmitted by a downward and inward thrust to the middle stud of the three studs illustrated in Figure 1 or to the wall of the building in case this is attached to the outside face of the wall. It will further be noted that by bending or angling the lower end of the flange 12, as at 16, (Figure 5) the supporting members 10 may be shifted into different angular relations to each other, and that this is also permitted by the elongated slots 22 which permit the arms 19 to move into various angular relations to each other. This angular shifting of the arms 19 with relation to each other necessitates, of course, that the pins or bolts 23 shall pass through the elongated slots 20 in order to permit these pins to shift into various angular relations to the flange 21.

Attention is particularly called to the locking means between the ends of the arms 19 and the brace 27. When this locking means 29 is disposed at right angles to the outer flange or web of the members 27, then this locking device may be shifted readily along the brace, but when it is disposed at an angle to the brace, the locking device automatically binds upon the flange 27 of the brace 28 through the angular slot 31, and the greater

the pressure or weight upon the arms 19, the greater this binding action will be. In order, however, to prevent any upward movement on the arms 19 from turning this member 29 into a position at right angles to the brace 28, I have provided the set screw 37 which, when it is turned home, locks this bracing member in place and causes it to bind with more force upon the T-bar forming the brace 28 so that no possible jar can displace this locking member 29 and thereby displace or loosen the arms 19.

The board locks 38 may be engaged against the last board of a series of boards disposed upon the upper faces of the arms 19, and when so engaged will hold these boards firmly in position against accidental movement, as any pressure tending to shift the boards will tend to cause these locks to bind more tightly upon the arms 19. Any number of these locks may be used upon the arms 19 so as to hold two or three sets of boards upon the arms 19 and prevent these boards from shifting relatively to each other, and these locking members 38 may obviously be used at the outer ends of the arms 19 or at the inner ends thereof. While these locking devices are readily moved up to and against the boards supported on the arms, yet the boards will engage the protuberant face 41 of the upwardly projecting portion 40 before the board will strike the locking device adjacent to the slot, and thus the locking device 38 will be instantly locked or jammed on the supporting arm and is practically immovable from its locked position so long as the board bears against it. The locking member 29 when adjusted is immovable even with the severest jar, stroke or blow from either above or below. It will take any desired position along the brace bar and may be then locked in engagement with the brace, and in its locked position the utmost safety is provided against any slipping or dropping motion and also against being moved out of place or loosened by being struck from beneath in handing up lumber or materials from below.

My improved bracket may not only be used as a scaffold bracket in the manner shown in Figure 1, but may be also converted into a roof scaffold bracket. In this case the member 29 is shifted along the brace toward the hinged end of the latter into any position necessary to bring the supporting arms 19 to a horizontal position with the supporting members 10 disposed against the roof C, and then the locking device is locked in position and firmly supports the members so adjusted. This bracket, it will be obvious, may be adjusted so as to conform to any pitch of roof from an easy slope to the very highest pitch, and thus the bracket may be used by shinglers or by chimney masons. If a roof is shingled, in which case it is not

desirable to drive nails through the shingles, the bracket may be supported on the roof by wires extending over the comb of the roof and engaged with the slots 15. These wires might be connected to the chimney or to any suitable part of the roof, or there may be scaffold brackets on opposite sides of the comb of the roof to which the wires are connected so that one scaffold bracket will balance the other.

One of the advantages of my bracket is the fact that it may be attached, as illustrated in Figure 1, to three studings, thus securing three points of support for the bracket instead of two, as is usual, thus giving a solid place (the middle studding) upon which to support the lower end of the bracket, as by nails passing through the notches 16. This does away with the necessity of having a protruding portion or spike at the bottom of the bracket which cuts or gouges into the boards of the building or the roof in order to keep the bracket from moving laterally if too much weight be put on one side or the other. It will be seen that my bracket provides a repair bracket which will not mar the outside of the building or roof, as is the case with other makes of scaffold brackets known to me.

It will be seen that the upper ends of the supporting members 10 are provided with a plurality of slots 15 so that a plurality of relatively small nails may be used to support each member 10, thus doing away with the necessity of using relatively large nails, such as spikes. Small nails may be readily driven into the building and painted over, leaving no scars or ugly marks on the building, whereas if spikes were used they would have to be withdrawn, thus marring the exterior of the building. Other scaffold brackets known to me have only two notches or nail-engaging apertures and no support at the bottom of the bracket. Hence they require very large and unsightly nails to support them, too large to drive entirely in, and which leave ugly places when removed. Furthermore, such brackets requiring relatively large nails cannot be used in repair work on buildings. It will be noted that the slots 15 of each supporting member 10 extend upward and inward and hence when wishing to detach the bracket from the building, it is only necessary to lift it from the bottom which action will at the same time bring the upper ends of the bracket toward each other and the entire bracket will lift off of its supporting nails. It is obvious that the supporting members of the bracket and the supporting arms may be adjustable toward or from each other to suit any desired situation or to engage studding which is spaced apart different distances.

While I do not wish to be limited to any particular material for the bracket, it is ob-

vious that it may be made of wood or of various shapes of metal bars, but preferably the bracket is made of a combination of metallic angle irons and T-irons. Preferably the locking devices 38 and the locking member 29 are made of malleable iron or steel. It will be seen that the bracket has three points of support, that it has a wide range of adjustability, and that it may be used either on the walls of buildings or on the roofs thereof and in a large number of other situations.

