March 22, 1949. T. L. WOOD 2,465,143

SCAFFOLDING

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Fig.1.

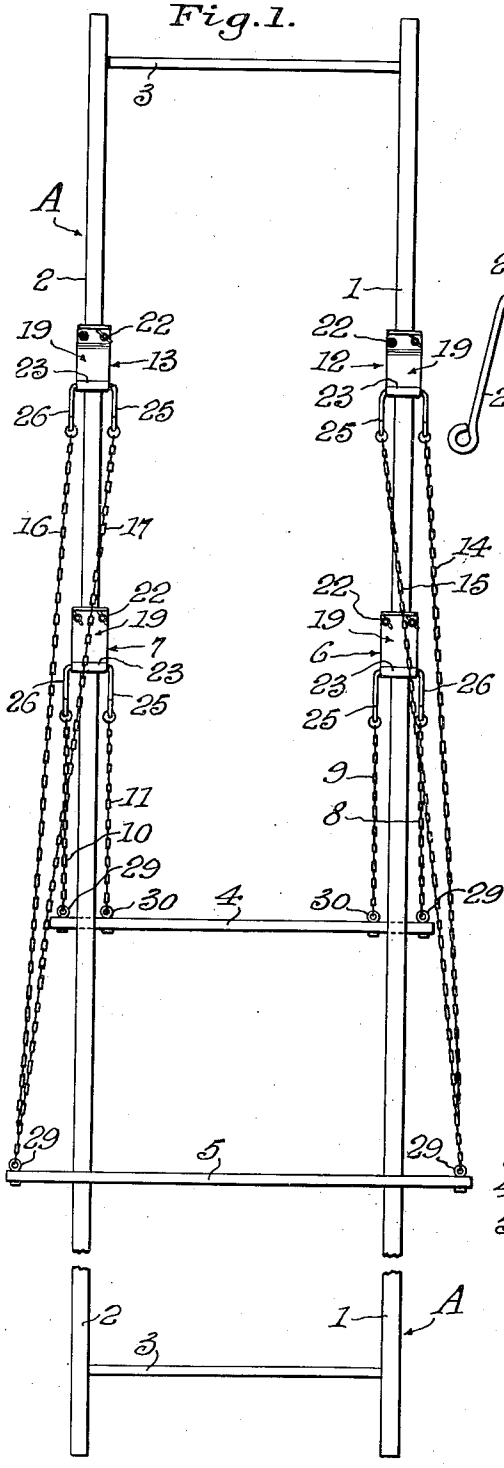


Fig.3.

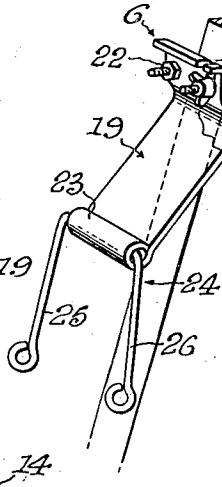


Fig.2.

Fig.4.

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Fig.5.

