Jan. 25, 1966 R. N. BROWN 3,231,043

SCAFFOLDING DEVICE

Filed Jan. 29, 1964

Fig. 1.

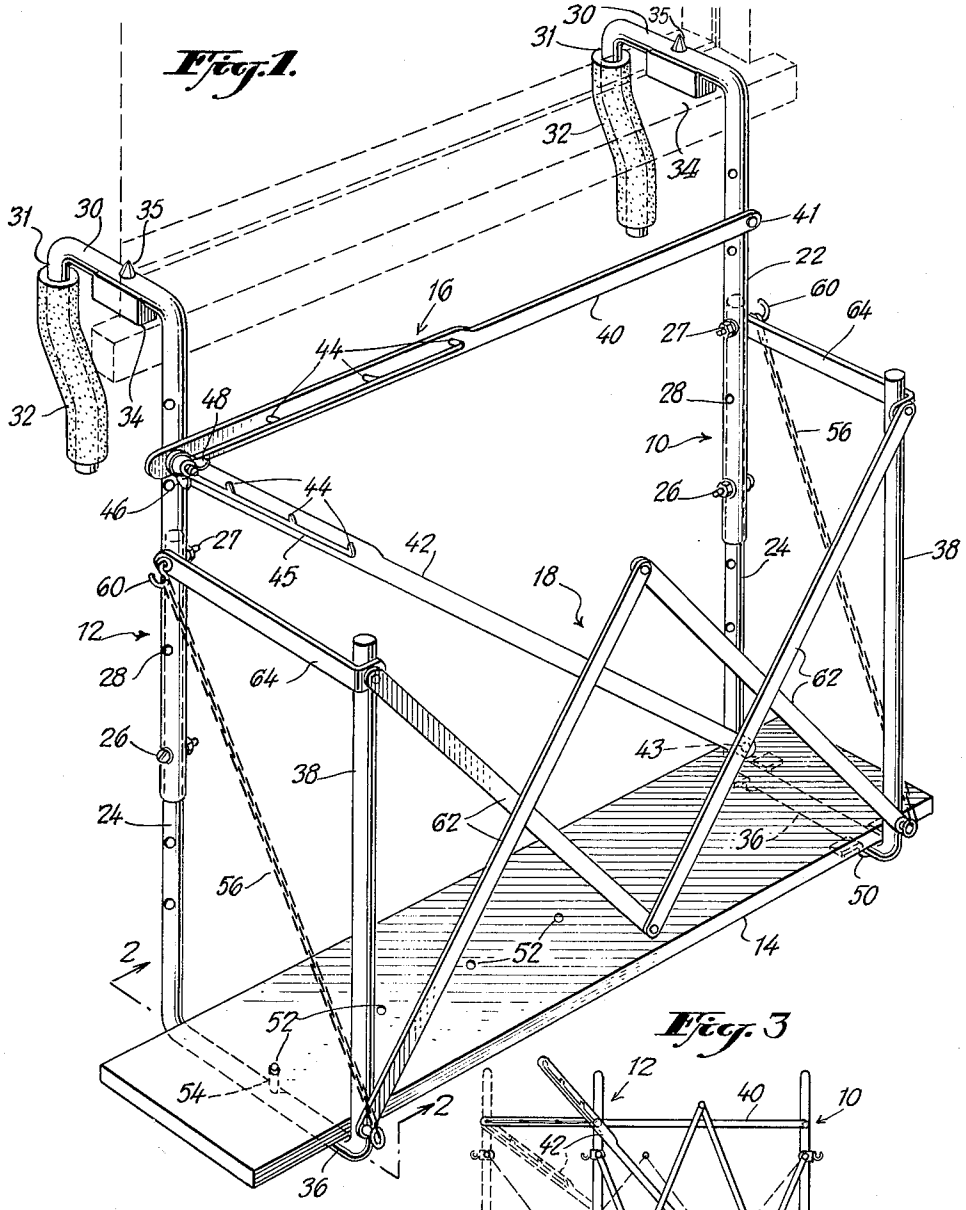


Fig. 3

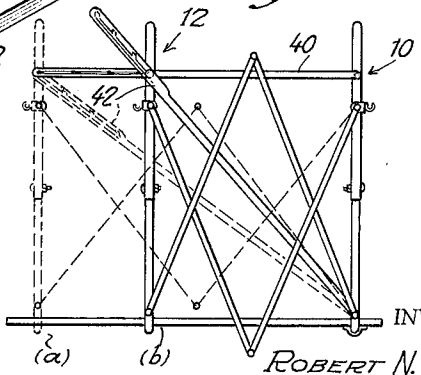
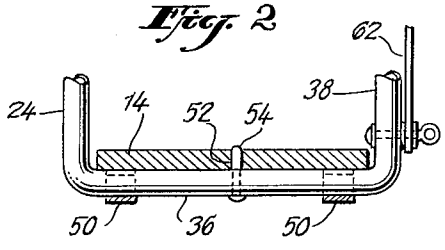


Fig. 2



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United States Patent Office 3,231,043 Patented Jan. 25, 1966

3,231,043

SCAFFOLDING DEVICE

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Filed Jan. 29, 1964, Ser. No. 340,936
6 Claims. (Cl. 182—55)

This invention relates to scaffolding arrangements; and more particularly it concerns a novel scaffold device of the type which may be used in connection with work on windows and other openings in houses and similar structures.

