United States Patent [19]

Shingler

[11] **3,854,550**

[45] **Dec. 17, 1974**

[54] **MOBILE OUTRIGGER FOR SCAFFOLDS**

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[73] Assignee: **Cyclops Corporation,** Pittsburgh, Pa.

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[21] Appl. No.: **365,955**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 317,180, Dec. 21, 1972.

[52] **U.S. Cl.** **182/36,** 182/63, 182/118, 182/142

[51] **Int. Cl.** **E04g 3/10**

[58] **Field of Search** 182/36, 37, 38, 150, 142, 182/143, 144, 63, 179, 118, 119; 248/188.91, 188.5; 108/146

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[57] **ABSTRACT**

A mobile outrigger for scaffolds, which outrigger is in the form of a pair of transversely spaced trucks which are wheeled by casters on a roof to permit movement of the scaffolds laterally and vertically as well as toward or away from the building. The far ends of the trucks are weighted to counter-balance the weight of the scaffolds. The casters may be locked into any position following each 90° rotation. Extensions on the trucks are provided to allow them to turn the corner on the roof. Vertical adjustments may also be provided to clear parapets and other obstructions on the roof.

5 Claims, 7 Drawing Figures

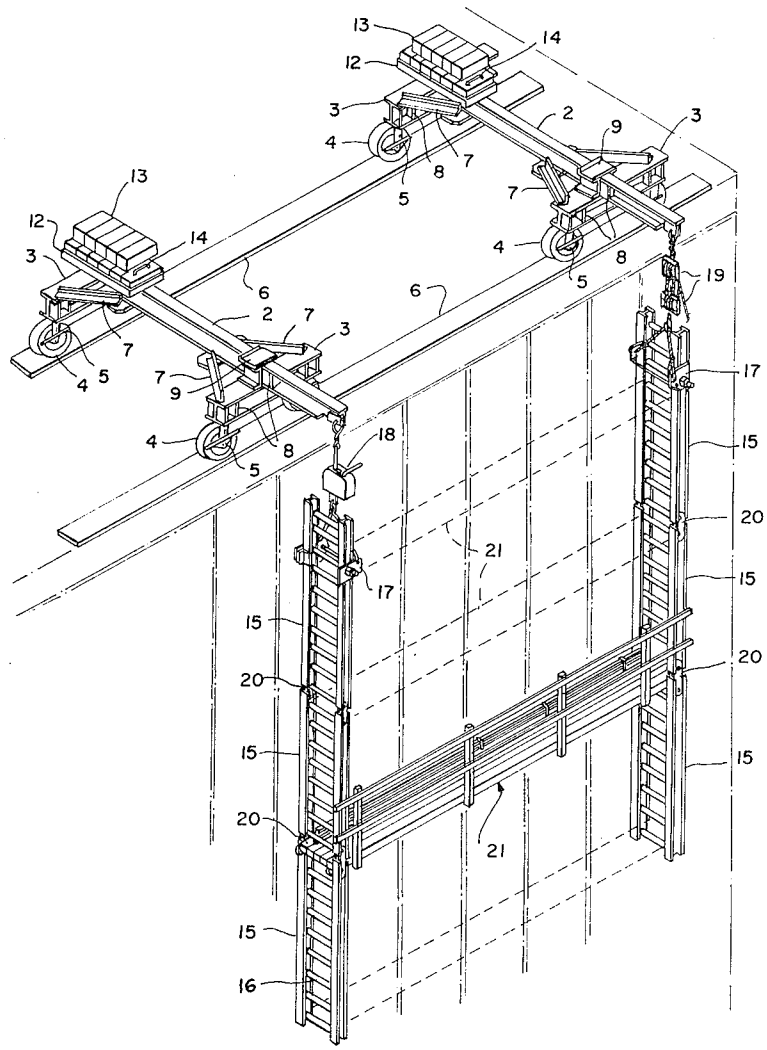


Fig.1.

