

Nov. 28, 1967

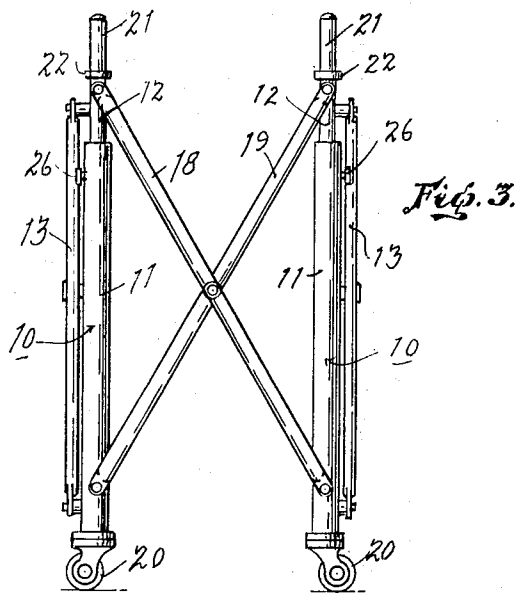
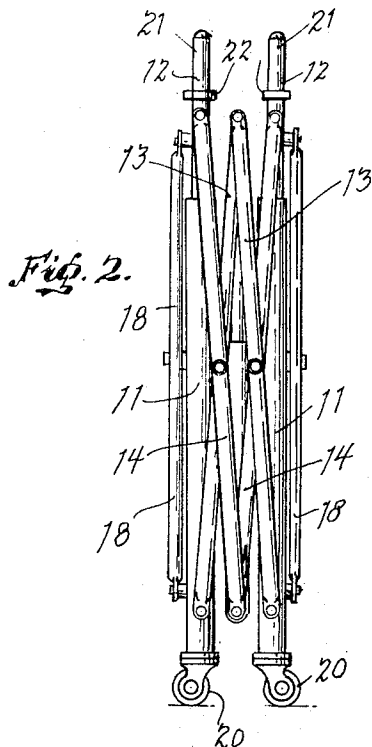
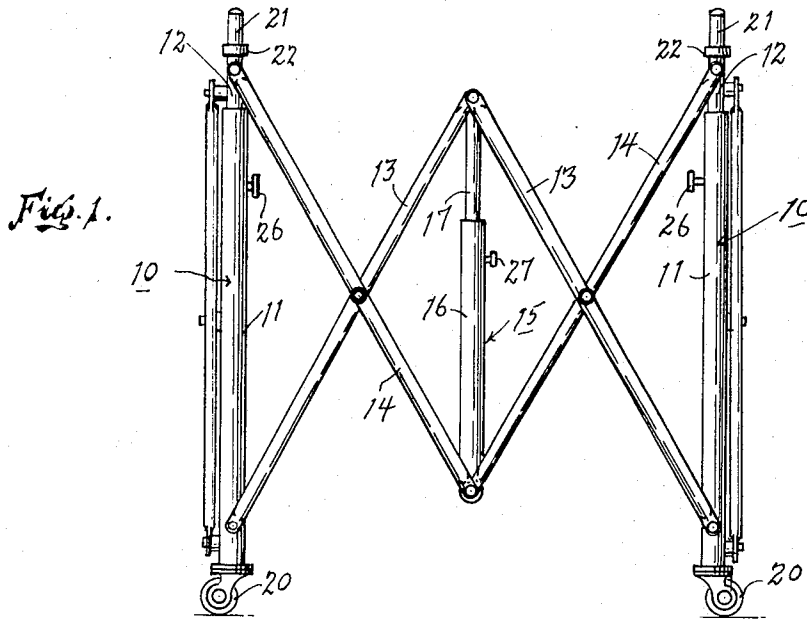
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3,354,596

