Jan. 13, 1953 A. SENSENBAUGH 2,625,443

ELEVATING SCAFFOLD

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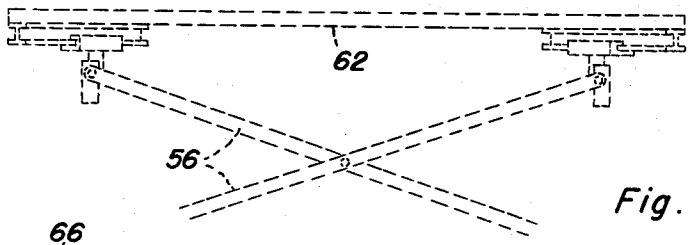
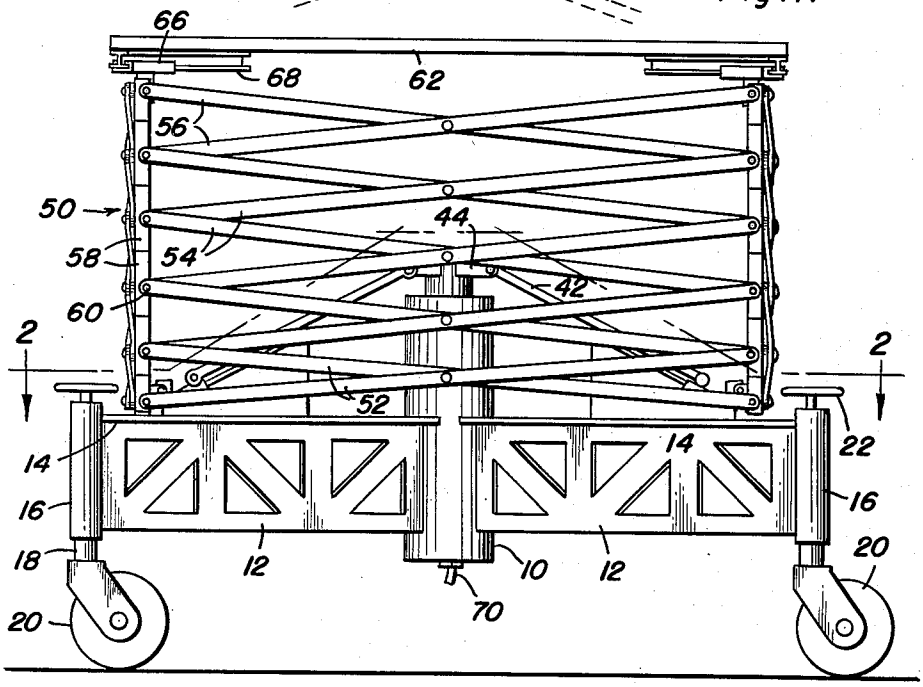


Fig. 1.



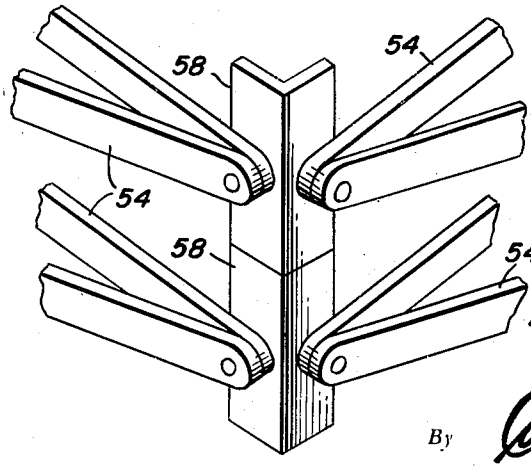


Fig. 7.