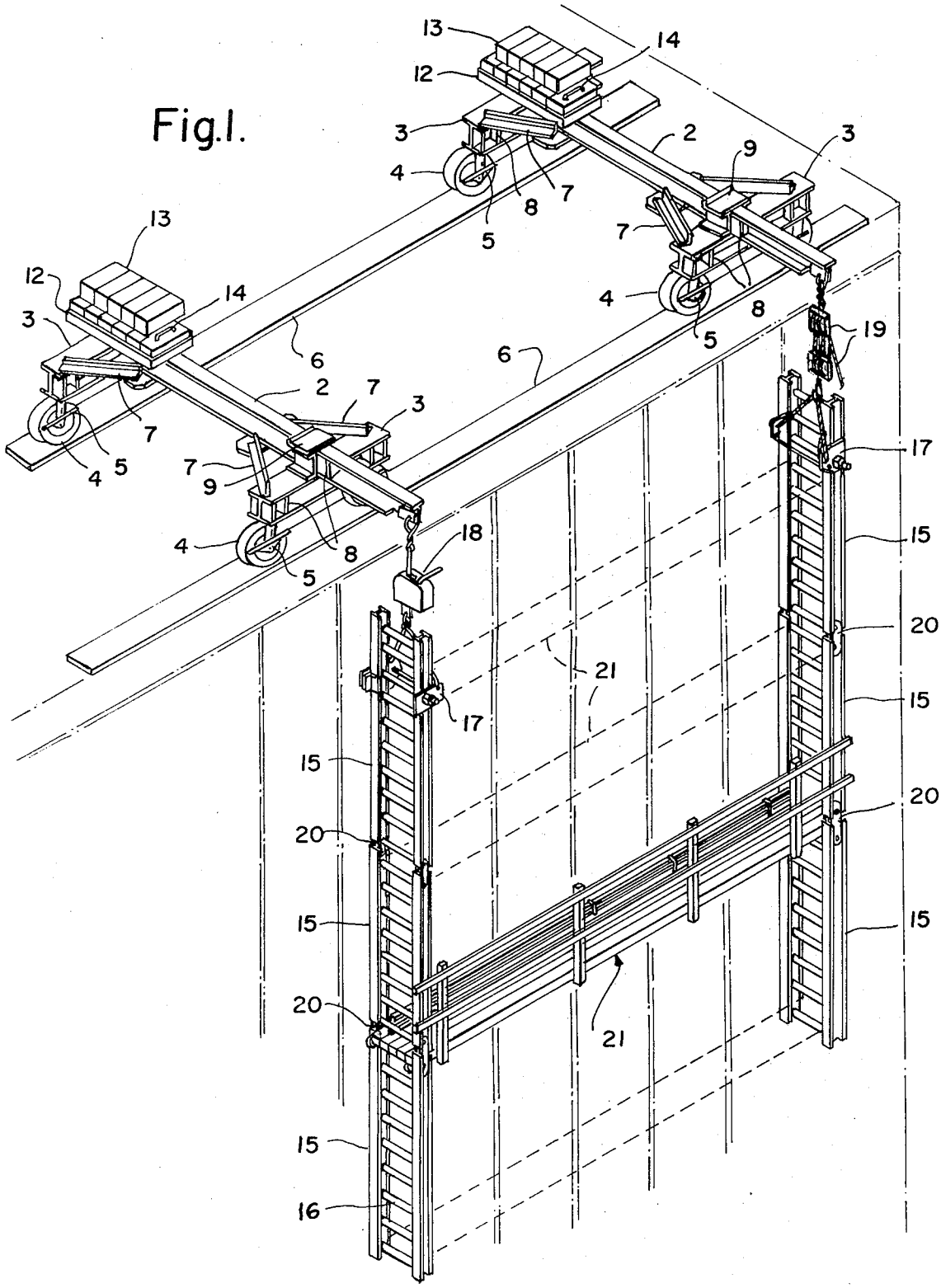


Fig. 2.

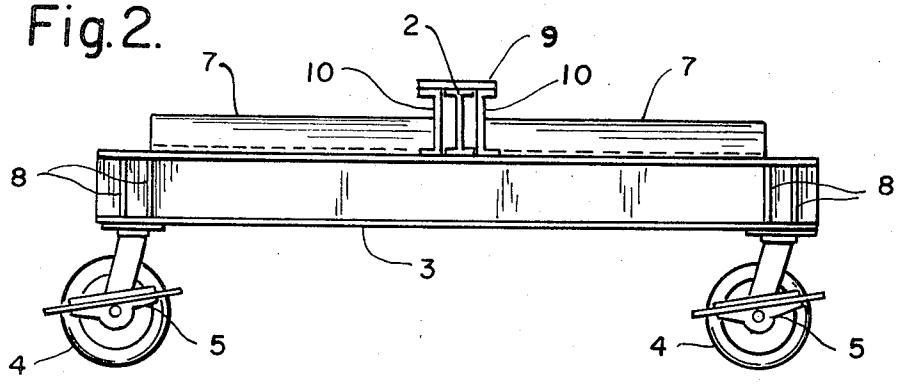


Fig. 3.

