Feb. 10, 1942. E. A. NOSER 2,272,349

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Filed July 21, 1941 2 Sheets-Sheet 1

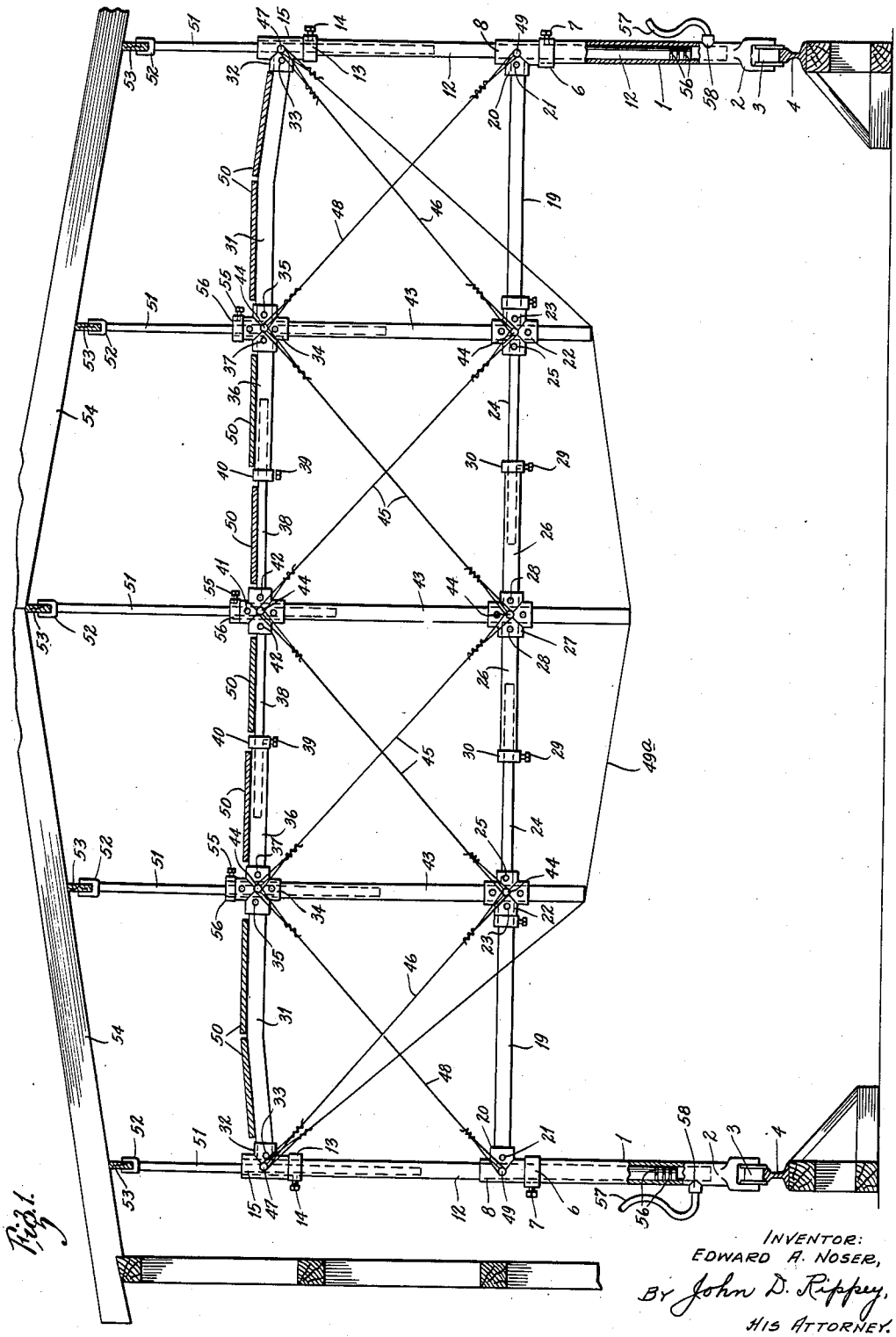


Fig. 1.

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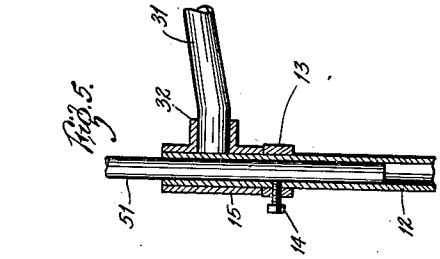


Fig. 5.

