

July 9, 1968

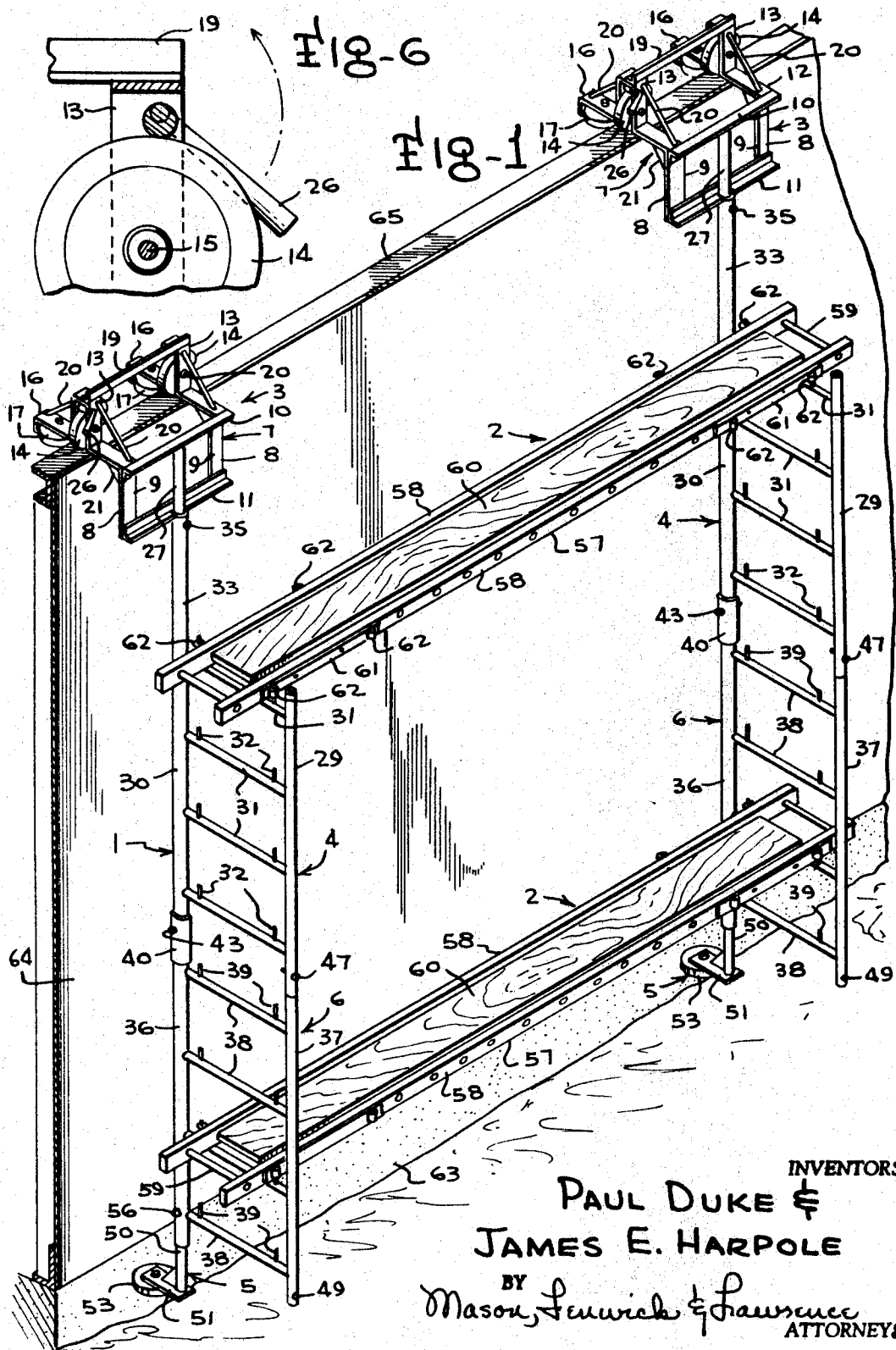
P. DUKE ETAL

3,391,757

SCAFFOLD

Filed Oct. 19, 1966

3 Sheets-Sheet 1



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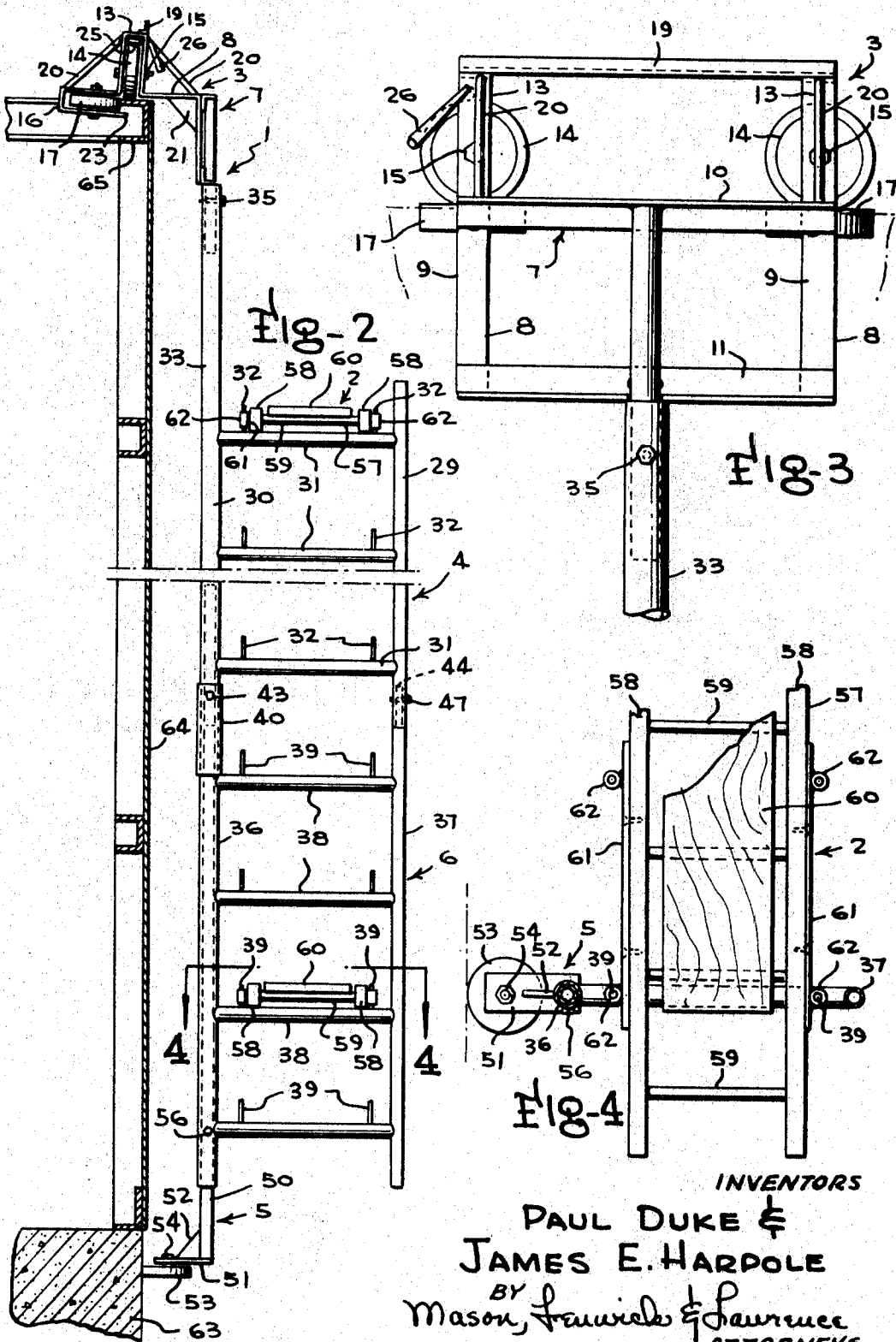
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3 Sheets-Sheet 2



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ABSTRACT OF THE DISCLOSURE

A scaffold composed of separable units for assembly to meet required conditions, including a pair of wheeled carriages for rolling along the top edge of a building wall, ladder-like supporting units telescopically connectible to each other in vertical alignment and to the carriage, scaffold boards connecting the supporting units to hold the units and carriages in spaced relation, and wall-bearing wheeled units telescopically connectible to the lowermost supporting units to bear against the building wall and take horizontal loads. Guards hold the carriages against accidental displacement, and brakes operate to lock the carriage wheels.

