Oct. 29, 1963 S. O. CARLSON 3,108,657

SCAFFOLD DEVICE

Filed May 9, 1960

Fig.1.

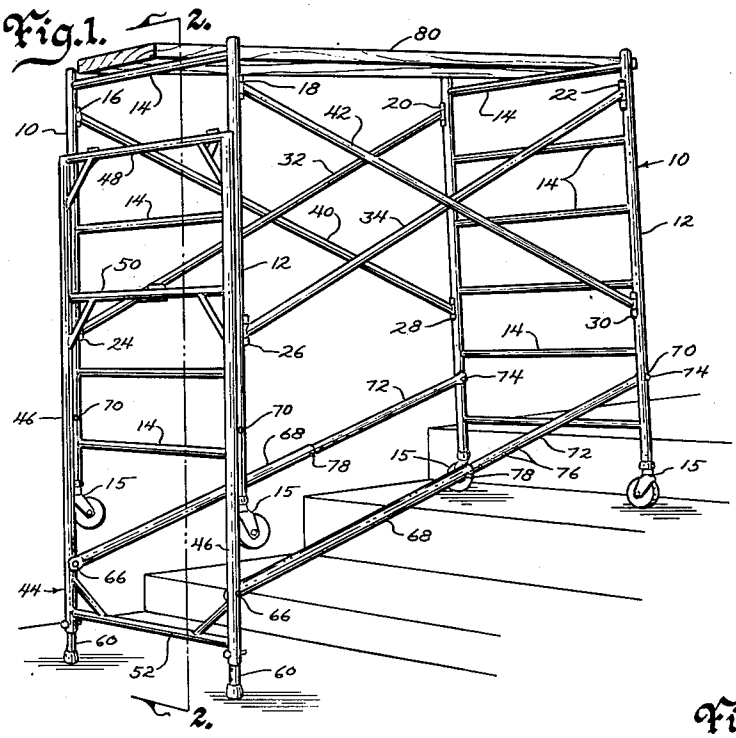


Fig.2.

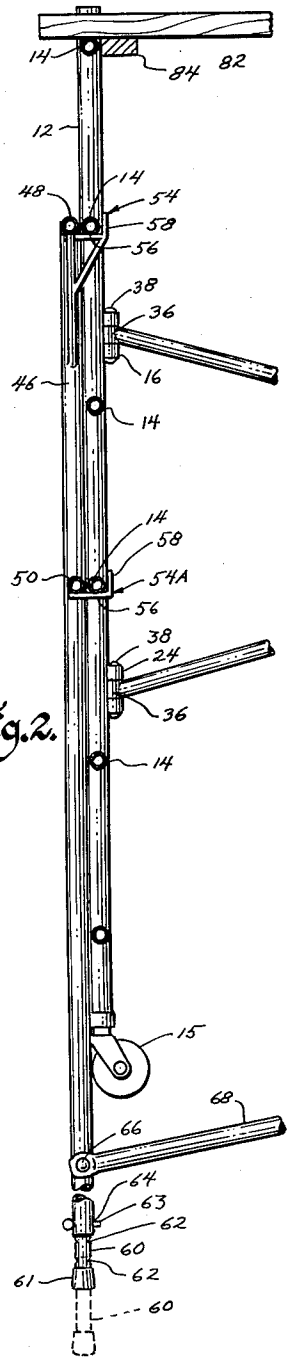


Fig.3.