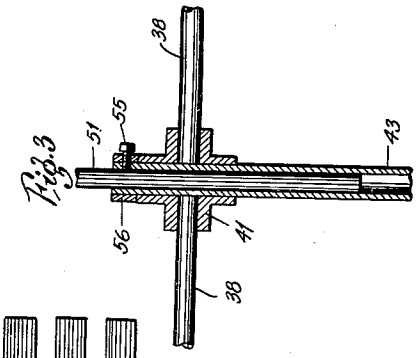


Fig. 3

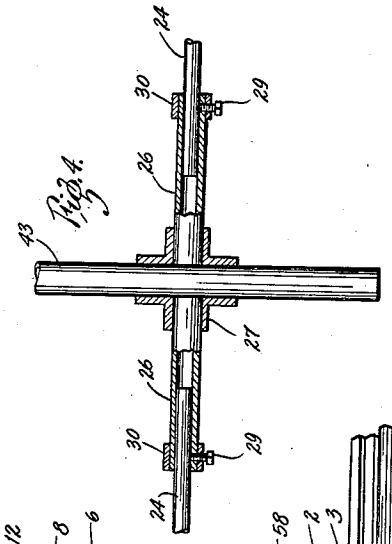


Fig. 4.

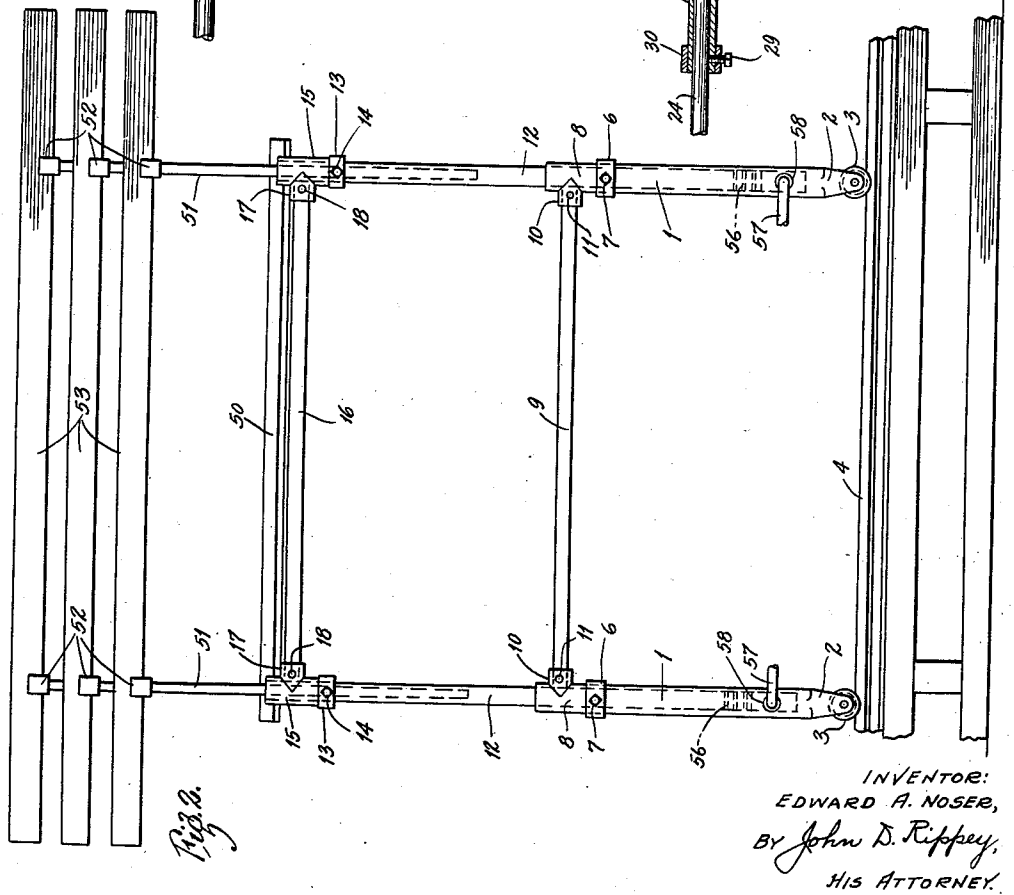


Fig. 2.