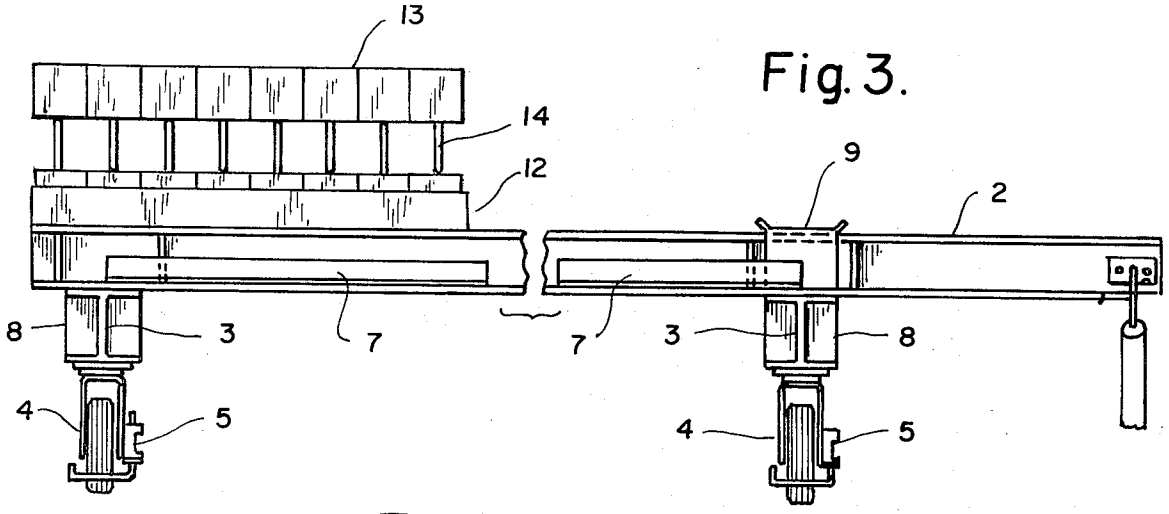


Fig. 4.

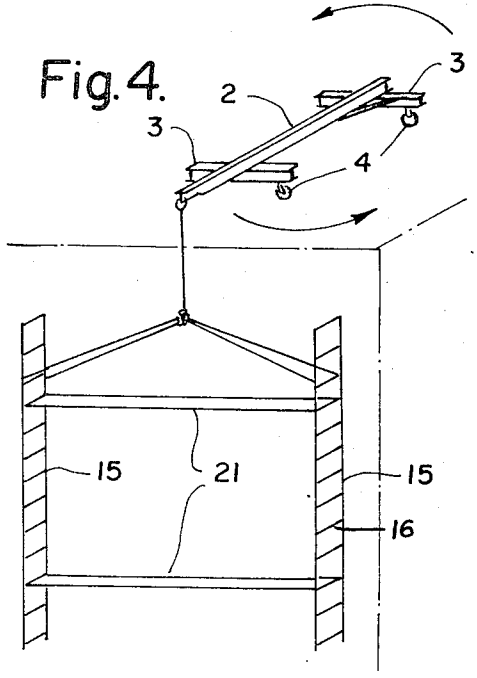
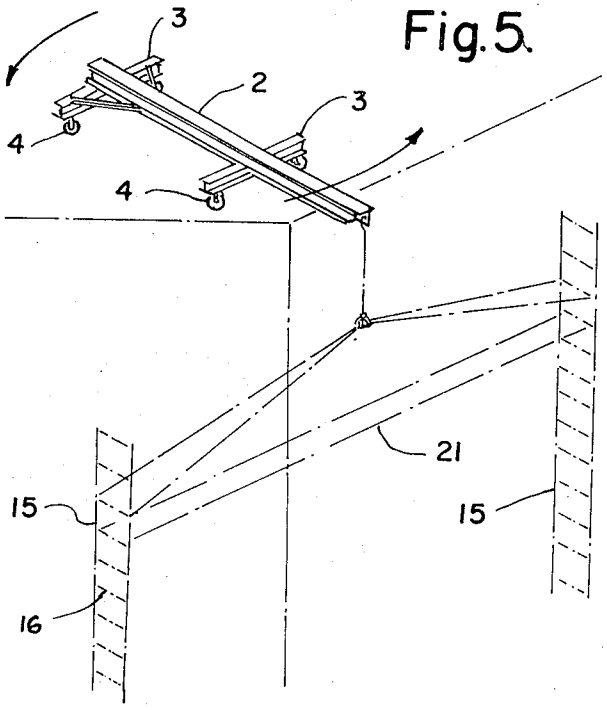