COLLAPSIBLE SCAFFOLDING

Filed April 25, 1966

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

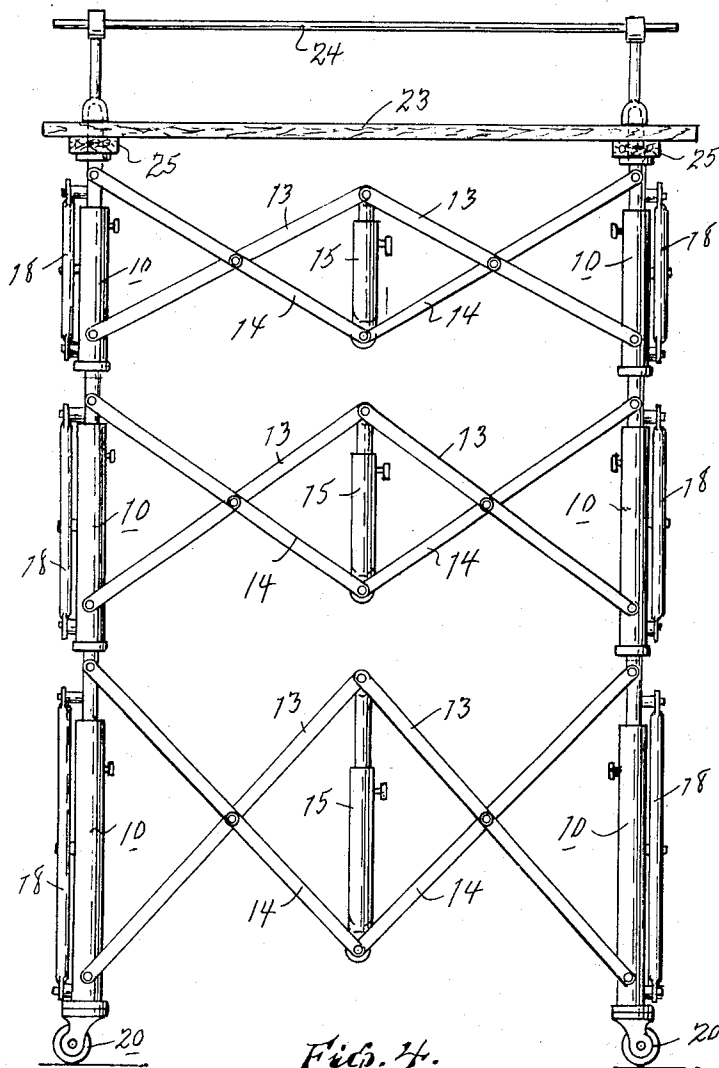


Fig. 5.

Fig. 4.

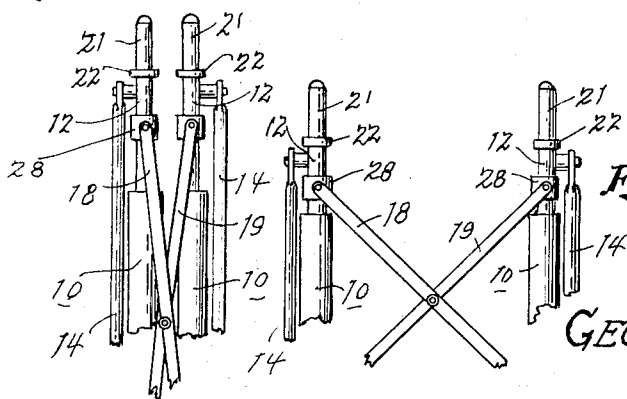


Fig. 6.

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COLLAPSIBLE SCAFFOLDING

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ABSTRACT OF THE DISCLOSURE

The present invention involves an articulated assembly of parts for a portable scaffolding, such as might be used for repairing, cleaning, painting or adding parts of equipment to an established building. The scaffolding consists of four corner posts having a lower elongated cylindrical portion and an upper portion which telescopes into the lower portion. Between at least two of these posts there is a lazy-tong connection having one side connected to the lower cylindrical portion of each post and at its other side to the upper telescoping portion of the post. These telescoping portions of the corner posts are of a dimension that will permit a complete collapse of the lazy-tong connections therebetween so that the scaffold to be collapsed when not in use and stored away with a minimum of space requirements and/or for transport from one job to another.

My present invention relates generally to scaffolding and more particularly to a scaffolding assembly having articulated parts which form a unit that can be extended in a novel manner for use and collapsed as a unit for storage with a minimum of space requirements.

The object of the invention is to provide a scaffolding arrangement having corresponding vertical supporting columns with telescopic parts which will permit a setting up or collapsing of the scaffolding in a simple and expeditious manner.

A further object of the invention is to provide an improved, collapsible scaffolding assembly that will better meet strength and safety requirements, that will not be excessive in weight and which may be fixed or locked in an extended manner for use or in a collapsed position for storage in a novel manner.

A further object of the invention is to provide a high clearance scaffolding assembly which may be expanded for use or moved from place to place for use or collapsed as a unit for storage.

A further object of the invention is to provide an articulated scaffolding arrangement which is assembled as a unit and in which a number of units may be employed in superimposed relation as a vertical column for any desired height for a particular maintenance or repair problem.