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2,272,349

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2,272,349

SCAFFOLD

Edward A. Noser, McAllen, Tex.

Application July 21, 1941, Serial No. 403,249

7 Claims. (Cl. 304—2)

This invention relates to laterally and vertically adjustable scaffolds; and has special reference to scaffolds used by workmen as supports or platforms for the workmen while they are performing different kinds of work on buildings and other structures.

An object of the invention is to provide an improved workmen's scaffold having two vertically adjustable upright end frames, substantially rigid telescoping elements forming longitudinal connections between said frames and permitting said frames to be adjusted toward or away from each other to reduce or to increase the length of the scaffold, elements for holding said telescoping elements rigidly in their different adjustments whereby flooring may be supported upon certain of said elements for supporting workmen, and connections attached to said end frames for supporting the intermediate structure of the scaffold in cooperative relationship with the end frames and the telescoping connection between them irrespective of the height to which the scaffold is extended.

Another object of the invention is to provide means supported by said end frames and by the intermediate longitudinally extendable structure of the scaffold for supporting the work, such as a roof or a floor, above the workmen's support.

Another object of the invention is to provide an improved scaffold for use by workmen constructing roofs or floors or performing other work on or in connection with buildings of relatively great height and width and length and comprising at least two upright supporting frames located at the ends of the scaffold, openwork frame structure connecting the end frames and holding them in rigid relationship, and devices in connection with the end frames for supporting said openwork frame structure irrespective of the height and length to which the scaffold is extended.

Various other objects and advantages will appear from the following description, reference being made to the annexed drawings, in which—

Fig. 1 is an end elevation of my improved scaffold.

Fig. 2 is a lateral side elevation.

Fig. 3 is a sectional view showing the means for supporting one of the central members of the scaffold adjusted to different heights.

Fig. 4 is a sectional view showing the means for adjusting the scaffold to different lengths.

Fig. 5 is a sectional view showing the means for adjusting one of the side members of the scaffold to different heights.

This scaffold is designed and adapted specially for use by workmen in the construction of roofs or ceilings of buildings, or in working on completed roofs or ceilings. To adapt the device to these purposes, it is provided with a pair of upright end frames which may be extended to different heights and reduced from such heights as desired in order that a single scaffold may be kept or used indefinitely and in buildings or structures of various lateral dimensions and heights. In desired instances, the scaffold may be provided with a track along which it may be conveniently moved from one place to another so that it is unnecessary to dismantle the scaffold for such movements.

In the specific embodiment of the invention shown, each end frame of the scaffold comprises a pair of tubular upright corner posts or standards 1 having bifurcated lower ends 2 equipped with rollers 3. These rollers may be of the flanged type, or of the grooved type as shown, for engagement upon and operation along parallel rails 4 providing a track for supporting the scaffold for movement from one place to another.

Each of the standards 1 has secured to its upper end a ring 6. The rings 6 are attached to the standards 1 by screw bolts 7 through the rings and engaging in holes in the standards 1. Upon each ring 6 a sleeve 8 is seated, said sleeves 8 being separate from but forming a continuation of the corresponding standard 1. The two sleeves 8 at each end of the scaffold are connected by a rod 9 which may be tubular or not, as desired, having its ends within tubular extensions 10 of the sleeves 8 and made rigid by fasteners 11, as shown.

Into each corner member comprising the standard 1 and the sleeve 8 mounted thereon a tube 12 has its lower end telescoping. Because the lower ends of the tubes 12 extend entirely through the sleeves 8 and into the standards 1 it is impossible for the sleeves 8 to become displaced from the standards 1. When the set screws 7 are clamped against the tubes 12 they hold said tubes from longitudinal movement in either direction. When said set screws are loosened the tubes 12 may be moved upwardly by the jack device so as to extend the height of the scaffold, or downwardly when pressure by the jack device is removed. Near the upper end of each tube 12 a ring 13 is mounted and secured thereto by a screw bolt 14 passing through the ring and into a threaded hole in the tube 12 (Fig. 5). These rings 13 constitute supports for sleeves 15 telescoped on the upper ends of the respective tubes 12. The sleeves 15 at each end

of the scaffold are connected by rods 16 which may be tubular or not, as desired, and which have their ends engaged in tubular arms 17 extending from the sleeves 15. The ends of the arms 16 are made rigid with the sleeves 15 by fasteners 18.