This invention relates to scaffolds, and more particularly to scaffolds which are mounted upon, and are movable along, a building wall.

Scaffolding of several types is now in use, such as the type wherein a scaffolding platform is suspended by ropes from overhead pulleys, or the sectional type wherein the scaffolding is built up of standard units as required. In all types, however, much time is lost in erecting the scaffold before workmen can begin their job, and much more time is lost in taking down the scaffolding and moving it to another position along a building wall when work at the first location has been completed. It requires as much time, if not more, to move the scaffold from one place to another along the wall, as it does to erect the scaffold in the first instance.

The general object of the present invention is to provide a scaffold which has a mounting carriage to seat upon, and roll along the top of, a building wall, so that the scaffold is freely movable along the entire length of the wall.

A more specific object of the invention is to provide a scaffold of sectional nature, which is supported top and bottom by contact with the wall of a building on which it is mounted.

Another object is the provision of such a sectional scaffold which can be assembled in any desired length by using as many intermediate pieces as may be necessary.

A further object of the invention is to provide a scaffold particularly adapted for use along the eave beam of a metal building, and when fitted in place on the eave beam will be locked against accidental displacement.

Still another object is the provision of a movable scaffold having braking means to hold the scaffold in positions of adjustment along a building wall.

Yet a further object of the invention is to provide a movable scaffold in which the wall-hung units are used in pairs with scaffold boards forming a platform between them.

It is also an object of the invention to provide scaffolding in which the wall-hung units have pins by means of which the scaffold boards can be locked to the units.

Other objects of the invention will become apparent from the following description of one practical embodiment thereof, when taken in conjunction with the drawings which accompany, and form part of, this specification.

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In the drawings:

FIGURE 1 is a perspective view of a scaffold embodying the principles of the present invention, with the scaffold being mounted upon the wall of a metal building;

FIGURE 2 is a vertical section through a side wall of a metal building, the scaffolding being shown in place thereon in end elevation;

FIGURE 3 is an enlarged side view of one of the mounting carriages for supporting the scaffold on the wall;

FIGURE 4 is a partial horizontal section through the scaffolding, taken on the line 4—4 of FIGURE 2;

FIGURE 5 is an enlarged sectional view of the upper and lower portions of the scaffold as seen in FIGURE 2;

FIGURE 6 is a further enlarged detail view, illustrating the brake mechanism; and

FIGURE 7 is an exploded perspective view of the elements making up one wall-mounted unit of the scaffold.

In general, the scaffold consists of two wall-hung units, each composed of an upper roller carriage and a lower roller bearing member, with one or more intermediate scaffold board supporting sections between the upper and lower members. A pair of these units in spaced relation with scaffold boards at one, or more, elevations bridging the units forms a complete scaffold.

Referring to the drawings in detail, it will be seen from FIGURE 1 that the scaffold is composed of two wall-bearing units 1, which ride along the top of a building wall, as will be described, and one or more scaffold boards 2. Wall-bearing units are held in horizontally spaced relation by means of the scaffold boards, so that the composite structure provides a platform which is supported from, and can move along the length of, a building wall.

Each of the wall-bearing units 1 is made up of a number of parts. There is a wheeled carriage 3, which forms a movable support from which the remaining members are suspended, a board supporting unit 4 connected to the carriage, a base wall follower member 5, and, if desired, one or more intermediate board supporting units 6.