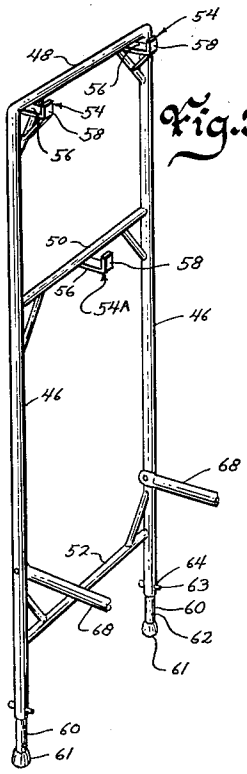
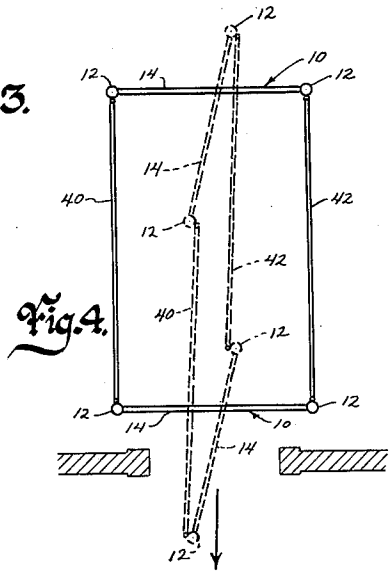


Fig.4.



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SCAFFOLD DEVICE

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My invention relates to scaffold devices and more particularly to a scaffold device that is equipped to be adapted to different conditions of use to which it is subjected.

In order to provide a suitable working area, most portable scaffolds must be of substantial width. However, the width required for a proper working area on top of such a scaffold prevents the scaffold from being easily pushed through narrow doorways and other similar passageways. Many times, scaffolds must be dismantled to negotiate these openings.

A further shortcoming of the scaffolds known to me is that no provision is made for them to be used on stairways, inclined planes and the like. Thus, special temporary scaffolding must often be employed to adapt the conventional scaffold to such uses.

Therefore, the principal object of my invention is to provide a scaffold device that can be easily adapted for use on stairways and the like.

A further object of my invention is to provide a scaffold device that can be easily folded to negotiate doorways and the like without requiring complete disassembly.

A further object of my invention is to provide a scaffold device that can be adapted for use on stairways of different steepness so as to maintain the working surface in a horizontal position.

A still further object of my invention is to provide a scaffold device that provides the user an adequate measure of safety.

A still further object of my invention is to provide a scaffold device that is economical of manufacture, durable in use, and refined in appearance.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in my claims, and illustrated in the accompanying drawings, in which:

FIG. 1 is a perspective view of my device as adapted for use on a stairway;

FIG. 2 is a partial sectional view of my device taken on line 2—2 of FIG. 1;

FIG. 3 is a perspective view of the stair adapter frame of my device; and

FIG. 4 is a plan view of my device showing its folding capabilities.

I have used the numerals 10 to generally designate the end portions of my scaffold device which are comprised of vertical posts 12 and a plurality of horizontal crossbars 14. Crossbars 14 should be uniformly spaced and are usually about twelve inches apart. The end portions can be of welded or other convenient construction. Caster wheels 15 can be mounted on the

lower ends of posts 12 in any convenient manner. It should be noted that the uppermost crossbars 14 on each end portion are located at a point slightly below the extreme top portions of the posts.

Spaced apart pairs of hinge elements 16, 18, 20 and 22 have vertical bores and are mounted on the inner sides of posts 12 adjacent the upper ends thereof. Similar pairs of hinge elements 24, 26, 28 and 30, respectively, are located on these same four posts at a point substantially below the aforementioned hinge elements. Pairs of hinge elements 20 and 22 are slightly closer to each other than are pairs 28 and 30. Also, pairs of hinge elements 24 and 26 are closer to each other than pairs of elements 16 and 18. Braces 32 and 34 extend diagonally between hinge elements 20 and 24, and 22 and 26, respectively. Each end of braces 32 and 34 has a bearing member 36 which has a vertical bore. The bearing members 36 are adapted to be movably received between the separate parts of each pair of hinge elements. A pin 38 in adapted to be received in the registering bores of the hinge elements and bearing members 36 to effect the pivotal connection between the respective braces 32 and 34 and posts. Braces 40 and 42, which are similar to braces 32 and 34, extend between hinge elements 16 and 28, and 18 and 30, respectively, and are pivotally secured to the posts 12 in the same manner as were braces 32 and 34. It should be noted that braces 40 and 42 dwell in planes slightly farther from the center of the scaffold than do braces 32 and 34 to prevent binding therebetween as the width of the scaffold is narrowed in a manner to be described hereafter.