Fig. 5.



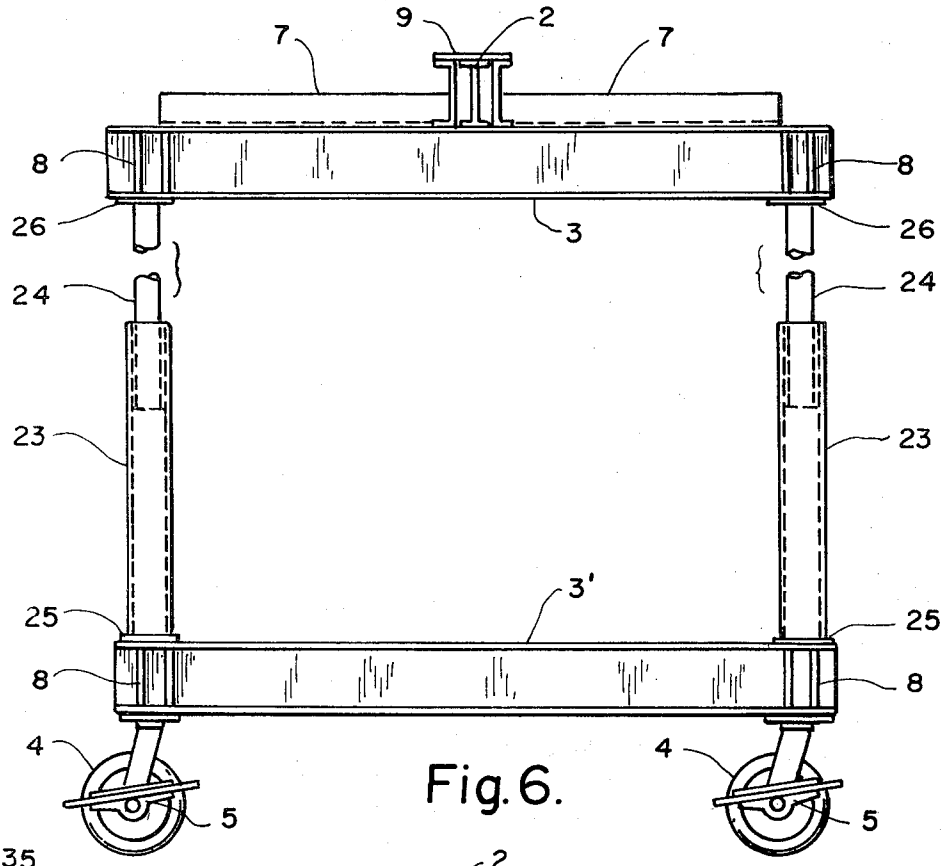

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Fig. 6.

