March 23, 1948. W. J. S. JOHNSON ET AL 2,438,173

PORTABLE AND COLLAPSIBLE SCAFFOLDING UNIT

Filed June 24, 1946 2 Sheets-Sheet 1

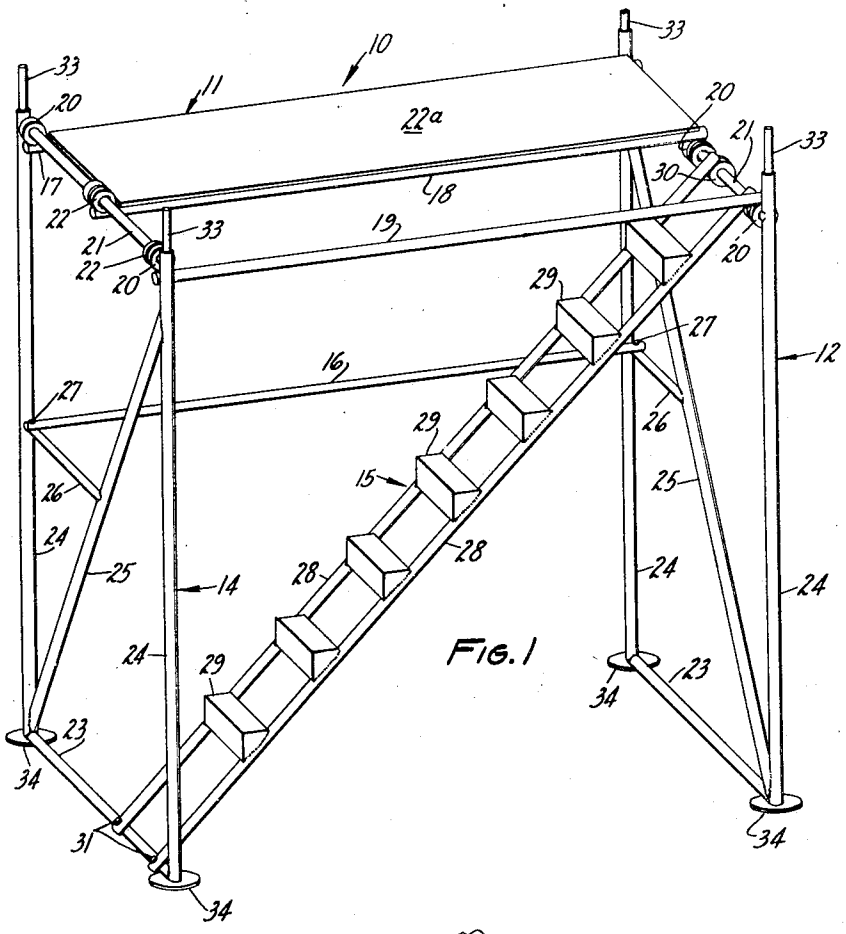


FIG. 1

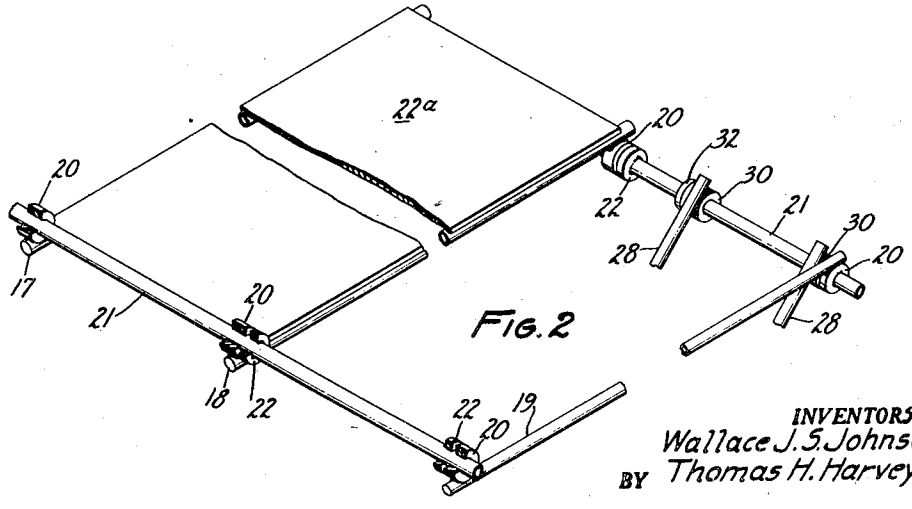


FIG. 2

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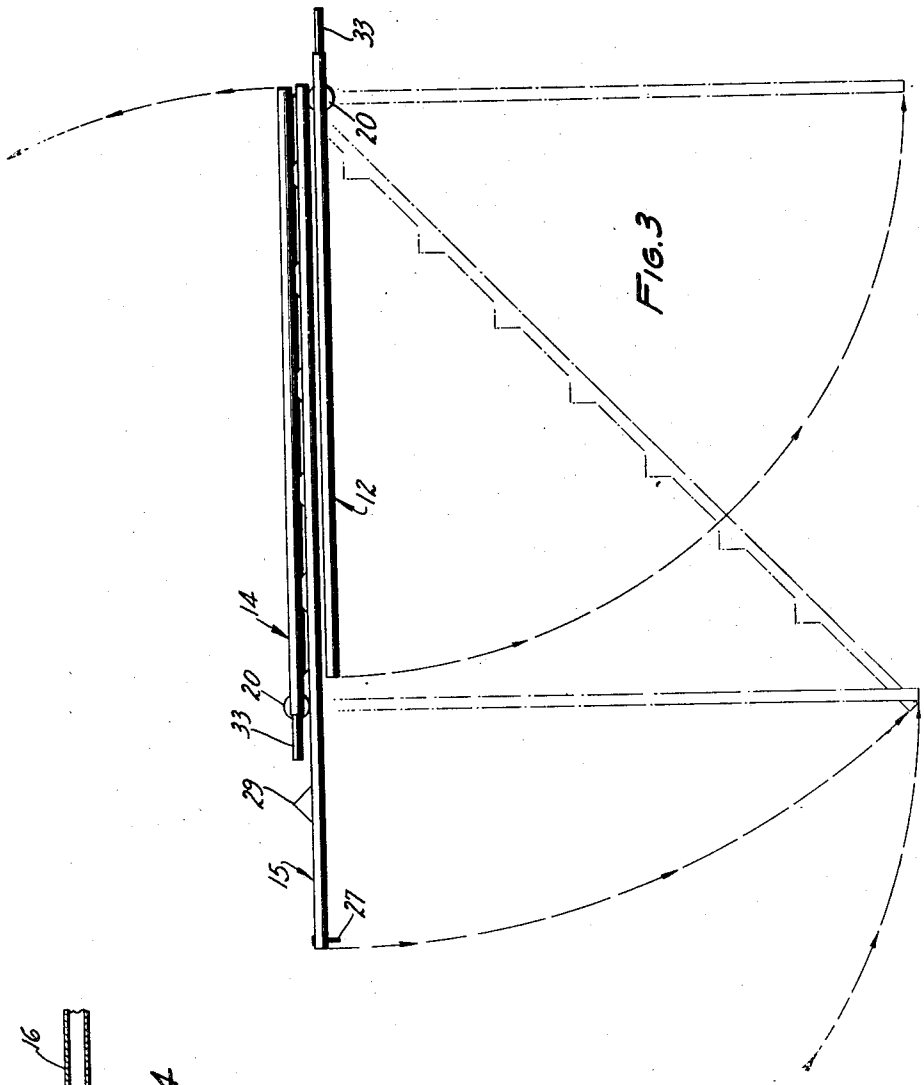


FIG. 3

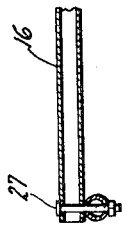


FIG. 4

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PORTABLE AND COLLAPSIBLE SCAFFOLDING UNIT

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11 Claims. (Cl. 304—2)

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This invention relates to scaffolds for use by builders and the like, and particularly pertains to a portable and collapsible scaffolding unit.

It is the principal object of our present invention to provide a generally improved portable scaffolding unit capable of being expeditiously erected for use or collapsed into a relatively small compact package for transportation or storage, which units may be readily superposed one upon the other to erect a scaffold of desired height.

It is a further object of our invention to provide a scaffolding unit of the character referred to which incorporates a ladder in its frame construction to provide safe ascent and descent for workmen.

In practicing our invention, we provide a scaffolding unit composed of a platform section, a pair of end sections and a ladder section, which are articulately connected so that they may be folded relative to each other into a flat compact bundle. The various components of the scaffolding unit referred to are so relatively proportioned and connected that the unit may be expeditiously erected into a rigid scaffolding unit at a desired location. The unit is so designed and constructed that any number thereof may be superposed upon each other to form a scaffold of a desired height.