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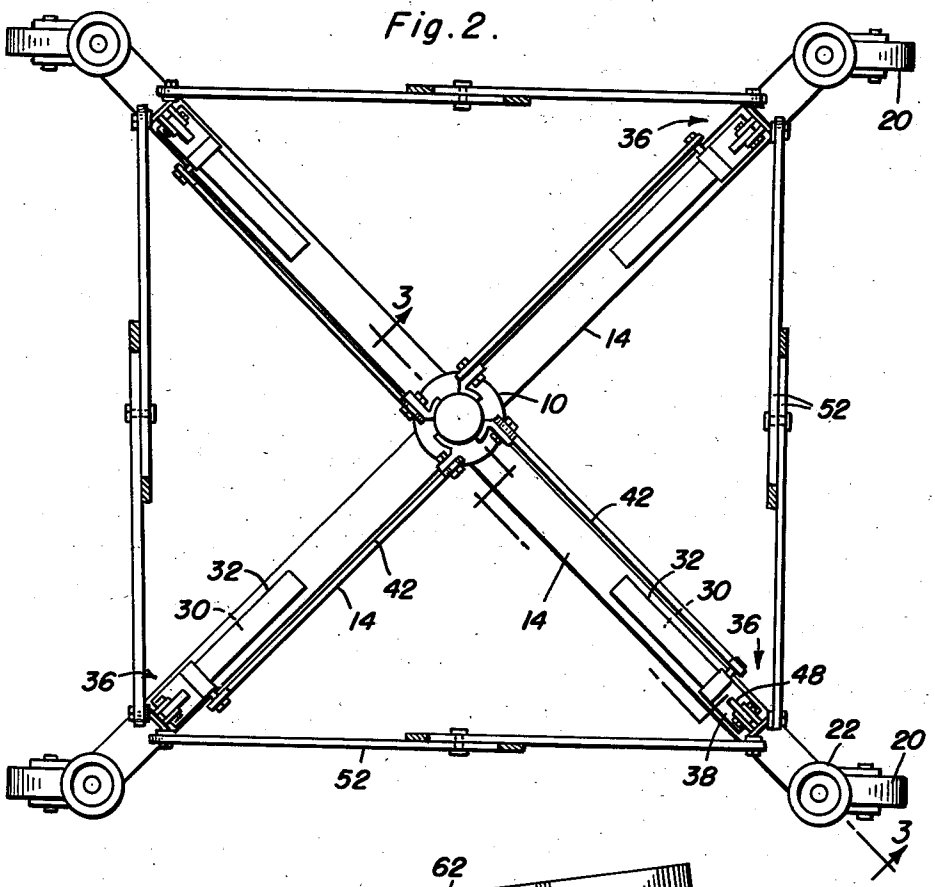
Attorneys

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Fig. 2.



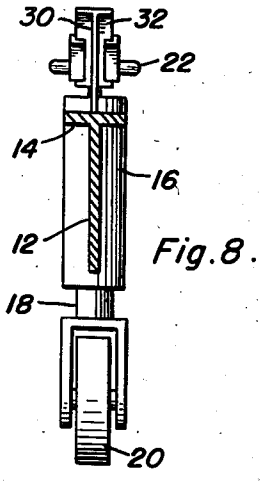


Fig. 8.

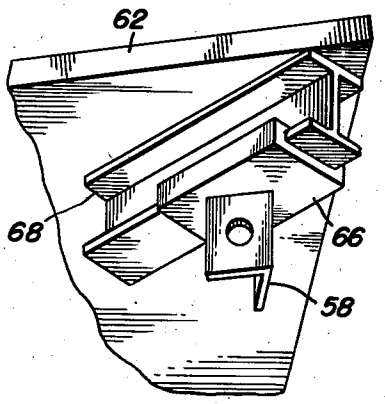


Fig. 9.

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Fig. 3.