Carriage 3 has an open frame 7, which includes a pair of horizontally spaced, generally L-shaped side frames 8. Vertical legs 9 of the side frames 8 are bridged at their top by an angle iron 10 and at their bottom by an angle iron 11 to hold the side frames in proper spaced relation. Horizontal legs 12 of side frames 8 have vertically offset, inverted U-shape portions forming arbors 13, in which rollers 14 are mounted upon shafts 15. The ends of legs 12 are bent downwardly and forwardly to form horizontal arbors 16 in which rollers 17 are mounted on shafts 18. The tops of arbors 13 are bridged by an angle iron 19, and suitable braces 20 and gussets 21 may be used to brace the angularly related sections of the side frames. The lower arm 22 of horizontal arbor 16 extends forwardly beyond the bearing surfaces of rollers 17, and its free end 23 forms a guard to prevent accidental slipping of the carriage from a building wall, as will be described. There is a shaft 24 extending across one of the arbors 13, which shaft carries an eccentric 25 to bear against the associated roller 14 to provide a lock, or brake, for the carriage. An operating handle 26 is provided for rotating the eccentric into, and out of, braking contact with the roller. Carriage 3 has a mounting post 27, secured to the angle iron members 10 and 11 of frame 7, to occupy a substantially vertical position and depend below the frame. That portion of post 27 below the frame may have one or more bolt openings 28 to permit rigid connection of the carriage to the board supporting unit 4. It will be noted from FIGURE 5 of the drawings that vertical legs 9 and horizontal legs 12

of the side frame are not arranged at a precise right angle. The slight deviation from right angular relationship will permit the complete unit to hang parallel with the building wall since the top leg of the eave beam is greater than a right angle.

Board supporting unit 4 is a ladder-like structure, having spaced vertical runners 29 and 30, between which there are a number of vertically spaced, horizontal rails 31 for supporting the scaffold boards 2. Each rail has vertically extending pins 32 near its ends, which form anchoring members for the scaffold boards, as will be described. Runner 30 projects upwardly some distance beyond the top of runner 29, to provide a mounting leg 33 for connecting the unit 4 to the mounting post 27 of carriage 3. The projecting portion 33 will have one or more openings 34 to receive a bolt 35, which will also pass through opening 28 in the carriage mounting post.

In some instances, it may not be necessary, or desirable, that the wall-bearing unit 1 have a length greater than that provided by the board supporting unit 4. In those instances, the wall follower base member 5 will be mounted directly to the unit 4. Where a longer supporting area is desired, one or more of the intermediate units 6 will be connected to the bottom of the supporting unit 4. Intermediate units 6 are very similar to the supporting unit 4, and are composed of side runners 36 and 37, held in spaced, parallel relation by rails 38. Rails 38 carry vertical pins 39 for mounting the scaffold boards. At the top of runner 36 there is a connecting sleeve 40, which is welded to the top of the runner. Sleeve 40 has a bolt opening 41 near its top. The sleeve is adapted to fit over the lower end of runner 30 of unit 4, or runner 36 of another intermediate section 6, and when a hole 42 near the bottom of rail 30 is in registry with opening 41 in the sleeve, a bolt 43 is put through the openings to secure the two units together. Runner 37 has a post 44 projecting from its top, which post fits within the lower end of runner 29 of the unit 4. Post 44 has an opening 45 for mating with an opening 46 near the bottom of runner 29 so that the two members may be secured together by a bolt 47. Runner 36 has another opening 48 near its bottom, and runner 37 has a bolt opening 49, to permit attachment to other sections, or for attachment of the wall following base member 5.

Member 5 is composed of a vertical leg 50 having a bracket 51 attached to its lower end and projecting at right angles from the leg. The bracket is braced by a suitable gusset 52, which extends between the leg and the bracket. A roller 53 is connected to the outer end of the bracket by a shaft forming means 54, with the roller lying horizontally for bearing contact with the face of a building wall. The member is mounted at the bottom of an intermediate unit 6 by inserting leg 50 into side runner 36, or at the bottom of board supporting unit 4 by inserting leg 50 into side runner 30. A set screw 56 is inserted through the opening at the bottom of the unit runners to lock the member 5 to the unit.

Scaffold boards 2 may be of any desired form, but are shown as composed of a ladder member 57, having the usual side rails 58 and rungs 59. A conventional board, or plank, 60, is laid upon the rungs of the ladder to provide a solid platform. Near each end of the ladder member 57, there is a mounting bracket 61, in the form of an elongated bar fixed to the outer sides of the side rails of the ladder. Each mounting bracket has one or more sockets, or eyes, 62 to receive the pins 32 of the supporting unit 4, or the pins 39 of the intermediate units 6. By having two, or more, sockets on each mounting bracket, a plurality of selective spacings of the wall-bearing units can be obtained.