Other objects and advantages of the invention will be in part evident to those skilled in the art and in part pointed out hereinafter in the following description taken in connection with the accompanying drawings wherein there is shown by way of illustration and not of limitation preferred embodiments of the invention.

In the drawing:

FIGURE 1 is a side view of my scaffolding assembly in an extended condition,

FIGURE 2 is a side view of the assembly in FIGURE 1, as partially collapsed,

FIGURE 3 is an end view of the scaffolding assembly as shown in FIGURE 1,

FIGURE 4 is a side view showing three similar scaffolding assemblies as superimposed one upon the other,

FIGURE 5 is a fragmentary view showing a modified assembly, and

FIGURE 6 is a fragmentary end view of the assembly of FIGURE 5 as extended.

There has been an urgent need for relatively inexpensive, safe and practical scaffolding equipment, such as may be used for repairing, cleaning, painting, renovating, and adding installations or equipment to building constructions. This is particularly important for use with public buildings, such as churches, halls, office buildings and factories. The so-called rolling tower or build-up type of scaffold is gaining acceptance in this connection, in that it does not require hitches that mar or damage the building construction and may be safely utilized and collapsed for storage in a smaller area.

I have discovered that there is a definite problem involved in producing a relatively simple and compact, space-conserving and collapsible type of scaffold construction which will satisfy the requirements where a single unit or assembly provides the supporting action. With my scaffolding equipment, the tedious and expensive moving and setting up operations are eliminated. As a result, repair or maintenance within an enclosed area may be effected more easily and the particular room space involved may be more quickly placed in a productive and useful condition.

Reference is now made to the accompanying drawings for a detailed description of the invention, wherein the numeral 10 designates generally each of four vertically extending load supporting columns having an outer and lower tubular or cylindrical portion 11 and an associated telescopic upper portion 12. Between these adjacent columns 10 there is a lazy-tong assembly in the form of crossed links 13 and 14 that are articulately connected at one end to the lower tubular portions 11 of the columns 10 and at their upper ends the links are connected to the upper telescoping portion 12 of the columns 10. For controlling the extension of the connecting links 13 and 14, there is a stabilizing unit 15 having telescoping parts which include a cylindrical member 16 and an upper telescoping member or rod 17 which is mounted in telescoping relation within the cylindrical member 16. As shown, the apex between the two crossed links 13 is connected to the movable telescoping member 17 and the lower end of the cylindrical member 16 is connected at the apex of the two connected crossed links 14. With this arrangement, it will be seen that as the columns 10 of the scaffolding are moved toward each other from the position as here shown, the upper telescoping portions 12 of these columns will be extended upwardly as will also be the rod 17 with respect to its associated cylindrical portion 16, which will, in effect, move downwardly. The dimensions of the crossed links 13 and 14 are such that when the lazy-tong assembly is collapsed the extensions provided by the telescoping members 12 will permit the columns 10 to move into close relation with each other as shown in FIGURE 2. When this occurs, with the tong-like connecting link arrangement collapsed, the scaffolding may then be stored in this condition with a minimum space requirement when not in use.

At this point, it should be added that a scaffolding, having four columns, may have similar lazy-tong stabilizing links 13 and 14 along each side thereof and while the same lazy-tong linkage arrangement might be employed along the two opposite ends of the scaffolding, I have, for practical reasons, shown in FIGURE 3 the scaffolding of FIGURE 1 as having a single pair of crossed stabilizing links 18 and 19. In this case, like the lazy-tong links 13 and 14, these crossed links 18 and 19 are connected at their lower ends to the cylindrical portion 11 of the columns 10 and at their upper ends they are connected to the vertically movable upper portion 12 of the columns. With this arrangement, it is seen that when the lazy-tong linkage arrangement, as shown in FIGURE 1,

is collapsed, as shown in FIGURE 2, a corresponding closing of the crossed links 18 and 19 will also occur. This is explained by the fact that the opposite ends of the connecting links 18 and 19 are connected between the relatively movable telescoping parts 11 and 12 of the columns 10. As shown, each of the columns 10 of the scaffolding assembly described above are provided with a caster 20 of conventional design which may be with or without a brake. Therefore, when thus equipped, it will be seen that to extend the scaffolding for use it will be only necessary to exert a separating force between any of the two adjacent columns 10, either along the sides or at either end thereof. When thus collapsed, all of the columns 10 will move toward each other in all directions and form a compact bundle as indicated in FIGURE 2 of the drawing.