One form which the invention may assume is exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a perspective view of a scaffolding unit embodying the preferred form of our invention.

Fig. 2 is a fragmentary view in perspective showing the platform section of the scaffolding unit and disclosing in detail the construction of the connections between it and the end sections of the scaffolding unit.

Fig. 3 is a view of the scaffolding unit in collapsed condition, diagrammatically illustrating the manner of its erection for use.

Fig. 4 is a view showing the manner in which the longitudinal brace is detachably connected to the end frames.

Referring more particularly to the accompanying drawings, 10 indicates a collapsible and portable scaffolding unit embodying the preferred form of our invention. This scaffolding unit is principally constructed of tubular Duralumin or the like, although obviously other materials may, if preferred, be employed.

The scaffolding unit 10 comprises generally a platform section 11, and sections 12 and 14, a ladder section 15 and a longitudinal detachable

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brace 16. The platform section 11 comprises three longitudinal frame members 17, 18 and 19, the frame members 17 and 19 being at opposite sides of the platform, while the frame member 18 is located substantially midway therebetween. The three frame members 17 to 19, inclusive, are, of course, in parallelism.

Each frame member 17, 18 and 19 at opposite ends is welded or otherwise firmly secured to a trunnion 20 rotatably mounted on the upper transverse frame member 21 of the adjacent end or supporting section. This forms an articulate connection between the platform section 11 and the upper ends of the supporting or end sections 12 and 14. Suitable collars 22 are welded on the frame members 21 of the end sections to prevent lateral movement or displacement of the frame members 17, 18 and 19 along the members 21.

A flat flooring 22a is secured on the platform section 11 overlying the frame members 17 and 18. This flooring 22a may be of plywood or any other suitable material of sufficient strength to support the weight of workmen or to suit conditions to which the scaffolding unit is to be put.

The end or supporting frames or sections 12 and 14 each comprise, in addition to their upper transverse frame member 21, a lower transverse frame member 23 and a pair of upright parallel supporting legs 24. The frame members 21 and 23 are welded at their ends to the leg or upright frame members 24, as illustrated. For the purpose of rigidity and strength, each end or supporting section includes a diagonal brace 25 and a transverse brace 26 extending between the diagonal brace 25 and one of the leg or upright frame members 24.

When the scaffolding unit is erected, we detachably connect the opposite ends of the longitudinal brace member 16 with the transverse brace members 26 by bolts, as illustrated in Figs. 1 and 4. When the scaffolding unit is to be collapsed for transportation or storage, the bolts 27 which connect it to the transverse braces 26 are removed to disconnect the longitudinal brace 16 from the unit itself.

As previously stated, the scaffolding unit also includes a ladder section 15 which provides a dual purpose of enabling the workmen to ascend or descend from the lower to the upper end of the scaffolding unit, and it likewise serves as a diagonal brace for the unit. This ladder section 15 of the scaffolding unit comprises two parallel tubular ladder bars 28 welded to which are treads 29. The upper ends of the ladder bars 28 are welded to trunnions 30 also rotatably mounted

on the transverse frame member 21 of the frame sections 12. At their lower ends the bars 28 are detachably connected to the bottom frame bar 23 of the end or supporting section 14 by bolts 31. It will be noticed from Figs. 1 and 3 that suitable collars 32 are provided to prevent axial movement of the trunnions 30 along the frame member 21.

It will be noticed that the upper ends of the vertical frame members 24 of each end section project slightly above the platform section 11 and are formed with pintles 33 of a diameter to be telescopically received in the lower ends of the legs 24 of a succeeding or superposed unit of the same construction. The lower ends of the tubular frame members 24 of the supporting frames are open so that they may be telescoped over pintles of a like scaffolding unit to be supported thereby in an upright position. We prefer to provide foot members 34 having pintles which can be telescoped into the lower ends of the frame members 24 for properly supporting the scaffolding unit on the ground when such members 34 are necessary or desirable.

In use, the scaffolding unit is constructed substantially as illustrated and as described herein and is erected in the condition shown in Fig. 1. A workman may ascend from the lower to the upper end of the unit by walking up the ladder 15, giving him access to the platform or flooring 22a of the platform section 11.

If the scaffold is to be of a height requiring a multiple of the units, they may be erected one upon the other in superposed condition by merely telescoping the lower ends of the frame members 24 of the supporting sections of each succeeding unit over the pintles 33 of the next lower section. By this medium the workman may safely ascend one unit after the other or descend as he desires. The ladder section is within the confines of the unit, as shown, and the space required for the scaffold is maintained at a minimum.