The two end frames thus provided are connected by strong frame construction comprising rigid members connected in such a way that the length of the scaffold may be extended or reduced, as desired. A tube 19 has its outer end extending into a socket 20 on each of the sleeves 8 and made rigid therewith by a fastener 21. A four-way fitting 22 is attached to the inner end of each of the members 19 by a fastener 23. Rods 24 which may be tubular or not, as desired, have their outer ends attached to the respective fittings 22 by fasteners 25 and their inner ends telescoping in the outer ends of horizontal tubes 26 attached to four-way fittings 27 by fasteners 28. Set screws 29 pass through rings 30 on the ends of the tubes 26 and also pass through said tubes 26 for releasable clamping engagement against the rods 24. Thus, it is apparent that a longitudinal connection between the end frames is provided and this longitudinal connection, while rigid, is also elastic in the sense that it may be extended or reduced as to length.

The sleeves 15 are similarly connected by tubes 31 having their outer ends secured in sockets 32 on the sleeves 15 by fasteners 33 and their inner ends attached to four-way fittings 34 by fasteners 35. From each four-way fitting 34 a tube 36 extends, the outer ends of said tubes 36 being made rigid with the fittings 34 by fasteners 37. Into the inner end of each tube 36 the outer end of a rod 38 is telescoped. The rods 38 may be tubular or not, as desired, and they are held in rigid relationship with the tubes 36 by set screws 39 passing through rings 40 on the ends of the tubes 36 and also passing through the tubes 36 for releasable clamping engagement with the rods 38. The inner ends of the rods 38 are made rigid with a four-way fitting 41 by fasteners 42. Thus, it is apparent that the upper connection between the end frames, while rigid, is also adjustable in the sense that it may be extended or reduced as to length in conformity with the extension and reduction as to length of the lower connection.

These two connections at each side of the scaffold are strengthened and reinforced and braced by vertical tubes 43 extending through the vertical arms of the four-way fittings 22 and 34, respectively, and through the vertical arms of the four-way fittings 27 and 41. These tubes 43 are rigidly secured to their respective fittings by fasteners 44 which also project and provide connections for tightly stretched wires or ropes 45 whereby the fasteners 44 on the four-way fittings 41 have strengthening connection with the four-way fittings 22; and the four-way fittings 27 have tight connection with the adjacent four-way fittings 34. The four-way fittings 22 similarly have tight connection with the sleeves 15 by wires or ropes 46 connecting the fasteners 44 with fasteners 47 on said sleeves 15. And the four-way fittings 34 are similarly connected with the sleeves 8 by wires or ropes 48 connecting the fasteners 44 with fasteners 49 on said sleeves 8.

The tubes 43 extend through and downwardly beyond the fittings 22 and 27 forming projections at their lower ends and providing connections for tightly stretched wires or ropes 49*a*. The upper ends of the wires or ropes 49*a* are attached to the fasteners 47 on the sleeves 15, while the intermediate portions of said wires or ropes engage and partially support said tubes 43. Thus, the wires or ropes 49*a* which have their ends attached to the end frames of the scaffold engage the intermediate structure and cooperate with said end frames to support and strengthen said intermediate structure of the scaffold.

It is now apparent that a rigid scaffold is provided and that the connections between the two end frames constitute supports for the boards or planks 50. As shown, these boards or planks are upon the upper connections, but it is apparent that they may be located upon the lower connections for lower work.

The jacks 5 may be of any known or preferred type. As shown, they are of the hydraulic type. The inner surfaces of the posts 1 are accurately bored and closed at their lower ends, and the exterior surfaces of the tubes 12 are machined to fit accurately within the bores of said posts 1. Packing rings 56 provide a tight connection between the posts 1 and the tubes 12 when they are in telescoped relationship. Thus, the construction comprises a piston within a cylinder. Liquid pressure hoses 57 are connected to the interior of the posts 1 by the couplings 58.

