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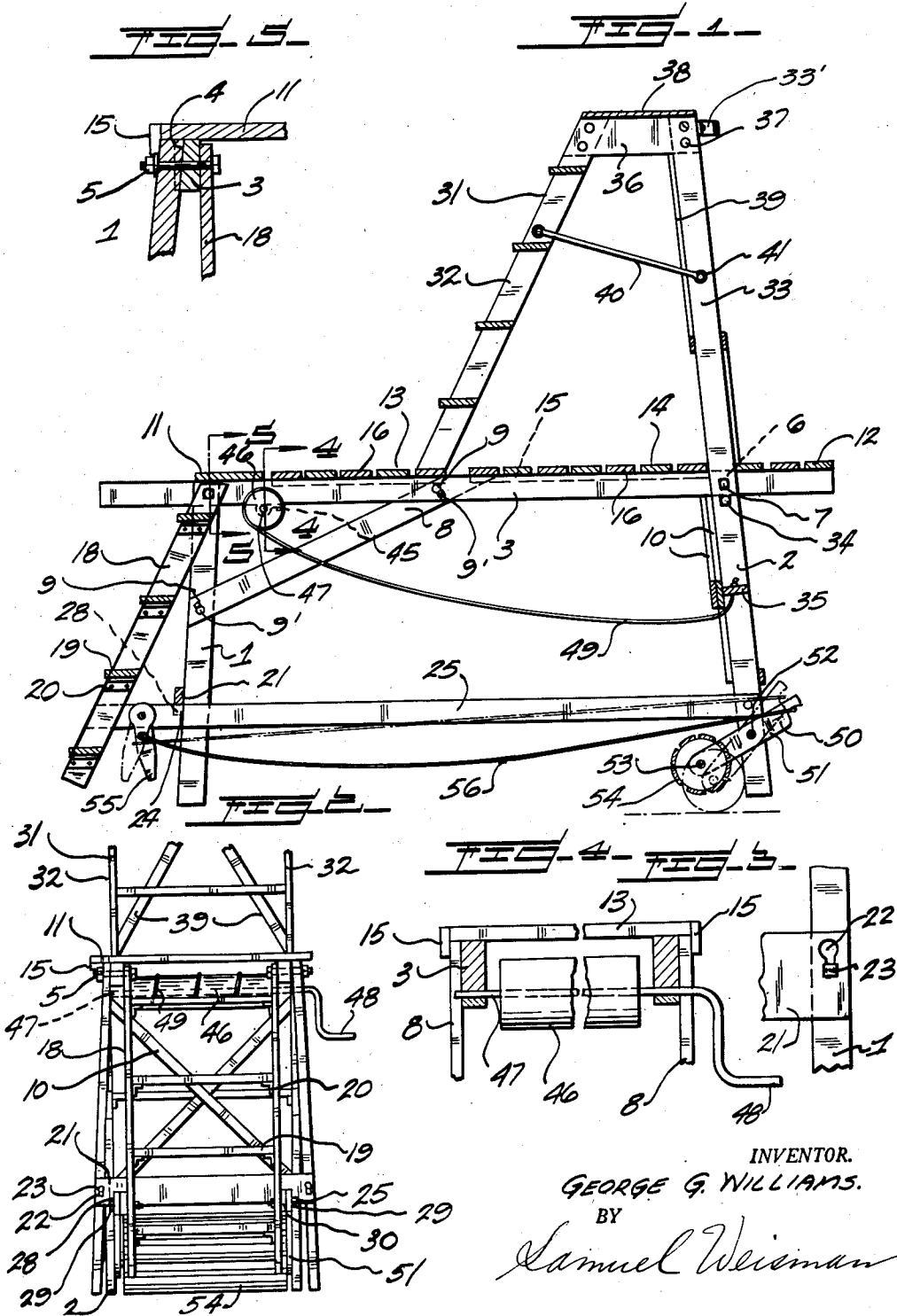
G. G. WILLIAMS