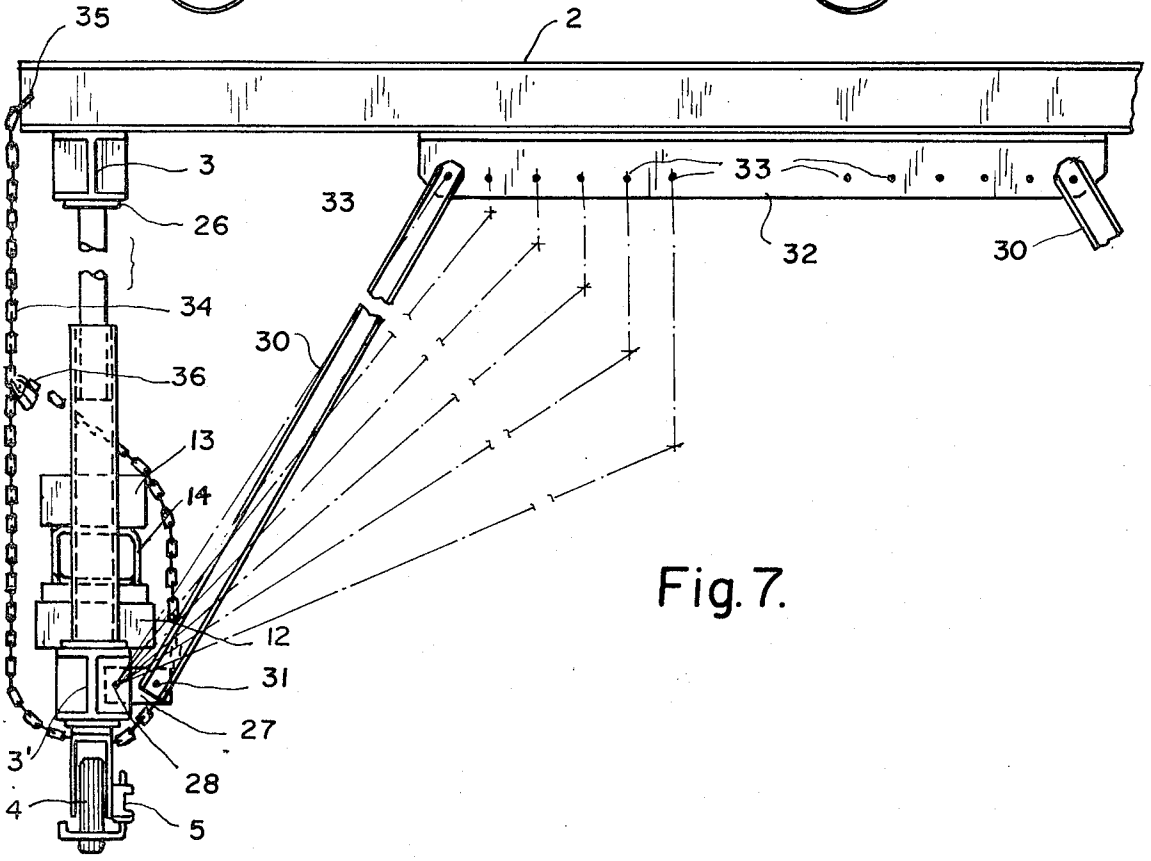

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Fig. 7.

MOBILE OUTRIGGER FOR SCAFFOLDS

This invention is a continuation-in-part of that described in my pending application Ser. No. 317,180, filed Dec. 21, 1972, entitled HANGING SCAFFOLDING.

The present invention relates to a mobile outrigger for adjustably suspending the scaffold described in the above identifed application.

An outstanding disadvantage of presently used devices for suspending scaffolds is that they require considerable time to erect and to move from one position to another, — often requiring complicated mounts which do not possess sufficient safety factors to give adequate protection to workmen on the scaffolds.

An object of the present invention is to provide a novel outrigger for scaffolds, which outrigger is mobile so as to be easily and quickly rolled from one fixed position to another to move the scaffolds sidewise and vertically relative to the face of a building, as well as toward and away from such face, in an exceedingly short space of time, and including means for effectively locking the outrigger in any selected position with maximum safety to the workmen.

Another object of the invention is to provide a mobile outrigger for scaffolds which may be rolled on top of a roof by casters so as to permit rolling in either a lateral direction or at right angles thereto, together with hoists for adjusting the height of the scaffolds so as to provide universal adjustment of the scaffolds relative to the face of the building to provide maximum convenience to workmen.

Still another object of the invention is to provide a wheeled outrigger or carrier for suspending scaffolds, which assembly is so constructed and adjustable as to enable turning of a corner on the roof as well as involving the capability of the outrigger of being raised adjustably in height to clear parapets and other obstructions on the roof.