When the scaffolding unit is not in use, it may be folded into a relatively small and compact package by removing the bolts 31 and the bolts 27, thereby disconnecting the lower end of the ladder unit from the transverse frame member 23, and disconnecting the longitudinal brace 16 from the transverse braces 26.

The end or supporting section 14 is pivoted on the trunnions 20 until it lies at the top side of the platform section 11, and the ladder section is then pivoted until it lies in substantially the same plane as the platform section. Thereafter the end section 12 is swung upwardly under the ladder section at the side of the platform section 11 opposite the other supporting section 14. The longitudinal brace, of course, may be positioned longitudinally of the flat compact package thus formed of the scaffolding unit.

From the foregoing it is obvious that we have provided a scaffolding unit of improved construction which may be expeditiously erected into a condition for use or compactly folded for transportation or storage.

While we have shown the preferred form of our invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

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

1. A scaffold unit comprising a rigid platform section, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section hingedly connected at one end to the end of one supporting section at the junction between it and the platform section, and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section.

2. A scaffold unit comprising a rigid platform section, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section hingedly connected at one end to the end of one supporting section at the junction between it and the platform section and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section, and a brace extending between the supporting sections and detachably connected thereto at coinciding points intermediate the ends thereof.

3. A scaffold unit comprising a rigid rectangular platform section of open frame construction, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section hingedly connected at one end to the end of one supporting section at the junction between it and the platform section, a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section, and a brace extending between the supporting sections and detachably connected thereto at coinciding points intermediate the ends thereof.

4. A scaffold unit comprising a rigid rectangular platform of open frame construction, a rigid rectangular supporting section of open frame construction hingedly connected to each end of the platform section, a ladder section hingedly connected at one end to the end of the supporting section adjacent to the connection of the platform section, and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section.

5. A scaffold unit comprising a rigid rectangular platform of open frame construction, a rigid rectangular supporting section of open frame construction articulately connected to each end of the platform section, each of said supporting sections having a pair of side members, the opposite ends of which being shaped to form complementary parts of a telescopic joint, a ladder section articulately connected at one end to the end of one supporting section at the junction between it and the platform section and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section, and a brace means extending between the supporting sections and detachably connected thereto at coinciding points intermediate the ends thereof.

6. A scaffold unit comprising a rigid rectangular platform of open framework of tubular construction, a rigid supporting section of open frame tubular construction articulately connected to

each end of the platform sections, each of said supporting sections having a pair of tubular side members the ends of which are shaped so as to form complementary parts of a telescopic joint, a ladder section articulately connected at one end to the end of one supporting section at the junction between it and the platform section, a detachable connection between the other end of the ladder section and the other supporting section at the end thereof opposite its connection with the platform section, and a tubular brace extending between the said supporting sections and detachably connected thereto at coinciding points intermediate the ends thereof.

7. A scaffold unit comprising a rigid platform section, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section disposed between opposite sides of the platform section being hingedly connected at one end to the end of one supporting section at the junction between it and the platform section, and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section.

8. A scaffold unit comprising a rigid platform section, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section disposed to underlie the platform section contiguous to one side edge thereof being hingedly connected at one end to the end of one supporting section at the junction between it and the platform section, and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section.

9. A scaffold unit comprising a rigid platform section, a rigid supporting section at each end of the platform section, a hinged connection between adjoining ends of the platform and supporting sections, a ladder section disposed to underlie the platform section contiguous to one side edge thereof being hingedly connected to one end to the end of one supporting section at the junction between it and the platform section, a

detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section, and a floor covering for the platform section which does not overlie the ladder.

10. A scaffold unit comprising a rigid rectangular platform of open frame construction, a rigid rectangular supporting section of open frame construction hingedly connected to each end of the platform section, a ladder section disposed to underlie the platform section contiguous to one side edge thereof being hingedly connected at one end to the end of the supporting section adjacent to the connection of the platform section, and a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section.

11. A scaffold unit comprising a rigid rectangular platform of open frame construction, a rigid rectangular supporting section of open frame construction hingedly connected to each end of the platform section, a ladder section disposed to underlie the platform section contiguous to one side edge thereof being hingedly connected at one end to the end of the supporting section adjacent to the connection of the platform section, a detachable connection between the other end of the ladder section and the other supporting section at the end of the latter opposite its connection with the platform section, and a floor covering for the platform section which does not overlie the ladder.

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