Referring particularly now to FIGURES 1, 2 and 5, there is shown a metal building having a masonry foundation, or footing, 63, upon which there is a wall 64, capped by an eave beam 65 of channel cross section. When it is necessary to work on the building wall, two

of the wall-bearing units 1 will be assembled as required. Each will have a carriage 3, a supporting unit 4 and a wall follower base member 5. These units will be assembled as previously described, and bolted together. If the height of the wall requires it, one or more intermediate units 6 will be included in the assembly. In normal practice, the wall follower base member 5 will be mounted within the side runner of the unit above it to project sufficiently below that unit to permit its roller 53 to rest against the building foundation 63. When the wall-bearing units are assembled, their carriages will be mounted on the eave beam 65 of the building. The carriages will be supported by rollers 14 which rest upon the top flange of the eave beam. These rollers will carry the weight of the scaffold. Rollers 17 will bear against the back edge of the top flange of the eave beam to prevent the carriage from slipping forwardly off of the wall. It will be noted from FIGURE 5 that the guard ends 23 of the horizontal arbors 16 project inwardly beneath the upper flange of the eave beam when the carriage is in place, so as to lock the carriage on the beam and prevent its accidental removal. When the wall-bearing units are in place on the wall the scaffold boards are positioned between them. The selected sockets 62 of the mounting brackets will be inserted over the pins of the supporting units to hold the wall-bearing units in proper spaced relation. The scaffold boards may be mounted at one or more heights and permit workmen to occupy several levels on the wall. The brake handles 26 on the respective carriages will be operated to turn the eccentrics 25 into braking relation with the rollers 14 to lock the scaffold against movement during working periods. When the workmen have completed their jobs at a specific location, the brakes will be released and the scaffold can be moved along the wall by the workmen pulling against the building without leaving their places on the scaffold. When a new position is reached, the brake members will be operated to again lock the scaffold in its adjusted position.

With a scaffold constructed in accordance with the present invention, the several sections can be assembled as required to fit a specific building, but when the units are mounted upon the building an entire wall can be worked upon without disassembly. This results in a great saving of time. The sectional units are readily adaptable to assembly in different combinations to fit the assembly to any desired wall height.

While in the above one practical embodiment of the invention has been disclosed, it will be understood that the details of construction shown and described are merely by way of illustration, and the invention may take other forms within the scope of the appended claims.

We claim:

1. A set of scaffold components comprising, a pair of wheeled carriages for rolling support in spaced relation upon a wall top, each carriage having a depending mounting post, a plurality of ladder-like supporting units connectible to each other in vertical alignment and to the wheeled carriages, each ladder-like supporting unit having vertical, spaced, parallel side runners bridged by horizontal rails, one of said side runners being telescopically received over the mounting post of a wheeled carriage, means to releasably secure the said one runner to the mounting post to suspend a supporting unit from the carriage, the other of said side runners being spaced outwardly from said one runner to position the ladder-like supporting unit at right angles to the direction of rolling movement of the wheeled carriage from which it is suspended, a wheeled base member having an elongated mounting leg telescopically receivable in the said one side runner of a supporting unit to position the wheeled base member in rolling contact with a wall, means to releasably secure the mounting leg in the said one side runner in selected positions of telescopic adjustment, and at least one scaffold board to bridge the ladder-like sup-

porting units suspended from the wheeled carriages to hold the carriages and suspended ladder-like units in spaced relation.

2. A set of scaffold components as claimed in claim 1 wherein, there are means to interconnect the side runners of ladder-like units in vertical alignment. 5

3. A set of scaffold components as claimed in claim 1 wherein, each wheeled carriage has a guard to underlie a section of a building wall to prevent accidental displacement of a carriage from a wall.

4. A set of scaffold components as claimed in claim 1 wherein, there is a brake on each carriage to hold the carriage against rolling movement. 10

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