While I have illustrated a construction which has been found particularly advantageous in practice, I do not wish to be limited thereto, as it is obvious that many changes might be made in the details of this construction and arrangement of parts without departing from the spirit of the invention.

I claim:—

1. A scaffold bracket comprising a pair of vertically disposed members angular in cross section, the upper ends of said members being disposed in a parallel relation and the lower portions of the members extending convergently downward, the upper ends of said members being formed with nail engaging slots and the lower ends with nail engaging notches, arms angular in cross section having downwardly extending flanges loosely pivoted to the flanges at the upper ends of said supporting members, a brace angular in cross section and having a flange disposed between the lower ends of the flanges of the supporting members and loosely pivoted thereto, a locking member having an angular slot to receive said brace, said locking member when turned at right angles to the brace being shiftable therealong but when turned to less than a right angle to the brace binding thereon, said locking member being bifurcated at its upper end, and a bolt passing through the bifurcated end of the locking member and loosely through the vertically extending flanges at the adjacent ends of said arms.

2. In a scaffold bracket, horizontal supporting arms and board-engaging members slidable upon the respective arms when in a position at right angles thereto but binding upon the arms when shifted to a position at less than right angles thereto, each of said board-engaging members having an upwardly projecting portion above the arms, said projecting portion being formed on both faces with outwardly bulged board-engaging portions spaced from the upper face of the arm.

3. A scaffold bracket formed in two sections pivotally engaged with each other at their lower ends and adjustable into or out of greater or less divergence, the upper ends of the sections having upwardly and in-

wardly extending nail engaging slots and the lower convergent ends of the sections having upwardly extending nail engaging slots.

4. In a scaffold bracket, an outwardly and upwardly extending brace, a horizontally extending board supporting arm, locking means between the brace and arm comprising a member having a slot to snugly receive said brace and slidable along the brace when the member is approximately at right angles thereto but binding upon the brace when the member is at less than right angles thereto, the inner end of the locking member being pivotally engaged with the outer end of the board supporting arm, the outer end of the member having a lug extending approximately parallel to the brace, and a set screw passing through said lug and adapted to engage the brace.

5. A scaffold bracket comprising a pair of vertically disposed supporting members having nail engaging slots, arms at their inner ends resting upon the upper ends of the supporting members, bolts passing through the adjacent ends of the supporting members and arms and loosely pivoting the arms to the supporting members, a brace pivotally connected to the lower ends of the supporting members, a locking member slidably engaging the brace and adapted to be locked thereon in adjusted position, the locking member being bifurcated at its upper end and formed with a pair of heads, and a bolt passing through said heads and through the outer ends of the arms, the arms at all times and in all angular relations resting upon the upper ends of the supporting members and being entirely supported thereby and the outer ends of the arms in all relative positions of the brace and arms resting upon the faces of said heads and being entirely supported thereby.

6. A scaffold bracket comprising a pair of vertically disposed members, angular in cross section to provide a base web and an outwardly projecting flange, the upper ends of said members being disposed in approximately parallel relations and the lower portions of the members extending convergently downward, a pin loosely connecting the lower ends of said members for movement into or out of more or less divergent relation, the upper ends of the members being formed with nail engaging notches, arms angular in cross section to provide a downwardly extending flange and a laterally extending flange, the laterally extending flanges of the arms resting at all times upon the upper ends of the outwardly projecting flanges of the supporting members, pins passing loosely through the flanges of the supporting members and loosely through the downwardly extending flanges of the

arms and swingingly connecting the arms to the supporting members, a brace swingingly connected to the lower ends of the supporting members and normally extending upward and outward, a locking member slidably engaged with the brace and adapted to be locked in adjusted position upon the brace, the upper end of the locking member being bifurcated and formed with two peripherally rounded heads embracing the depending flanges of the arms, the depending flanges of the arms being formed with longitudinally extending slots, and a bolt passing through said heads and through the slots in the arms, the laterally projecting flanges of the arms resting at all times and in all positions upon the peripherally rounded heads whereby to relieve strain upon the bolt.

7. A scaffold bracket comprising a pair of vertically disposed, upwardly divergent members, angular in cross section, and having nail engaging slots, supporting arms pivotally connected to the upper ends of the supporting members, a brace T-shaped in cross section having its lower end disposed between the lower ends of the supporting members and swingingly connected thereto, and locking means pivotally connected to the outer ends of the arms and adjustably engaging said brace, the lower ends of those flanges of said members which

engage on each side of the medial web of the T-shaped brace being curved tangentially to this medial web.

8. A scaffold bracket comprising a pair of vertically disposed, upwardly divergent members having upwardly and inwardly extending nail slots, said supporting members being angular in cross section to provide laterally projecting flanges and outwardly projecting flanges, the outwardly projecting flanges extending below the laterally projecting flanges and being curved outward in opposite directions, the lower ends of the laterally projecting flanges having nail engaging notches, a brace T-shaped in cross section and having its lower end disposed between the downwardly projecting flanges of the supporting members and having its medial web pivotally connected with said flanges whereby said supporting members are swingingly connected to each other and to the brace for movement toward and away from each other, supporting arms pivotally connected to the upper ends of the supporting members, and locking means pivotally connected to the outer ends of the arms and adjustably engaging said members.

In testimony whereof I hereunto affix my signature.

JAY B. F. SHOWALTER.