As a further feature, it will be noted that the upper movable portions 12 of the columns 10 have an extension 21 with fixed collars 22 that will form a bearing or supporting face for a corresponding, superimposed column 10, which will be open at their lower ends when the casters 20 are removed. When the upper portions 12 of columns 10 are thus equipped, it will be possible to superimpose any number of similar scaffolding arrangements to provide for a platform or planking 23 with a guard rail 24 at the uppermost extension thereof. In this instance, the planking 23 will be carried by cross beams 25 having holes through which the extensions 21 are extended. As a further stabilizing and/or safety factor, it will be noted that each of the columns 10 are provided with set screws or other locking means 26 and the stabilizing unit 15 will have a similar such screw 27.

While the simultaneous extension and/or collapse of the sides and ends of the scaffolding, as above described, may find many advantages, it has been found where a number of these scaffolding assemblies are to be mounted upon each other in superimposed relation this operation can be better carried out if the lazy-tong connection is extended independently of the crossed link connection at the end thereof. This will permit an operator to assemble two columns at each end of the scaffolding at one position, whereas if all four of the columns are to be simultaneously superimposed this would be a difficult operation and perhaps require at least four workmen, one at each corner, to assemble the four corners of the scaffolding when fully extended in both directions. Therefore, to overcome this difficulty, I have, in FIGURES 5 and 6 of the drawings, shown the crossed stabilizing links 18 and 19 as slidably connected to the upper telescoping members 12 of the columns by sliding collars 28 through which the upper telescoping portions 12 will freely move independently of the condition of the crossed stabilizing links 18 and 19. In this latter instance, with the crossed stabilizing links 18 and 19 movable independently of the extension of the upper telescoping portions 12 of the columns 10, it will be seen that the scaffolding may be extended along both sides independently of the spacing between the columns 10 at the ends thereof.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated specific forms and arrangements, I desire to have it understood that this invention is not limited to the specific forms disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In an articulated scaffolding assembly, the combination of a plurality of spaced and vertically extendable columns having a lower cylindrical portion for engagement with a supporting surface and a telescoping upper portion, a modified horizontally extending lazy-tong link-

age forming a spacing and stabilizing connection between said vertically extending columns in which the extension of said lazy-tong linkage will determine the extension of said telescoping upper portion, a vertically extending telescoping strut interposed between the upper and the lower links of said lazy-tong linkage by which the extension of said lazy-tong linkage and the spacing of said columns may be fixed by the extension of said telescoping strut when the scaffolding is in use, a pair of crossed struts as a stabilizing means at the other opposite sides of said assembly, whereby the scaffolding may be collapsed along its lazy-tong extended dimension independently of the laterally spaced dimension of said columns, and characterized by the fact that the single stabilizing means at the opposite sides of the scaffolding assembly consists of two pivotally related diagonally extending struts, each secured at one end to the base of the laterally spaced vertically extending columns and slidably mounted at their upper end to the telescoping portion of said columns by a slidable collar through which the telescoping portion of said columns extend.

2. In a completely articulated scaffolding assembly, the combination of a plurality of spaced and vertically extendable columns having a lower cylindrical portion for engagement with a supporting surface and a telescoping upper portion, a modified horizontally extending lazy-tong linkage forming a spacing and stabilizing connection between said vertically extending columns, characterized by the fact that the extension of said lazy-tong linkage will determine the extension of said telescoping upper portion with respect to the lower cylindrical portion of said columns, and a vertically extending adjustable strut interposed between the upper and the lower links of said lazy-tong linkage by which the extension of said lazy-tong linkage and the spacing of said columns may be fixed when the scaffolding is in use, and characterized further by the fact that the vertically extendable adjustable strut between the links of the lazy-tong linkage consists of two permanently telescoping parts which, without any disconnection, will permit a complete collapse of said lazy-tong linkage for storage when the scaffolding is not in use.

3. In a completely articulated scaffolding assembly, the combination of a plurality of spaced and vertically extendable columns having a lower cylindrical portion for engagement with a supporting surface and a telescoping upper portion, a modified horizontally extending lazy-tong linkage connected between and forming a spacing and stabilizing connection between said vertically extending columns, characterized by the fact that the extension of said lazy-tong linkage will determine the extension of said telescoping upper portion with respect to the lower cylindrical portion of said columns and also characterized by the fact that said scaffolding consists of four vertically extendable telescoping columns with a similar modified lazy-tong linkage extending along all four sides of the assembly and characterized further by the fact that an extension of any one of said lazy-tong linkages will result in a corresponding extension and/or collapse of the other of said lazy-tong linkages.

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