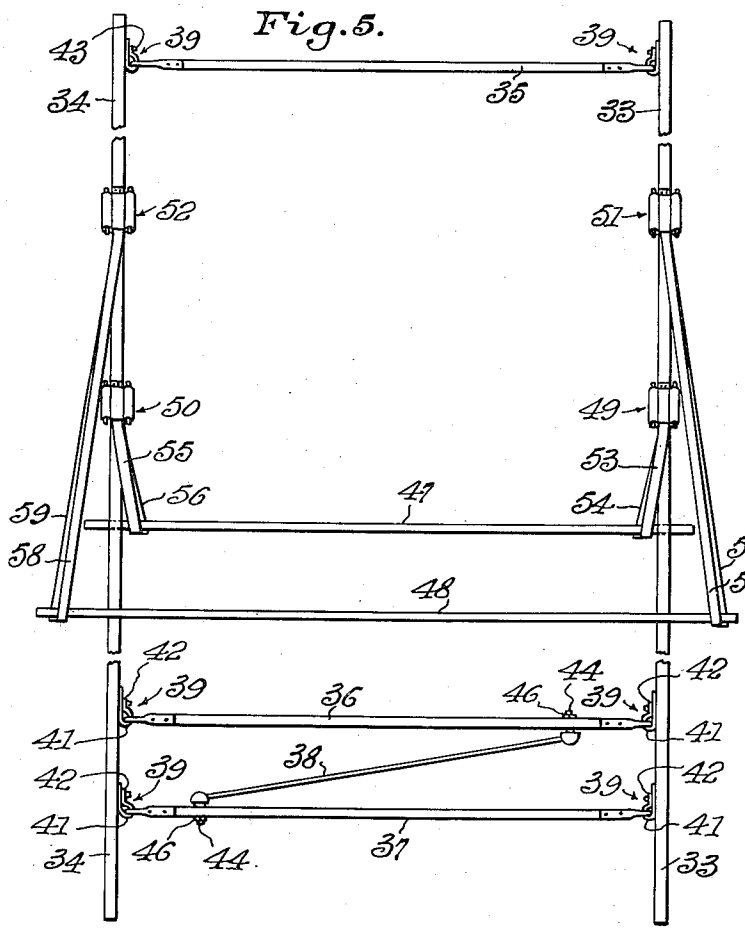


Fig.6.

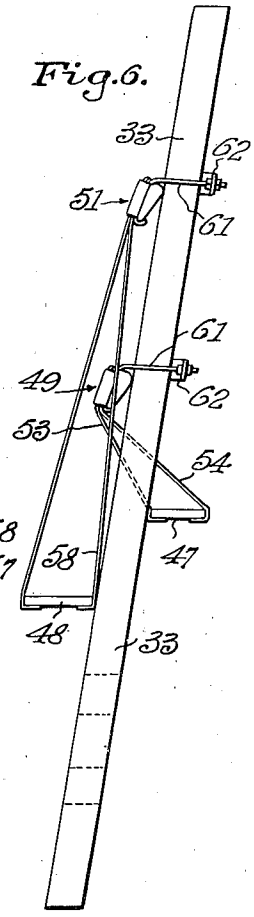


Fig.7.

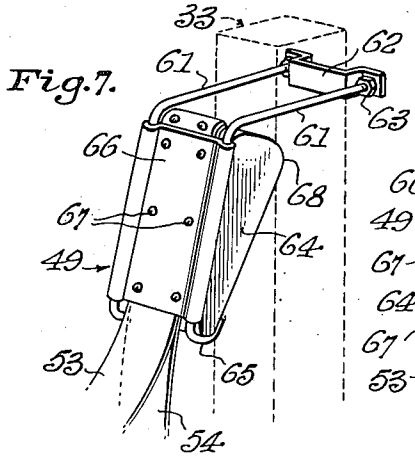


Fig.8.

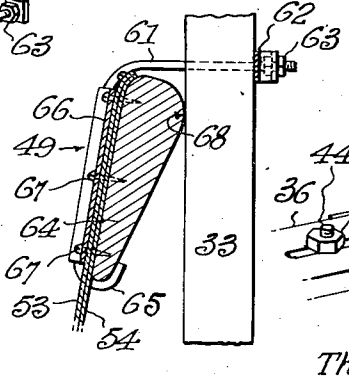
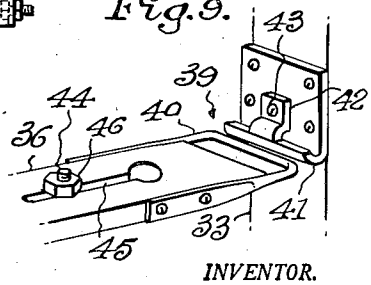


Fig.9.



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SCAFFOLDING

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8 Claims. (Cl. 304—10)

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This invention relates to scaffolding, and more particularly to scaffolding of the kind in which a platform or board is carried by and is adjustable vertically on one or more upright supporting members.