2,371,092

SCAFFOLD-LADDER

Filed Sept. 18, 1944

2 Sheets-Sheet 1



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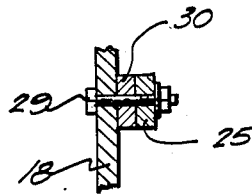
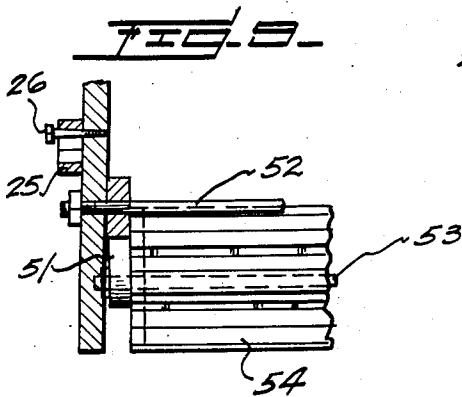
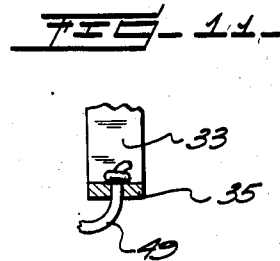
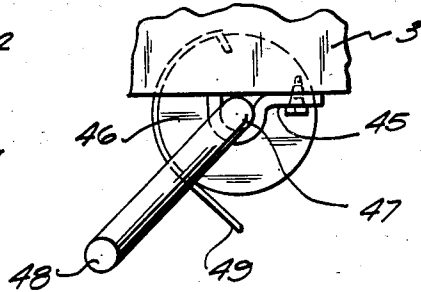
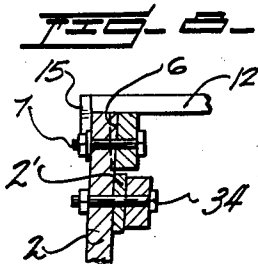
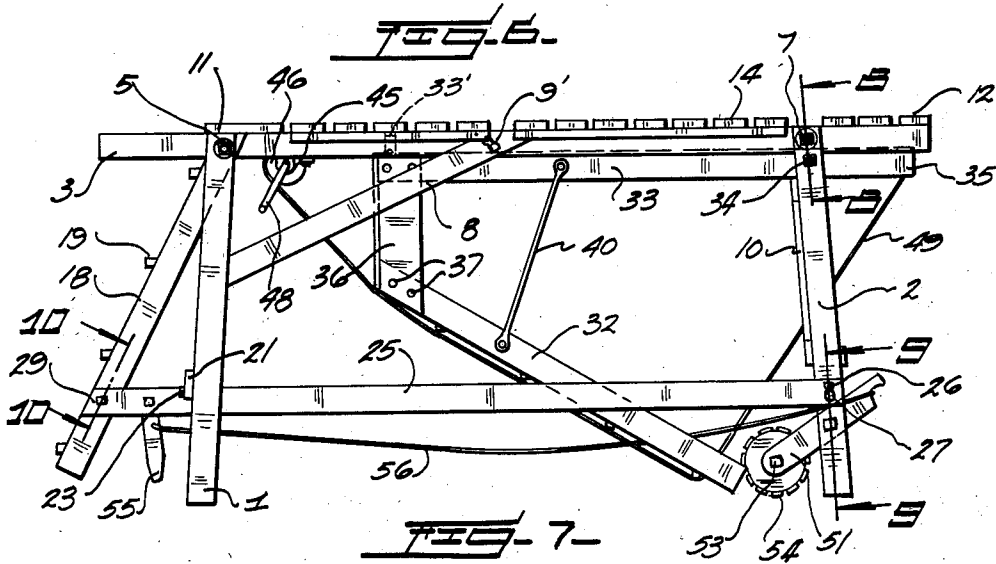
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UNITED STATES PATENT OFFICE

2,371,092

SCAFFOLD-LADDER

George G. Williams, Detroit, Mich.

Application September 18, 1944, Serial No. 554,602

5 Claims. (Cl. 228—2)

The present invention pertains to a novel combination scaffold and ladder suitable for both indoor and outdoor work such as building, repairing, painting and the like.

The principal object of the invention is to provide a scaffold with a step ladder mounted thereon in such a manner that it may either be erected upon the scaffold floor or dropped in an idle position beneath the floor. Another object is to provide such a device that can easily be wheeled from place to place. Still another object of the invention is to provide a device of this character that can easily be dismantled for shipping and storage.

In the accomplishment of these and other objects of the invention, the device includes a scaffold having forward and rear pairs of legs and fixed and removable floor sections. A step ladder, adapted to rest on one of the removable floor sections, has its legs pivotally attached to one of the pairs of scaffold legs. The ladder can thus be swung beneath the top of the scaffold, and the removable floor sections positioned to form a full length scaffold floor.