In order to reach the outside of upper story windows so that various repair or maintenance work may be performed thereon, it has generally been necessary to provide ladders which extend from the ground to a point next to the particular window to be worked on. If the window is particularly wide, two ladders may be required, one on either side of the window, with a scaffold platform suspended between them. Such arrangements are bulky and are difficult to move and set up. The ladders, particularly those which must reach second and third story windows are also quite expensive and they present a storage problem when not in use.

According to the present invention there is provided a portable, and completely collapsible, scaffold structure characterized by lightness, compactness and great ease in being set up for use. This novel structure is also simple in construction and yet is exceedingly rigid and stable when opened for use. The scaffold arrangement of the present invention includes a pair of rigid elongated suspension members having hook shaped upper sections adapted to be hung over the ledge or sill of an open window. The lower sections of these suspension members extend outwardly to provide support ledges upon and across which a flat elongated platform member rests. Adjustable length bracing means are provided whereby the horizontal distance between the suspension members may be adjusted to accommodate any width window or whereby they may be moved fully together for storage when not in use.

In a preferred arrangement the flat elongated platform member is pivotally attached to the outwardly extending lower section of one of the suspension members and is provided with a series of holes along its underside to accommodate a stub element extending upwardly from the lower section of the other suspension member. In such arrangement the platform member itself may form a portion of the adjustable length bracing means, while the remainder of such bracing means may comprise a diagonal brace member pivotally connected at one end to a point near the lower section of the one suspension member and an upper horizontal brace member pivotally connected at one end to a point near the upper section of the same suspension member. Each of these two brace members is also provided with a series of holes near its other end. As the suspension members are moved toward or away from each other, various ones of these holes come into alignment at a point near the upper end of the other suspension member and may be fastened thereto over a common bolt extending from the member.

There has thus been outlined rather broadly the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the

designing of other structures for carrying out the several purposes of the invention. It is important, therefore, that the claims be regarded as including such equivalent constructions as do not depart from the spirit and scope of the invention.

A specific embodiment of the invention has been chosen for purposes of illustration and description, and is shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a perspective view showing a scaffold arrangement constituting one embodiment of the present invention;

FIG. 2 is a fragmentary section view taken along line 2—2 of FIG. 1; and

FIG. 3 is a front elevation of the embodiment of FIG. 1 showing different positions of adjustment.

The scaffold arrangement shown in FIG. 1 comprises a pair of composite suspension members **10** and **12**, a flat elongated platform member **14**, an adjustable bracing means **16** and a collapsible barrier or fence means, designated generally at **18**. The composite suspension members **10** and **12** are made up of rigid tubular shaped upper and lower sections **22** and **24** in telescopic arrangement. These upper and lower sections may be secured at any of several positions by means of removable bolts **26** and **27** which extend through aligned holes **28** in the upper and lower sections of each suspension member so as to provide the device with height adjustability. The upper section **22** of each suspension member is bent back, as at **30**, and then downwardly, as at **31** to provide an inverted U-shaped configuration, allowing the device to be hung over the ledge or sill of an opened window (shown in phantom outline). The back leg of the U-shaped configuration is given a slight forward taper so as to enhance the ledge securing ability of the suspension member. There is also provided a sleeve **32** of rubber or similar material, which surrounds the back legs of the U-shaped configuration. This sleeve presses against the inner wall surface below the sill over which the device is hung, thus protecting the wall from marring or other damage. At the same time the sleeves **32** act to distribute the stresses created by the device over a greater wall area.

The bent back region **30** of each suspension member has bolted thereto a removable spacer block **34** of hard rubber. These spacer blocks are shaped and dimensioned to permit the scaffold device to hook over and rest upon window sills of various configuration without causing damage to certain elements such as aluminum storm window frames and the like, which often protrude upwardly from the sill. The spacer blocks may easily be removed by unscrewing acorn nuts **35**. This enables the blocks to be replaced by other spacer blocks of different configuration in order to accommodate different window ledge configurations. The lower section **24** of each suspension member is bent outwardly in the plane of the U-shaped configuration of the upper section **22** so as to provide a supporting ledge **36** across which the flat elongated platform **14** rests. A vertical post **38** rises from the outer end of each such supporting ledge to provide a mounting for the collapsible barrier or fence means **18**. These vertical posts may, as shown, be formed integrally with the lower section **24** of the suspension members and bent upwardly from the outer end of the supporting ledges **36**.