Scaffolding embodying the invention is especially adapted for use in doing work in which the workman conventionally employs either a ladder or a scaffolding individually and specially built for the particular job. Ladders are notoriously uncomfortable to stand on for prolonged work periods. There have been instances of painters' legs developing malignant bumps as a result of constantly leaning and rubbing against the rungs of conventional ladders. Scaffolding constructed specially for a particular job does not have this disadvantage, but, for obvious reasons, it cannot always be made and used economically.

An object of the present invention is to provide a new and improved scaffolding which obviates the disadvantages of scaffolding known heretofore, and which is easily and quickly adjustable for working at different heights.

Another object of the invention is to provide a scaffolding including upper and lower platforms suspended by novel means on one or more upright supporting members.

Another object of the invention is to provide a construction of the character stated in which the lower platform is suspended from holding means secured to an upright supporting member at a level above the level of holding means from which the upper platform is suspended.

A further object of the invention is to provide a new and improved form of holding or clamping means for supporting a scaffold platform in adjusted position on an upright member. Other objects will become apparent from a reading of the following description, the appended claims, and the accompanying drawings, in which:

Figure 1 is a front elevation of scaffolding embodying the invention in one form;

Figure 2 is a side elevation of the scaffolding shown in Figure 1;

Figure 3 is a detailed perspective view showing a holding device or clamp in position on an upright supporting member;

Figure 4 is a fragmentary section on the line 4—4 of Figure 2;

Figure 5 is a front elevation of a modified form of scaffolding embodying the invention;

Figure 6 is a side elevation of the scaffolding shown in Figure 5;

Figure 7 is a detailed perspective view of a

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modified form of holding device or clamp of the kind embodied in the construction shown in Figures 5 and 6.

Figure 8 is a detailed vertical sectional view of the holding device or clamp shown in Figure 7 associated with an upright supporting member shown fragmentarily; and

Figure 9 is a fragmentary detailed perspective view of means for detachably connecting parts shown in Figures 5 and 6.

Figures 1 to 4 show the invention embodied in a preferred form in a scaffolding including a frame generally designated A adapted to be leaned against the side or wall of a building or other structure to be worked upon. The frame A comprises upright supporting members 1 and 2 joined together in spaced relation by top and bottom connecting pieces 3—3. In a general sense, the frame A resembles a conventional ladder with all except the top and bottom rungs omitted.

In accordance with the invention, upper and lower platforms 4 and 5 are suspended in vertically spaced relation from each other on the supporting members 1—2. For supporting the upper platform 4, there is provided a pair of holding or clamping devices generally designated 6 and 7, respectively. The holding devices 6 and 7 are mounted for adjustment on the upright members 1 and 2, respectively, and are connected by suspension means, e. g., chains, to the platform 4. In the form shown, there are four chains, two of which, designated 8 and 9, connect the device 6 to the right end of the platform 4. Two other chains 10 and 11 are connected between the holding device 7 and the left end of the platform 4.

The lower platform 5 is suspended from an upper pair of holding or clamping devices 12 and 13, mounted for vertical adjustment respectively on the upright members 1 and 2 above the lower pair of holding devices 6 and 7. The holding device 12 is connected to the lower platform 5 by flexible chains 14 and 15 which extend upwardly from the right end of the platform 5. Similarly, the holding device 13 is connected to the left end of the platform 5 by chains 16 and 17.

In use, the platforms 4 and 5 may be positioned in superposed relationship as shown in Figures 1 and 2 and the workman may stand on either, although preferably on the upper platform 4, while working. As the work progresses, and it is desired to proceed to a higher level, the workman, standing on the upper platform 4 may easily reach the upper pair of holding devices

12 and 13 for adjusting them, in a manner to be described, to a higher level, thereby elevating the lower platform 5. The workman then steps down to the platform 5 so as to be in position for easily reaching and adjusting the holding devices 6 and 7 to move the upper platform 4 to a new and higher level, after which work may be resumed. As the work is completed at each successive level, the same method of elevating the two platforms is repeated. If the workman is painting, he may start with the platforms near the top of the supporting frame and proceed downwardly.