This scaffold may also be equipped with means for supporting the work such as the beams or rafters for roofs or work of different kinds. For this purpose I provide rods 51 which may be tubular or not, as desired, and which have their lower ends telescoping in the respective tubes 12 and 43. In the embodiment shown there are ten such rods 51, being the same in number as the number of tubes 12 and 43. The lower ends of these rods 51 which telescope into the tubes 12 are clampingly engaged by the set screws 14 so that said rods will be rigidly supported in whatever adjustment they are placed. Each of the rods 51 has on its upper end a fork 52 and in these forks 52 supporting members 53 are mounted, the same constituting supports for the work 54. The intermediate rods 51 are clampingly engaged by set screws 55 passing through rings 56 mounted on the upper ends of the tubes 43. The set screws 14 and 55 may be loosened to permit raising or lowering or removal of the rods 51 and may be tightened to hold the rods in different adjustments.

This scaffold is for use to support workmen engaged in working upon the understructure of floors or roofs and other elevated work. As shown, the parts 54 may be considered as representing rafters for supporting a roof above the workmen standing on the platform 50. These rafters are initially mounted on the removable cross-pieces 53 which, when desired, may be removed with the scaffold after the work has been completed.

From the foregoing it must be apparent that my invention is a strong and lasting scaffold which may satisfactorily be applied to many uses and to many classes of work. The various frame members of the scaffold may be detached and laid flat in storage so that when the device is not in use it will not occupy much room and may be readily reassembled for work of small or large dimensions both as to height and width as well as to length. The construction, arrangement and relationship of the various devices may be varied within equivalent limits without departure from the nature and principle of the invention. I do not restrict myself unessentially, but what I claim and desire to secure by Letters Patent is:

1. A scaffold comprising two extendible up-

right end frames, substantially rigid telescoping elements forming longitudinal connections between said frames and permitting said frames to be adjusted toward or away from each other to reduce or to increase the length of the scaffold while said end frames are in any of their extended positions, means for securing said telescoping elements rigidly in their different adjustments, means for applying liquid pressure to extend said frames vertically, means supported by certain of said telescoping elements for supporting the workmen, and means for supporting the work above the workmen's support.

2. A scaffold comprising two extendible upright end frames, substantially rigid telescoping elements forming longitudinal connections between said frames and permitting said frames to be adjusted toward or away from each other to reduce or to increase the length of the scaffold, means for securing said telescoping elements rigidly in their different adjustments, means for applying liquid pressure to extend the vertical length of said frames, means supported by certain of said telescoping elements for supporting the workmen, and means for supporting the work at different heights above the workmen's support.

3. A scaffold comprising two upright end frames, hydraulic means for extending the height of said frames, elements apart from said hydraulic means for holding said frames rigidly in their different extended positions, substantially rigid telescoping elements forming longitudinal connections between said frames and leaving said frames free to be adjusted toward or away from each other to reduce or increase the length of the scaffold, means for holding said telescoping elements rigidly in their different adjustments, and parts attached to said end frames supporting portions of said telescoping elements between said end frames irrespective of the height of said end frames.

4. A scaffold comprising two vertically extendible upright end frames, telescoping elements forming longitudinal connections between said frames and leaving said frames free to be extended or reduced as to height and to be moved toward or away from each other to vary the length of the scaffold, parts attached to said elements between said end frames, and supporting devices having their ends attached to said end frames and their intermediate portions engaging said parts and supporting said elements between said end frames.

5. A scaffold comprising two vertically extendible upright end frames, hydraulic means for extending the height of said end frames, elements apart from said hydraulic means for holding said end frames rigidly in any extended adjustment thereof, telescoping elements forming longitudinal connections between said end frames and leaving said frames free to be extended vertically by said hydraulic means and to be adjusted manually toward and away from each other to vary the length of the scaffold, parts projecting from said elements, devices attached to said end frames and engaging said parts and supporting said elements between said end frames, and means supported by certain of said telescoping elements for supporting the workmen.

6. A scaffold comprising two upright end frames, telescoping elements forming longitudinal connections between said frames and leaving said frames free to be adjusted toward or away from each other to vary the length of the scaffold, projections from said connections, devices attached to said end frames and engaging said projections to support the intermediate portions of said elements between said frames, and means for supporting the work above the scaffold.

7. A scaffold comprising two upright end frames, telescoping elements forming longitudinal connections between said frames and leaving said frames free to be adjusted toward or away from each other to vary the length of the scaffold, projections from said connections, devices attached to said end frames and engaging said projections to support the intermediate portions of said elements between said frames, means supported by certain of said elements for supporting the workmen, and devices attached to said end frames and to said telescoping elements for supporting the work above said workmen's support.

EDWARD A. NOSER.