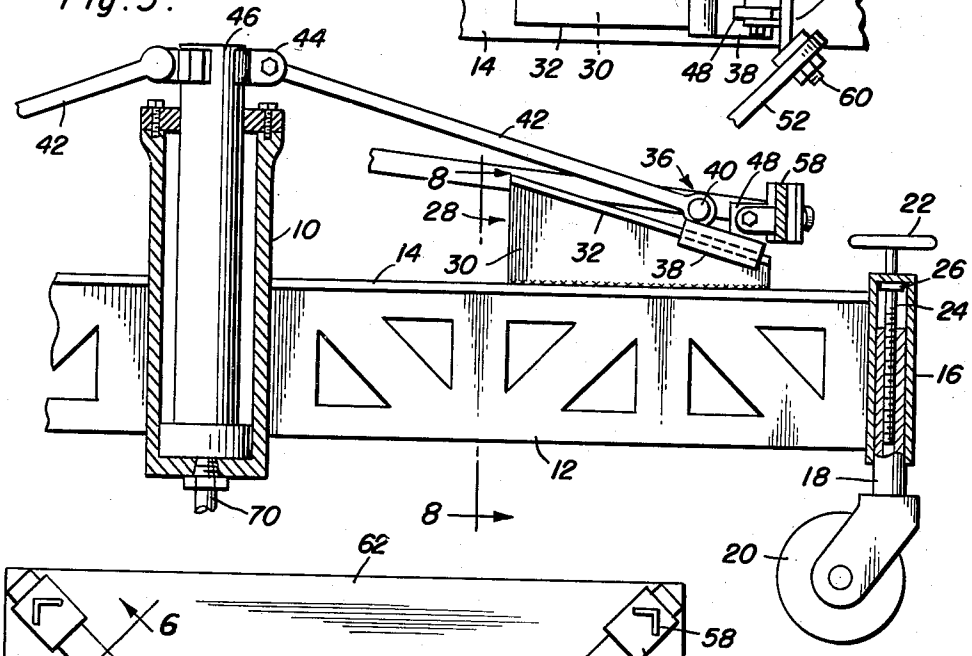


Fig. 5.

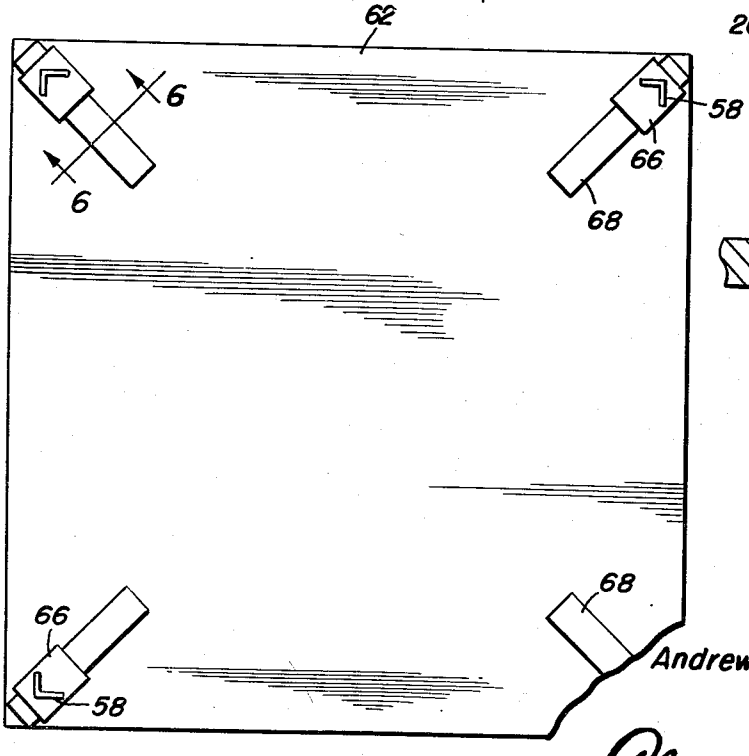
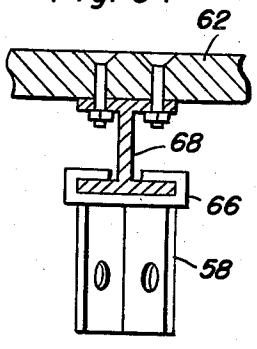


Fig. 4.