The construction of the holding or clamping devices 6, 7, 12, and 13 may vary to some extent but generally stated it is preferred that they be characterized by being easily adjustable to selected positions on the frame A. In the form shown in Figures 1 to 4, the holding devices are so constructed as to be responsive to the weight of the suspended platforms for squeezing or exerting a clamping action on the associated supporting members 1 and 2. Each of the devices 6, 7, 12, and 13 is of similar construction so that a description of one will suffice for a description of all.

The holding device 6 is formed in two parts, the first being a U-shaped part 18 and the second a rockable part 19. The U-shaped part includes legs 20—20 extending alongside the upright member 1 and a rear connecting portion 21 extending across the back of the member 1.

The rockable part 19 comprises a metallic plate formed at its upper end with openings through which the legs 20 extend, nuts 22 screwed on the forwardly extending ends of the legs 20 connecting the parts 18 and 19. The lower end of the rockable part 19 is formed with a hinge sleeve 23 which receives for pivotal movement a rod 24, the ends 25 and 26 of which project beyond opposite ends of the sleeve 23 and are turned downwardly and provided with eyes for connection to the chains 8 and 9. Preferably, the rod end 25 extends somewhat forwardly and the rod end 26 extends somewhat rearwardly, so that the respectively associated chains 8 and 9 and rod portions 25 and 26 will extend substantially in straight lines from the axis of the hinge sleeve 23 to the points of connection of the chains 8 and 9 to the platform 4. The chains 8 and 9 may be connected to the platform by means of eye bolts 29 and 30.

The lower platform 5 may be notched as shown at 32 in Figure 4 so as to allow the platform 5 to be positioned not too far in front of the platform 4.

Between its upper and lower ends, the rockable part 19 is formed with a fulcrum 32 which is offset toward the outer surface of the member 1 from a line joining the points of connection of the part 19 to the U-shaped part 18 and to the rod 24. The arrangement is such that the platform weight exerted through the chains 8 and 9 and the rod 24 tends to rock the part 19 counter clockwise about the fulcrum 32, which is in engagement with the front surface of the member 1 as shown in Figures 2 and 3. Consequently, the U-shaped member 18 is drawn forwardly, causing the cross piece 21 to engage the back surface of the member 1 while the fulcrum 32 is pressing against the front surface of the member 1, so that the clamping device 6 in its entirety is held in adjusted position by a squeezing or clamping force.

When it is desired to change the level of the platform 4, the workman will stand upon the platform 5 and grasp the rockable parts 19 of the

clamping devices 6 and 7 and swing them clockwise so as to relieve the clamping force. The devices 6 and 7, together with the suspension chains and the platform 4, may then easily be moved upwardly along the supporting members 1 and 2 to the desired new level. The holding devices 12 and 13 together with the platform 5 and intervening suspension chains may be adjusted similarly while the workman is standing upon the platform 4.

Figures 5 to 9, inclusive, show a modified arrangement in which two widely spaced nearly upright supporting members 33—34 form part of a knock-down scaffolding frame. The members 33 and 34 are connected by horizontal braces 35, 36, and 37, the two lower braces being connected by a diagonal brace 38. Each end of each horizontal brace is connected to an adjacent upright member by a device 39, one of which is shown in detail in Figure 9. The device 39 comprises a U-shaped strap 40 connected to the right hand end of the horizontal brace 36, an anchor 41 secured to the upright member 33, and a clip 42 removably secured to the anchor 41 by a bolt 43.

Each end of the diagonal brace 38 is provided with a bolt 44 which extends through a slot 45 in the associated horizontal brace, a nut 46 being provided for locking the bolt 44 in adjusted position in the slot 45.