A frame 44 is comprised of vertical posts 46 which are spaced apart substantially the same distance as are posts 12 on end portions 10. Horizontal crossbars 48 50 and 52 secure posts 46 in parallel position. Crossbars 48 and 50 should be spaced apart the same distance as at least two crossbars 14 on one of the end portions 10 As shown in FIG. 3, brackets 54 comprised of horizontal portions 56 and vertical portions 58 extend inwardly from the ends of crossbar 48. A similar bracket 54A extends inwardly from the center of crossbar 50. Brackets 54 are adapted to receive one of the crossbars 14 on one of the end portions 10 and bracket 54A is adapted to receive a separate crossbar 14 which is located below the crossbar in brackets 54.

At least the lower ends of posts 46 are hollow and slidably, telescopically receive stud shafts 60. Axially aligned horizontal holes 62 in stud shafts 60 are adapted to register at times with a horizontal hole 64 in the lower portions of shafts 60 and pins 63 are adapted to be received by holes 64 and one of the holes 62 to hold the shafts 60 against movement within the posts 46 at times. Friction cups 61 of rubber or the like are mounted on the lower ends of shafts 60.

Hollow brace members 68 are pivoted by one of their ends to posts 46 at a point slightly above crossbar 52. This pivotal connection is effected by means of pins 66. Horizontal holes 70 appear in posts 12 of end portion 10 at a point just above the lowermost crossbar 14. Braces 72 having apertures (not shown) in one of their ends can be pivotally connected to one end portion 10 by means of nut and bolt assemblies 74 which are adapted to secure the braces 72 and posts 12 together when the apertures in the ends of the braces register with the hole

70. The other ends of braces 72 are telescopically received into the ends of brace members 68 as shown in FIG. 1. Braces 72 can have a plurality of holes 76 which are adapted to register at times with a hole (not shown) in the outer ends of braces 68 through which pins 78 can extend.

Planks 80 and 82 normally provide the working surface on my scaffold and span the distance between the two end portions 10 and are supported on crossbars 14. I prefer to use planks 82 which have slats 84 secured across their bottom portions adjacent the inward sides of crossbars 14 as shown in FIG. 2. Thus, when a sufficient number of planks 82 are mounted on the scaffold to span the distance across crossbar 14, the scaffold will be prevented from folding as will be described hereafter.

The normal operation of my device is as follows. When on a level surface, my scaffold is supported on caster wheels 15 and is kept in a "square" condition by planks 82. The combined effect of the planks bearing against posts 12, along with the slats 84 bearing against crossbars 14 will keep the scaffold from folding as will be described hereafter. When it is desired to move the scaffold through a narrow doorway, the planks 82 can be removed and the end portions 10 can be pivoted with respect to braces 32, 34, 40 and 42 as shown in FIG. 4 to decrease the overall width of the scaffold. The scaffold can then be reassembled after passing through the door opening by reversing the above steps.

When it is desired to place my scaffold on a stair or inclined plane, the frame 44 can be mounted in the manner described on one of the end portions 10. Braces 72 can be secured to the opposite end portion 10 in the manner described and pins 78 can be inserted through braces 68 and 72 to secure braces 72 in their extended position. The selection of a proper crossbar 14 to rest in brackets 54 will level the scaffold to the nearest foot of height and the scaffold can then be further leveled by adjusting the telescoped position of stud shafts 60 in the bottoms of posts 46 in the manner described. The rubber friction cups 61 will prevent the scaffold from sliding while in this position. The symmetrical end portions 10 will allow the frame 44 to be mounted on either end of the scaffold device.

Thus, from the foregoing, it is seen that my device will accomplish at least all of its stated objectives.