Fig. 6.



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UNITED STATES PATENT OFFICE

2,625,443

ELEVATING SCAFFOLD

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Application September 27, 1949, Serial No. 117,998

2 Claims. (Cl. 304—29)

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This invention relates generally to scaffolds and more particularly to the type sometimes described as "elevating" and collapsible and portable, the platform of the scaffold being supported upon a lazytong structure operated by a hydraulic cylinder and piston.

A primary object of this invention is to provide a scaffold which will be completely safe and steady, while allowing for easy portability and quick and easy elevation of the scaffold platform.

Another object of this invention, ancillary to the preceding objects, is to provide a scaffold in which the base is supported upon casters at the corners of the base, each caster being individually adjustable so that the base can be accurately leveled, even though the support for the base is not a level surface.

Another object of this invention is to provide a scaffold in which a minimum number of parts, each of reasonably light weight, are operatively assembled together so that repair and replacement on any one part is facilitated, without the disassembly of any great portion of the scaffold.

A specific object of this invention is to provide guides for the travelers in the lower portion of the lazytong structure designed to minimize friction and to facilitate the initiation of the upward movement of the lazytong structure and platform, this feature being particularly important when the platform is heavily laden with material and/or personnel.

Another object of this invention, closely allied to the immediately preceding object, is to provide an elevating scaffold in which the platform of this scaffold will not be subjected to undue vibrations or jerky motion, this feature improving the general efficiency of the scaffold to an important degree.

And a last object to be mentioned specifically is to provide a scaffold which is relatively inexpensive and practicable to manufacture, which is adapted for use under widely varied conditions, which is extremely convenient and safe to use, and which will give generally efficient and durable service.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawings which form a material part of this application, and in which:

Figure 1 is a side elevational view of the assembled scaffold;

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Figure 2 is a horizontal sectional view, taken substantially upon the line 2—2 in Figure 1;

Figure 3 is an enlarged fragmentary view showing in some detail the construction of a lower portion of the scaffold;

Figure 4 is a lower plan view of the platform;

Figure 5 is a fragmentary plan view of a guide on one of the beams of the base of the scaffold, with a traveler and parts operatively associated therewith shown fragmentarily;

Figure 6 is a vertical sectional view, taken substantially upon the line 6—6 in Figure 4;

Figure 7 is an enlarged fragmentary view, in perspective, of two of the parts hereinafter referred to as bases used in the corner constructions of the lazytong structure, this figure showing portions of adjacent lazytong bars;

Figure 8 is a vertical sectional view, taken substantially upon the line 8—8 of Figure 3, with certain portions removed; and

Figure 9 is a fragmentary enlarged view, in perspective, of a corner of the platform, the view being taken from the underside of the platform.

Similar characters of reference endeavor to designate similar or identical elements and portions throughout the specification and throughout the different views of the drawings.

Referring now to the drawings in detail, this invention includes a base having the hydraulic cylinder 10 disposed vertically and secured to radiating horizontal beams 12, illustrated as being four in number, and diametrically oppositely disposed with reference to the cylinder 10. Each of the beams 12 is T-shaped in vertical cross section, the top flange being indicated at 14. The beams 12 are supported at their outer ends upon caster constructions including hollow cylinders 16 integral with the outer ends of the beams, vertical axial members 18 carrying casters 20 on the lower ends thereof, and hand wheels 22 secured to the upper ends of threaded shanks 24 whcih are prevented from vertical movement within the hollow cylinders 16 and which are threaded into the axial members 18 to raise and lower the same with reference to the beams 12, so that the base of the scaffold can be leveled accurately.