It will be seen that the frame thus provided may easily be disassembled for transportation and then set up quickly where the work is to be performed. The lower ends of the supporting members 33 may be supported in any suitable manner, and if desired, there may be a suitable connection between the upper ends of the upright members and the structure to be worked upon.

Upper and lower platforms 47 and 48 are suspended on the upright members 33—34, one above the other, in relative positions similar to those of the platforms 4 and 5 described with reference to Figures 1 to 4. The upper platform 47 is suspended from a lower pair of holding or clamping devices 49 and 50, and the lower platform 48 is suspended from an upper pair of holding or clamping devices 51 and 52. In this embodiment of the invention, the means for suspending the platforms from the holding devices comprises flexible straps of leather, webbing, or the like instead of the chains shown in Figures 1 to 4. In the modified construction, flexible straps 53, 54, 55, 56 suspend the upper platform 47 from the holding or clamping devices 49 and 50, and flexible straps 57, 58, 59, and 60 suspend the lower platform 48 from the upper pair of holding devices 51, 52.

The platform 48 may be notched at its end similarly to the notching of the platform 5 shown in Figure 4.

The holding or clamping devices 49, 50, 51, and 52 are of similar construction so that a description of one will suffice for descriptions of all. As shown in Figures 7 and 8, the holding device 49 includes a U-shaped part formed of two legs 61—61 which extend alongside the upright member 33 and a strap portion 62 connected to the legs 61 by nuts 63. The device 49 also includes a rockable part in the form of a friction block 64 constructed of wood, rubber, or other material adapted to have effective frictional engagement with the outer surface of the upright member 33. The legs 61—61 of the U-shaped part extend forwardly from the upright member 33 across the top of the friction block 64, thence downwardly in front of the block, and thence extend under

the block at 65 and upwardly a short distance behind the block. A plate 66 secured to the block 64 by screws 67 holds the legs 61 and block 64 assembled and also secures the upper ends of the flexible straps 53—54 to the device 49.

The block 64 is formed with a fulcrum 68 between its upper and lower ends. The fulcrum is offset toward the upright member 33 from a line joining the points of connection of the block to the U-shaped member and to the flexible straps.

The manner of using the scaffolding and adjusting the positions of the platforms shown in Figures 5–9 is similar to the use of the scaffolding and adjustment of the platforms shown in Figures 1 to 4 already described. The platform 47 may easily be adjusted to a higher position while the workman is standing on the platform 48, and, vice versa, the platform 48 may be adjusted while the workman is standing on the platform 47.

The illustrated embodiments of the invention and other embodiments, which will be apparent to those skilled in the art, have distinct advantatges over conventional ladders and scaffolding known heretofore. A workman using my improved scaffolding can raise or lower one platform while standing on the other without having to stoop or stretch far above his head for manipulating the clamping or holding devices. Obtaining the advantages of my construction depends essentially upon the provision of an arrangement whereby the holding devices may be secured in adjusted position on the upright members and in such a way as to be easily reached and released for making vertical adjustments. The friction clamping or holding devices disclosed in the drawings are preferred because they are of simple construction, effective in operation, and enable the platforms to be adjusted to any number of positions. Holding devices provided with pins, bolts, clips, or the like engageable with notches, apertures, or other spaced devices on the supporting members could be used without sacrificing all of the advantages of the invention, but the forms shown in the drawings are those now preferred.

I claim:

1. In scaffolding, two spaced substantially parallel upright supporting members; two clamping devices respectively mounted for substantially vertical adjustment on said members and each comprising a first part engageable with one surface on the associated supporting member and a second part connected to said first part and being engageable with an opposed surface on said associated supporting member and being operable by a downward pull for effecting pressing of said first and second parts, respectively against said surfaces to clamp said device in adjusted position on said associated member; a platform extending between said supporting members and projecting both forwardly and rearwardly thereof; and suspension means extending between and being connected to said second part of each of said clamping devices and said platform, both at the front and rear of said platform.