The adjustable bracing means **16** serves to hold the suspension members **10** and **12** in rigid alignment thus providing stability and safety to the device when in use. The bracing means also permits convenient adjustment of the distance between the suspension members so that they may be made to accommodate windows of various

widths; or, when the device is not in use, the suspension members may be brought up against each other for complete collapsibility of the device. The bracing means 16 includes an upper horizontal bracing member 40, pivotally connected at one end to a point 41 on the upper section 22 of the first suspension member 10; and a diagonal bracing member 42 pivotally connected at one end to a point 43 on the lower section 24 of the same suspension member. These bracing members are each provided with a series of notches 44 near their opposite end for fitting over a common bolt 46 which protrudes from the upper section 22 of the second suspension member 12. The notches 44 on the bracing members are interconnected by means of a continuous slot 45. This allows the bracing members to be moved from one notch to another on the bolt 46 without complete disengagement of the bracing member therefrom. A wingnut 48 is provided to secure the bracing members in place once they have been adjusted to a desired position. It will be appreciated that with the present arrangement it is possible to provide adjustment of the distance between the suspension members 10 and 12 simply by loosening a single screw connection on one of these members.

The platform member 14 is pivotally secured at one end to the supporting ledge 36 of the first suspension member 10. For this purpose there are provided a pair of strap members 50 which encircle the supporting ledge and are attached on either side thereof to the underside of the platform member. The other end of the platform member is provided with a series of holes 52 along its length. As shown in FIG. 2, these holes accommodate a stub member 54 which extends upwardly from the supporting ledge 36 of the second suspension member 12.

It can be seen that when the platform member rests flat across the supporting ledges 36 of the two suspension members 10 and 12, it is held in fixed relation to both suspension members. In this manner the platform member cooperates with the upper horizontal and the diagonal bracing members to maintain the suspension members in a rigid fixed relationship thus ensuring stability and safety during use.

It will also be appreciated that while the device is in use and is supporting weight on the platform member, the engagement with the ledge 36 of the second suspension member 12 is enhanced and rendered more secure; yet when weight is removed from the platform, and it is desired to change the distance between the suspension members, the platform member need merely be pivoted upwardly about the supporting ledge 36 of the first suspension member 10 so as to bring it out of engagement with the stub member 54 on the second suspension member 12. When adjustment of the distance between the suspension members 10 and 12 has been completed, the platform member is then pivoted back down so that a different one of its holes 52 accommodates the stub member 54 on the supporting ledge of the second suspension member 12. The spacing between the holes 52 in the platform member corresponds to the spacing between the notches 44 of the horizontal bracing member 40. This serves to maintain the two suspension members in parallel alignment in each position of adjustment.

In order to reduce the extent of stress concentration in the region where the supporting ledges 36 join the lower sections 24 of each suspension member, there are provided tension members, such as chains 56 which extend upwardly from the outer end of each supporting ledge 36, and back to hooks 60 in the upper section 22 of each respective suspension member. These chains are secured to the hooks 60 over different links according to the amount by which the upper and lower sections of the suspension memebers are telescoped with respect to each other.

The collapsible barrier or fence means 18 includes a system of bars 62 pivotally connected in a lazy tong arrangement and attached to the vertical posts 38 which rise from the outer end of each supporting ledge 36. This provides a protective railing effect and yet allows the suspension members to be moved toward and away from each other without interference. It will be appreciated that the bars 62 are connected only at their ends so as to permit the collapsing of the lazy tongue configuration as the suspension members 10 and 12 are moved toward each other. In order to reinforce the vertical posts and fence means there are provided end brace members 64 which extend from the top of each vertical post back to the upper portion 22 of each suspension member. These end brace members further cooperate with the tension chains 56 to provide a protective fencing effect at each end of the platform.