At one end of the scaffold frame is a pivotally mounted frame carrying a roller engaging the ground. A pair of handles is pivotally mounted at the other end of the scaffold frame and connected by ropes to the roller frame. When the handles are swung out to a horizontal position, the scaffold frame is lifted off the ground at the roller and may be pushed along in wheelbarrow fashion.

The invention also includes a drum and cable for slowly lowering the aforementioned step ladder and embodies another step ladder leading from the ground to one end of the scaffold floor.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which

Figure 1 is a vertical longitudinal section of the device, with the upper ladder erected;

Figure 2 is a rear end view;

Figure 3 is a detail elevation;

Figure 4 is a section on the line 4—4 of Figure 1;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a side elevation, with the upper ladder lowered;

Figure 7 is an enlarged detail elevation, and Figures 8, 9 and 10 are sections on the lines 8—8, 9—9, and 10—10 of Figure 6.

Fig. 11 is a detail elevation.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

In Figure 1 is shown a scaffold including forward legs 1, rear legs 2 and longitudinal upper rails 3. The forward legs slope downwardly for-

ward and diverge downwardly while the rear legs slope slightly rearward. The bracing for the legs will presently be described.

The outer surface of each rail 3 is formed near its forward end with a socket 4 to receive the upper end of the corresponding leg 1, which is secured therein by a bolt 5. Similarly the outer surface of each rail is formed near its rear end with a socket 6 to receive the upper end of the corresponding rear leg 2, which is secured therein by a bolt 7. From the outer surface of each rail 3, at approximately the midpoint, a brace 8 extends to the forward leg 1 at the same side, engaging the inner surface of the leg at approximately its midpoint. The ends of each brace 8 are fastened to the rail 3 and leg 1, for example, by lag screws 9 received in keyhole slots 9'. Cross braces 10 are fastened to the rear legs 2 and at the inner surface thereof for a purpose that will presently be described.

A floor section 11 is fastened across and upon the rails 3, extending a short distance rearwardly of the forward legs 1. A similar floor section 12 is fastened across and upon the rails rearward of the rear legs 2. These floor sections obviously provide further bracing for the scaffold frame. Between the fixed floor sections are provided two removable floor sections 13 and 14, the latter being slightly longer than the former and disposed rearwardly thereof. Each such section consists of a pair of parallel cleats 15 across which is secured a series of spaced and parallel cleats 16. The cleats are so spaced as to straddle the rails 3 when the floor sections are laid thereon, as illustrated. Transverse braces may be secured between the rails 3 if desired.

A ladder has the upper ends of its stiles 18 received between the rails 3 at the bolts 5, from which it is suspended. The ladder slopes forwardly and downwardly and may have its lower end spaced from the ground as shown. The steps 19 of the ladder are secured to the stiles by angle irons 20. Across the forward legs 1 is laid a brace 21 having upright keyhole slots 22 fitted on lag screws 23 in the legs. The lower edge of the brace 21 is formed with notches 24 vertically beneath the rails 3 for a purpose that will presently appear.

From each rear leg 2 extends a longitudinal brace 25 to a stile of the ladder 18—20 and attached to the leg by a screw 26 received in an inverted keyhole slot 27 in the brace. Each brace 25 has a notch 28 in its upper edge near its forward end, this notch interlocking with the corresponding notch 24 in the transverse brace 21. The brace 21 is thereby lifted, bringing the narrow portion of the keyhole slot 22 against the screw 23. The forward end of each brace 25 is secured to a ladder stile 18 by a bolt 29, with a filler block 30 of suitable thickness interposed.

A ladder 31 is supported upon the scaffold. The stiles 32 rest upon the floor section 13, while the section 14 is removed. The legs 33 of the ladder extend a distance downward between spacers 2' on the rear legs 2 of the scaffold and are pivotally attached thereto by a rod 34. The extended legs are preferably joined by a crossbar 35 and bear forwardly against the bracing 10, whereby the ladder is prevented from tilting backward.

The upper ends of the stiles 32 and legs 33 are secured to corner boards 36, each by a pair of bolts 37. On removal of one bolt of each pair and loosening the other at each stile, the stiles may be swung towards the legs to collapse the ladder for shipping or storing. A platform 38 is secured upon the members 36, and the legs 33 are braced by intersecting bars 39. Additional braces 40 are pivotally attached to the legs 33 and stiles 32.

On the lower edges of the rails 3, beneath the fixed floor section 11, are a pair of hooks 45. A drum 46 having an axle 47 is supported by the hooks receiving the axle, and the latter is formed at one end with a crank 48. A cable 49, or pair of cables, is attached at one end to the drum and at the other end to the extended ladder legs 33 or the crossbar 35.