2. In scaffolding, a substantially upright supporting member; upper and lower holding devices mounted for substantially vertical adjustment on said member; upper and lower platforms; means suspending said upper platform from said lower holding device; and means for suspending said lower platform from said upper holding device, whereby a person standing upon either one of said platforms may easily reach and manipulate the holding device from which the other of said platforms is suspended.

3. In scaffolding, two spaced substantially parallel upright supporting members; upper and lower pairs of holding devices mounted for substantially vertical adjustment on said members, the holding devices of each pair being mounted respectively on said supporting members, upper and lower platforms; means suspending said upper platform from said lower pair of holding devices; and means suspending said lower platform from said upper pair of holding devices, whereby a person standing upon either one of said platforms may easily reach and manipulate the holding devices from which the other of said platforms is suspended.

4. In scaffolding, an upright supporting member; upper and lower clamp devices mounted for substantially vertical adjustment on said member and each comprising a first part engageable with one surface on said member and a second part engageable with an opposed surface on said member and being operable by a downward pull for effecting pressing of said first and second parts respectively against said surfaces on said member to clamp said device in adjusted position on said member; upper and lower platforms; means suspending said upper platform from the second part of said lower clamping device; and means suspending said lower platform from the second part of said upper clamping device.

5. In scaffolding, two spaced, substantially upright parallel supporting members; upper and lower pairs of clamping devices mounted for substantially vertical adjustment on said members, the clamping devices of each pair being mounted respectively on said supporting members, each clamping device comprising a first part engageable with one surface on the associated supporting member and a second part engageable with an opposed surface on said member and being operable by a downward pull for effecting pressing of said first and second parts against said surfaces on said member to clamp said device in vertically adjusted position on said member; upper and lower platforms; means suspending the upper platform from the second parts of the lower pair of clamping devices; and means suspending the lower platform from the second parts of said upper pair of clamping devices.

6. In scaffolding, an upright supporting member; a clamp device mounted for substantially vertical adjustment on said member and comprising a U-shaped part having legs extending alongside said member and a connecting portion behind said member, and a rockable plate part disposed in front of said member and having a fulcrum offset toward said member from a line forming the upper and lower ends of said rockable plate part, said plate part being formed with openings above the fulcrum for receiving the legs of said U-shaped part, and being formed below said fulcrum with a hinge part; a platform; and means connecting said hinge part to said platform for suspending the latter.

7. In scaffolding, an upright supporting member; a clamp device mounted for substantially vertical adjustment on said member and comprising a U-shaped part having legs extending alongside said member and a connecting portion behind said member, and a rockable plate part disposed in front of said member and having a fulcrum offset toward said member from a line forming the upper and lower ends of said rockable plate part; means connecting the legs of said U-shaped part to the upper end of said plate part; said plate part being formed at its lower

end with a hinge sleeve; a rod pivoted in said sleeve and having its ends projecting respectively beyond the opposite ends of said sleeve and bent downwardly; a platform; and suspension members attached to said platform and respectively attached to the downwardly bent ends of said rod.

8. In scaffolding, an upright supporting member; a clamp device mounted for substantially vertical adjustment on said member and comprising a U-shaped part having legs extending alongside said member and a connecting portion behind said member, and a rockable plate part disposed in front of said member and having a fulcrum offset toward said member from a line forming the upper and lower ends of said rockable plate part; means connecting the legs of said U-shaped part to the upper end of said plate part, said plate part being formed at its lower end with a hinge sleeve; a rod pivoted in said sleeve and having its ends projecting beyond the opposite ends of said sleeve and being bent downwardly and respectively forwardly and rearwardly; a platform; and flexible suspension members respectively connected between the rear of the

platform and the rearwardly bent rod end, and between the front of the platform and the forwardly bent rod end, whereby each flexible member extends substantially in a straight line between its point of connection to said platform and the axis of said sleeve.

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