Other objects and advantages will become more apparent from a study of the following description, taken with the accompanying drawings wherein:

FIG. 1 is a top, perspective view of a mobile outrigger and suspended scaffold combination or system embodying the principles of the present invention;

FIG. 2 is an enlarged side view of one of the trucks illustrated in FIG. 1 as viewed from the right thereof;

FIG. 3 is an enlarged end view of the trucks of FIG. 2 as viewed from the left of FIG. 1;

FIGS. 4 and 5 are schematic, perspective views illustrating how the mobile outrigger can move the scaffold assembly around a corner of the building;

FIG. 6 is a modification of the trucks illustrated in FIG. 2 embodying a vertical adjustable feature; and,

FIG. 7 is an end view of the structure shown in FIG. 6.

Referring more particularly to the drawings, FIG. 1 shows a mobile outrigger mounted on a roof for suspending a scaffold in a universally adjustable manner and embodying the principles of the present invention. The outrigger comprises a pair of light weight structural beams 2, preferably of aluminum, or possibly of steel, etc., on the outer ends of which are suspended a pair of ladders 15, 15 for supporting one or more decks 21. The outrigger and scaffold system illustrated in FIG. 1 is useful not only for erection of light gauge siding on the building, shown in dash and dot outline, but for other trades or glazers, window washers, curtain wall installers and the like.

Each truck or mobile carrier comprising the outrigger includes a beam 2 with an adjustable or telescoping feature supported on a truck 3 mounted on caster wheels 4 having pedal-controlled integral brakes 5 which lock the caster wheels and prevent rotation, — being capable to lock the caster effect in 90° increments of rotation. Thus the beams 2 not only translate back and forth across the eave of the building structure, but allow for in and out adjustment of the beams relative to the face of the building so as to move the scaffolding accordingly relative to the roof edge. This gimbalable feature provides complete freedom of movement at the roof level and allows for accurate and safe placement of the outrigger beam assembly.

Thus the scaffold may be easily and quickly moved along the face of the building and indexed and locked in any selected position, to prevent caster effect, as the work progresses.

Since roofing material are susceptible to damage from concentrated loads, the casters are set on planking 6 of wood, or possibly of metal, which serves as a track to dissipate wheel loads and further reduces the force required to move the rig as work progresses. All movement of the outrigger is done at roof level simply by pushing the beams 2 in the desired direction.

The trucks 3 permit the placement of caster wheels 4 on a wide center-to-center dimension or stance. This gives extreme stability to the outrigger beam, making "roll-over" of the beam impossible.

The transverse beams 3 are strutted into the outrigger beam by using angle ties 7 which prevent movement of one beam with respect to the other. The trucks and outrigger beams are provided with reinforcements 8, in the form of flanges or channels, to resist web crippling due to concentrated loads both at the point of suspension for the hoists 18, 19 and at crossing and caster connections.

The outboard truck 3 has mounted thereon an outrigger beam guide 9 to allow the outrigger beam 2 to be telescoped out away from the work surface far enough so that the scaffolding can be maneuvered around a building corner and clear all structural surfaces, as indicated schematically in FIGS. 4 and 5. This important feature replaces the need to completely disassemble a rig to maneuver a building corner and thus saves a large number of man hours.

Fasteners are provided to fix the trucks 3 relative to the outrigger beam 2 so that a predetermined ratio is established between the overhanging point of load and the inboard counterweight pan 12. By anticipating the weights of the ladders, hoists, picks (or decks) and the workmen, a nest of counterweights 13 can be assembled to counter-balance the scaffolding and offer resistance to overturn, multiplied by safety factors as required by local building codes and good engineering judgment.

The counterweights 13 are padlocked in the pan 12 by looping a chain therearound and connecting at points 35 and 36 (FIG. 7) so as to prevent accidental unloading that would endanger the working man. The counterweights have handles 14 to facilitate handling.

The mobile outrigger can be completely disassembled for ease of shipment, — assembly time being very minimal.

The outrigger beams **2** are used in conjunction with a ladder system **15, 15** with the ladder rungs **16** serving as tubular supports for the scaffold deck. The ladders have an offset connection point **17** at the top to allow both electric climbing unit **18** clearance when in the "pull-up" position, — also to provide an end barrier for a man working on a scaffold deck placed high on the ladder. A hand-operated block and tackle **19** may be used in place of the electric climbing unit. Of course, both units **18** and **19** may be either electric or mechanical, as desired.