The manner in which the platform member 14 and the adjustable bracing means 16 cooperate with the suspension members 10 and 12 to provide convenient adjustability is illustrated in FIG. 3. In position (*a*) (shown in dotted outline), the device is opened to its maximum width, with the platform member 14 engaging the supporting ledge 36 of the second suspension member 12 at the outermost of its series of holes 52, and the upper horizontal and the diagonal bracing members 40 and 42 similarly engaging the common bolt 46 on the second suspension member 12 at the outermost of their respective series of notches 44. The scaffold may easily be adjusted to a narrower width, for example, to accommodate a narrower window, simply by loosening or removing the wingnut 48 from the common bolt 46 so that the upper horizontal and the diagonal bracing members may be moved to engage the bolt through different notches. At the same time the platform member 14 is pivoted upwardly to disengage it from the stub member 54. The second suspension member 12 may then be moved to position *b* (shown in solid outline). The upper horizontal and diagonal bracing members 40 and 42 are thereafter secured in place and the platform member 14 is returned to the supporting ledge 36 of the second suspension member 12 so that its stub member 54 engages a corresponding one of the holes 52 in the platform member. It can be seen that the device may readily be collapsed for storage simply by pivoting the platform member 14 fully up into the plane of the first suspension member 10, and then after disengaging the brace members 40 and 42, bringing the two suspension members up against each other.

Also, as illustrated in FIG. 1, the suspension members 10 and 12 are shown in their fully extended position. The platform 14 may easily be raised closer to the height of the window sill simply by removing the bolts 26 and 27 and moving the lower sections 24 up into their respective upper sections 22. The bolts 26 and 27 are thereafter replaced to secure the suspension members 10 and 12 at a different length. In making the above-described adjustment the diagonal bracing member 42 is loosened from the bolt 46 and readjusted to a new position so as to maintain the same bracing effect even though the platform is changed to a different height.

Having thus described my invention with particular reference to the preferred form thereof, it will be obvious to those skilled in the art to which the invention pertains, after understanding my invention, that various changes and modifications may be made therein without departing from the spirit and scope of my invention, as defined by the claims appended thereto.

What is claimed as new and desired to be secured by Letters Patent is:

I claim:

1. A portable scaffolding comprising: first and second rigid elongated suspension members, the upper section of each of said members projecting back and down and formed to hook over the sill of an open window, the lower section of each of said suspension members having supporting ledges extending outwardly therefrom in the plane of but opposite in direction to the projection of said hook formed upper portion, a flat elongated platform

member for resting across each of said supporting ledges, attachment means securing said platform member to each of said supporting ledges, one of said attachment means being arranged to permit releasable coupling between the ledge of said first suspension member and various points distributed along said platform, and adjustable length bracing means including an upper horizontal brace member fixed at one end to the upper section of said first suspension member and releasably attachable at various points therealong in the vicinity of its other end to the upper section of the other suspension member, and a diagonal brace member pivotally connected at one end to the lower section of said first suspension member and releasably attachable at points therealong in the vicinity of its other end to the upper section of the second suspension member.

2. A portable scaffolding comprising: first and second composite suspension members formed of upper and lower rigid tubular telescoping sections, means for maintaining said tubular sections at any of several points of extension, said upper sections being bent backwardly then downwardly in inverted U-shaped configuration, said lower sections having supporting ledges, a flat elongated platform member for resting across each of said supporting ledges, said platform member being pivotally atttached to the supporting ledge of said first suspension member and detachably securable at various points distributed therealong to the supporting ledge of said second suspension member, adjustable length bracing means including an upper horizontal brace member pivotally attached at one end to the upper section of said first suspension member and a diagonal brace member pivotally attached at one end to the lower section of said first suspension member, each of said brace members being provided with a series of aligned holes toward its other end and bolting means for releasably attaching said horizontal and diagonal brace members, via said holes, at a common location at the upper section of said second suspension member.

3. The device described in claim 2 further including an adjustable length tension member extending from the outer end of each of said supporting ledges to the upper section of its respective supporting member.

4. The device described in claim 2 further including collapsible barrier means extending upwardly along the edge of said elongated platform member.

5. The device described in claim 4 further including vertical posts extending upwardly from the outer end of each of said supporting ledges and mounting said collapsible barrier.

6. A portable scaffolding device comprising: first and second suspension members each formed of upper and lower tubular sections in telescopic engagement the upper sections being bent back and then downwardly in an inverted U-shaped configuration to hook over the sill of an open window, the lower sections being bent outwardly to form supporting ledges, and then upwardly to form vertical posts, a flat elongated platform member pivotally attached near one end to the supporting ledge of said first suspension member, a stub member extending upwardly from the supporting ledge of said second suspension member, said platform member being provided with a series of holes along a line toward its other end, said holes being engageable by said stub member, an upper horizontal bracing member pivotally connected at one end to the upper section of said first suspension member, a diagonal bracing member pivotally connected at one end to the lower section of said first suspension member each of said bracing members being provided with openings distributed therealong toward their opposite end, said openings being engageable with a common bolt extending outwardly from the upper section of the other suspension member, linked tension members extending from the outer end of each of said supporting ledge, means located on the upper section of each suspension member for engaging one of the links of said tension members and collapsible fence means mounted between said vertical posts.

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