A guide, generally indicated at 28, is rigidly secured to each of the beams 12, each guide including a vertical web 30 welded or otherwise rigidly secured to the flange 14 of the corresponding beam, and an inclined smooth surfaced rail 32 integral with the upper edge portion of the web 30. A similar number of travelers, generally

indicated at 36, are slidably mounted upon the rails 32, each traveler including a shoe 38 and a pivot pin 40 disposed horizontally for connection to the outer end of an inflexible link 42, the inner end of this link being pivoted, as indicated at 44, to a bracket carried by the upper end of a piston 46 operatively associated with the hydraulic cylinder 10, Figure 3 showing a construction in which links 42 are secured by brackets 44 to a piston rod portion of such a piston, it being understood this detail of the construction may be varied according to individual preferment and mechanical expediency.

Each of the travelers 36 is provided with an upstanding flange 48 and these flanges are used for indirect connection of the travelers with the lazytong structure generally indicated at 50 in Figure 1. The lazytong structure includes lowermost lazytong bars 52, intermediate lazytong bars 54 operated by the lowermost lazytong bars 52 and uppermost lazytong bars 56 operated by the intermediate lazytong bars 54. Vertical spacers 58, shown to advantage in Figure 7, are pivotally secured to the lazytong bars and these spacers have pivot pins provided in pairs and angularly disposed, as best indicated in Figure 5, so that the lazytong bars are right angularly disposed to each other at each corner of a square lazytong structure, as will be clear from an inspection of Figure 2.

The scaffold platform 62 will ordinarily be square and will be supported at its corners on shoes 66 carried by the uppermost spacers 58, as best illustrated in Figure 6, and slidably mounted on guides 68 which may be simple channel members secured to the under surface of the platform 62.

The operation of this invention will be clearly understood from a consideration of the foregoing description of the mechanical details thereof taken in connection with the drawings and the above recited objects.

In recapitulation, it might be pointed out that upon the subjection of pressure upon the piston 46 within the cylinder 10, a source of hydraulic pressure being diagrammatically illustrated at 70, an upward and inward pull will be exerted on the inflexible links 42, causing the travelers 36 to slide along the guides 28 with the resultant characteristic action of the lazytong structure 50 and the raising of the platform 62. It should be carefully noted that when this action is first initiated, the pull on the travelers 36 will be parallel to the rails 32, thus minimizing the friction between the travelers and the guides 28 and making it easier for the various elements concerned to start their movements smoothly. It may also be noted that the specific spacers 58 are designed so that the platform 62 is rigidly supported when the scaffold is in depressed position. The other objects and advantages already mentioned will also be clearly and amply achieved by this invention, and further description would appear unnecessary.

Obviously, minor variations from the embodiment described in the specification and illustrated in the drawings may be resorted to without departure from the spirit and scope of this invention, all within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. An elevating scaffold comprising a hydraulic cylinder, an even number of oppositely disposed radiating beams rigidly secured at their inner ends to said cylinder and together comprising a base, a guide on each of said beams, a traveler slidably mounted on each guide, a lazytong structure including lowermost lazytong bars each terminally and pivotally secured to a traveler, intermediate lazytong bars operated by the lowermost lazytong bars, and uppermost lazytong bars operated by the intermediate lazytong bars, a platform, guides on the lower surface of said platform and vertically coplanar with said guides on the beams of the base, shoes slidably mounted on the guides on the platform and pivotally secured to said uppermost lazytong bars, a piston operatively mounted in said cylinder, and links operatively connecting said piston to said travelers, said guides on the beams being inclined upwardly toward said cylinder, said links being substantially parallel with said guides on the beams when the scaffold is depressed, so that the friction between the travelers and the guides on the beams is minimized at the beginning of the upward extension of the scaffold.

2. A scaffold according to claim 1 and wherein said lazytong structure is horizontally square and said beams and the guides thereon are disposed diagonally of the lazytong structure.

ANDREW SENSENBAUGH.

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