The ladders **15** are preferably made of aluminum for light weight and strength with a cross-section adequate to resist any combination of loads, plus safety factors to which it may be subjected. Connectors **20** of high strength are fixed to each end so that the multiplicity of segments can be added end-wise at regular intervals. This will accomodate as many stages as deemed necessary for the particular application. The ladders may be provided in 8ft. lengths and are completely modular and interchangeable. This length gives each workman his "own zone" or area of operation immediately above or below the other workman. Thus they can handle long length siding units or conduct similar operations.

The stages or decks **21** (also called "picks") are secured to the ladder rungs by J bolts to fix the lateral dimension between ladders and prevent any slippage or unsafe conditions. Hand rail and toe plates, such as described in my abovementioned previous application, are fitted to the stages to provide a completely safe working area.

FIGS. **6** and **7** show a modification of the truck when it is necessary that the outrigger beam **2** clear a parapet or other obstructions on a building. By making the vertical corner post adjustable, by telescoping rods or pipes **24** into tubes **23,** provision is made for this clearance. The telescoping parts have incremental adjustments. Channel struts tie the telescopic legs into the under flange of the outrigger beam **2** for extreme rigidity.

These struts **30** may be selectively connected at a plurality of positions **33** in under flange **32** so as to provide a locus of possible adjustments, as indicated in dash and dot outline, so as to adjustably move the outrigger beam **2** to different vertical positions. The lower end of strut **31** is selectively connected to points **28** and **31** on flange **27** secured to the lower frame **3'**.

Thus it will be seen that I have provided an efficient, highly flexible and universally adjustable suspension system for scaffolds which enables very rapid adjustment of the scaffold vertically, horizontally, inwardly and outwardly, relative to the face of a building, — as well as enabling movement of the scaffold around the corner of the building and, at the same time, insuring maximum safety in suspension at any adjusted position of the scaffold; furthermore, I have provided a vehicular outrigger that may be adjustably wheeled and locked in place at different, selective positions of the roof in a very short time involving a small fraction of time normally required for repositioning the scaffold suspension; furthermore, I have provided a scaffold suspension involving maximum of safety as well as a minimum expense and time for performing various operations on the scaffold, such as installation of metal siding, cleaning, painting, etc.

While I have illustrated and described a single specific embodiment of my invention, it will be understood that this is by way of illustration only and that various changes and modifications may be contemplated within the scope of the following claims.

I claim:

1. In combination with a scaffold and suspension means therefor, a vehicular outrigger movably mounted on tracks on the roof of a building for moving the scaffold alongside the building and around corners thereof, comprising a pair of spaced parallel trucks, each in the form of a beam mounted on a pair of casters having brake means for locking the casters in any selected position, a beam guide mounted on and transversely of each truck, a beam extending transversely of said trucks and telescopically fitted through said beam guides and including an extension to adjustably move said suspension means and scaffold towards and away from the side of a building so that said scaffold can be maneuvered around a building corner and clear all structural surfaces, each truck being strutted into said transversely extending beam by a pair of angular extending ties integrally secured at each end to said truck and transverse beam, respectively.

2. The combination recited in claim **1** together with reinforcing flanges on said truck adjacent the point of suspension of said suspension means and adjacent each of said casters to resist web crippling due to concentrated loads.

3. A pair of separate and independently movable outriggers, each of the construction recited in claim **1,** each suspending a ladder of a pair of confronting ladders supporting said scaffold means, a plurality of selective weights mounted on the trucks on the inboard side of said outriggers for counterbalancing the weight of said ladders and scaffold means, and a chain for encircling and locking said weights on the inboard trucks.

4. In combination with a scaffold and suspension means therefor, a vehicular outrigger movably mounted on tracks on the roof of a building, comprising a pair of spaced parallel trucks each in the form of a beam mounted on a pair of casters having brake means for locking the casters in any selected position, a beam guide mounted on each truck, a beam extending transversely of said trucks through said beam guides and including a telescoping extension to adjustably move said suspension towards and away from the side of a building so that said scaffold can be maneuvered around the building corner and clear all structural surfaces, a beam underflange extending along and secured to the underside of said transversely extending beam, a pair of struts having one end pivotally connected to one of said trucks and the other end selectively pivoted at a plurality of positions in said under flange so as to provide a locus of possible adjustments of height of said transverse beam and so as to provide central, selective vertical clearances between said trucks to clear parapets and other obstructions in the roof.

5. The combination recited in claim **4** wherein vertically adjustable corner posts mount said beam on the ends of said trucks.

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