The ladder 31 is dropped into the scaffold frame in the following manner. The crank 48 is turned to tighten the cable 49 so that the ladder will not swing forward. After removal of the floor section 14, the cable is unwound slowly, permitting the ladder to swing downward on the bolts 34 into the scaffold frame until the hooks 33' engage the rails 3, thus holding the lower ends of the legs 32 slightly above the ground, as shown in Figure 6.

The legs 33 now lie alongside of the rails 3, and both floor sections 13 and 14 may be laid upon the rails to form a full length scaffold floor, as shown.

Between the legs 2, at their lower ends, is mounted a roller frame consisting of a cross piece 50 and a pair of end pieces 51, the latter being pivotally attached at an intermediate point to the legs 2 by a swivel rod 52. The free ends of the members 51, opposite the cross piece 50, carry an axle 53 on which is mounted a slatted roller 54 engaging the ground.

A handle 55 is pivotally attached to the inner surface of each brace 25 between the notch 28 and fastening 29 thereof. Each handle may be swung forward and stopped in a horizontal position by engaging the lower edge of the adjacent filler block 30. Each handle is connected by a rope 56 to the roller frame 50-52 at points spaced upward from the pivot rod 52. Thus, on pulling the handles 55 forward and tightening the ropes 56, the rear legs 2 are raised slightly from the ground, and the entire device may be rolled from one place to another in wheelbarrow fashion.

The bolt and screw fastenings used throughout the device permit dismantling into small sub-assemblies and separate pieces. These may be packed compactly in a small space for economy in shipping and storing.

Although a specific embodiment of the invention has been disclosed, it may be understood that various alterations may be made in the details without departing from the scope of the

invention, as indicated by the appended claims.

What I claim is:

1. A ladder and scaffold combination comprising a scaffold frame having pairs of rear and forward legs and longitudinal rails joining the upper ends of said legs, a removable floor section adapted to be laid upon said rails, a step ladder having stiles adapted to rest on said floor section and having legs extended downwardly between and pivotally attached to a pair of said scaffold legs, whereby said step ladder may be swung beneath said rails on removal of said floor section.

2. A ladder and scaffold combination comprising a scaffold frame having pairs of rear and forward legs and longitudinal rails joining the upper ends of said legs, removable floor sections adapted to be laid upon and substantially cover said rails, a step ladder having stiles adapted to rest on one of said floor sections and having legs extended downwardly between and pivotally attached to a pair of said scaffold legs, whereby said step ladder may be swung beneath said rails on removal of said floor sections.

3. A ladder and scaffold combination comprising a scaffold frame having pairs of rear and forward legs and longitudinal rails joining the upper ends of said legs, a removable floor section adapted to be laid upon said rails, a step ladder having stiles adapted to rest on said floor section and having legs extended downwardly between and pivotally attached to a pair of scaffold legs, whereby said step ladder may be swung beneath said rails on removal of said floor section, and cross bracing between said pair of legs and engageable by said extended ladder legs in the upright position thereof to prevent swinging of said extended legs beyond said bracing.

4. A ladder and scaffold combination comprising a scaffold frame having pairs of rear and forward legs and longitudinal rails joining the upper ends of said legs, a removable floor section adapted to be laid upon said rails, a step ladder having stiles adapted to rest on said floor section and having legs extended downwardly between and pivotally attached to a pair of said scaffold legs, whereby said step ladder may be swung beneath said rails on removal of said floor section, a drum rotatably supported by said scaffold frame at a substantial distance from said pair of legs, a cable from said drum to said extended ladder legs to facilitate lowering of said step ladder.

5. A ladder and scaffold combination comprising a scaffold frame having pairs of rear and forward legs and longitudinal rails joining the upper ends of said legs, a removable floor section adapted to be laid upon said rails, a step ladder having stiles adapted to rest on said floor section and having legs extended downwardly between and pivotally attached to a pair of scaffold legs, whereby said step ladder may be swung beneath said rails on removal of said floor section, and cross bracing between said pair of legs and engageable by said extended ladder legs in the upright position thereof to prevent swinging of said extended legs beyond said bracing, a drum rotatably supported by said scaffold frame at a substantial distance from said pair of legs, a cable from said drum to said extended ladder legs to facilitate lowering of said step ladder.

GEORGE G. WILLIAMS.