Some changes may be made in the construction and arrangement of my scaffold device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a scaffold device, oppositely disposed vertical end portions, brace members connecting said end portions, hinge means pivotally connecting said braces to said end portions, means on said end portions for supporting a plurality of planks therebetween. A frame detachably mounted on one of said end portions, posts on said frame extending below the bottom of the end portion to which it is mounted to elevate said end portion from a supporting surface, said posts being rigidly secured together through said frame whereby each post will be free from displacement by any upward vertical pressure on the lower end of any of the other of said posts, and bracing means connecting said frame and the other of said end portions.

2. In a scaffold device, oppositely disposed vertical end portions, brace members connecting said end portions, hinge means pivotally connecting said braces to said end portions, means on said end portions for supporting a plurality of planks therebetween, a frame detachably mounted one one of said end portions, posts on said frame extending below the bottom of the end portion to which it is mounted to elevate said end portion from a supporting suface, said posts being rigidly secured together through said frame whereby each post will be free from displacement by any upward vertical pressure on the lower end of any of the other of said posts, means on the bottom ends of said posts for adjustably changing the lengths thereof, and bracing means connecting said frame to the other of said end portions.

3. In a scaffold device, two opposite end portions each comprised of two vertical posts secured together by a plurality of horizontal crossbars, brace members extending between said end portions to normally hold said end portions in parallel positions, means pivotally connecting said braces to said end portions, a frame comprised of two vertical posts and horizontal crossbars therebetween, the spaced apart distance between said crossbars on said frame corresponding to the distance between at least two crossbars on said end portions, brackets extending laterally from at least two crossbars on said frame, two of said crossbars on one of said end portions resting on the brackets on said frame, said vertical posts on said frame extending below said end portion mounted thereon to elevate said end portion from a supporting surface, said posts being rigidly secured together through said frame whereby each post will be free from displacement by any upward vertical pressure on the lower end of any of the other of said posts, means on said brackets to prevent horizontal movement between said frame and said end portion resting on said brackets, and bracing means connecting said frame and the other of said end portions.

4. In a scaffold device, two opposite end portions each comprised of two vertical posts secured together by a plurality of horizontal crossbars, brace members extending between said end portions to normally hold said end portions in parallel positions, means pivotally connecting said braces to said end portions, a frame comprised of two vertical posts and horizontal crossbars therebetween, the spaced apart distance between said crossbars on said frame corresponding to the distance between at least two crossbars on said end portions, brackets extending laterally from at least two crossbars on said frame, two of said crossbars on one of said end portions resting on the brackets on said frame, said vertical posts on said frame extending below said end portion mounted thereon to elevate said end portion from a supporting surface, said posts being rigidly secured together through said frame whereby each post will be free from displacement by any upward vertical pressure on the lower ends of said posts to adjust the lengths thereof, means on said brackets to prevent horizontal movement between said frame and said end portion resting on said brackets, and bracing means connecting said frame and the other of said end portions.

5. In a scaffold device, two opposite end portions each comprised of two vertical posts secured together by a plurality of horizontal crossbars, brace members extending between said end portions to normally hold said end portions in parallel positions, means pivotally connecting said braces to said end portions, a frame comprised of two vertical posts and horizontal crossbars therebetween, the spaced apart distance between said crossbars on said frame corresponding to the distance between at least two crossbars on said end portions, brackets extending laterally from at least two crossbars on said frame, two of said crossbars on one of said end portions resting on the brackets on said frame, said vertical posts on said frame extending below said end portion mounted thereon to elevate said end portion from a supporting surface, said posts being rigidly secured together through said frame whereby each post will be free from displacement by any upward vertical pressure on the lower end of any of the other of said posts, telescopic braces extending between and connecting said frame to said other end portion,

means pivotally securing the respective ends of said telescopic braces to said frame and said other end portion, and means on said brackets to prevent horizontal movement between said frame and said end portion resting on said brackets.

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