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SCAFFOLD JACK AND LADDER

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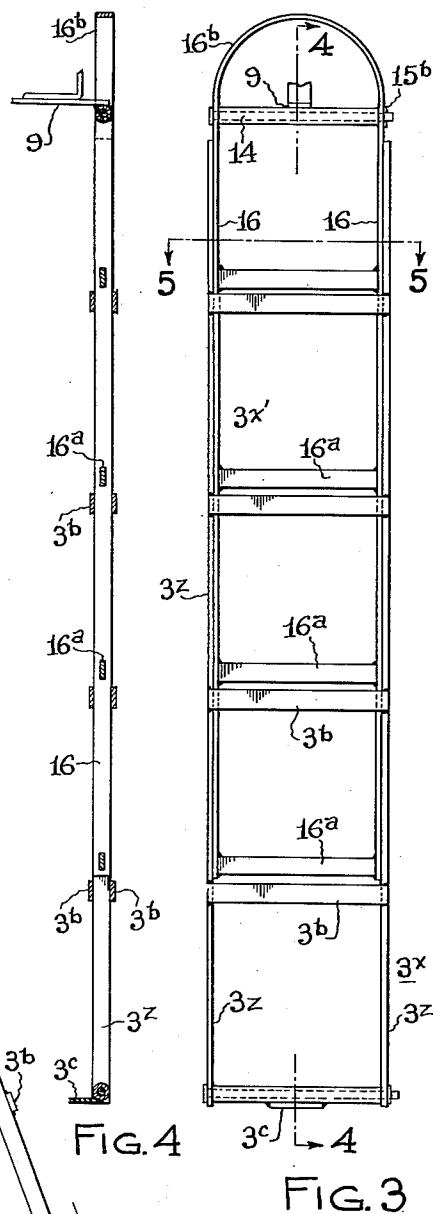
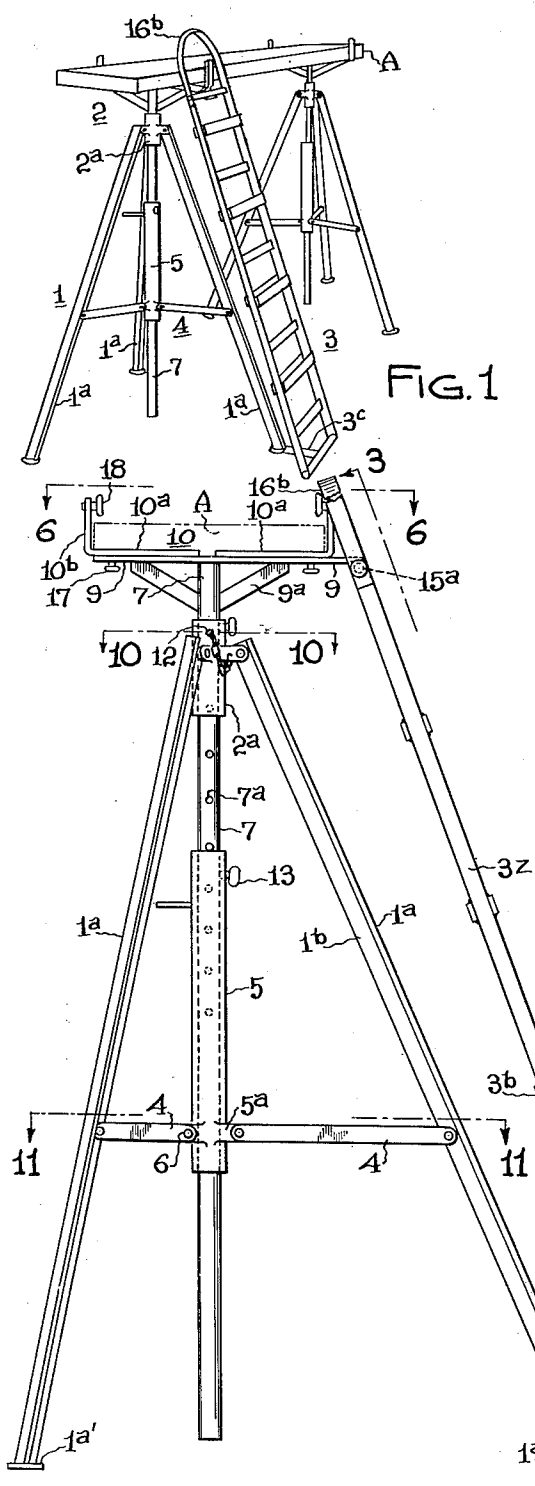


FIG. 2

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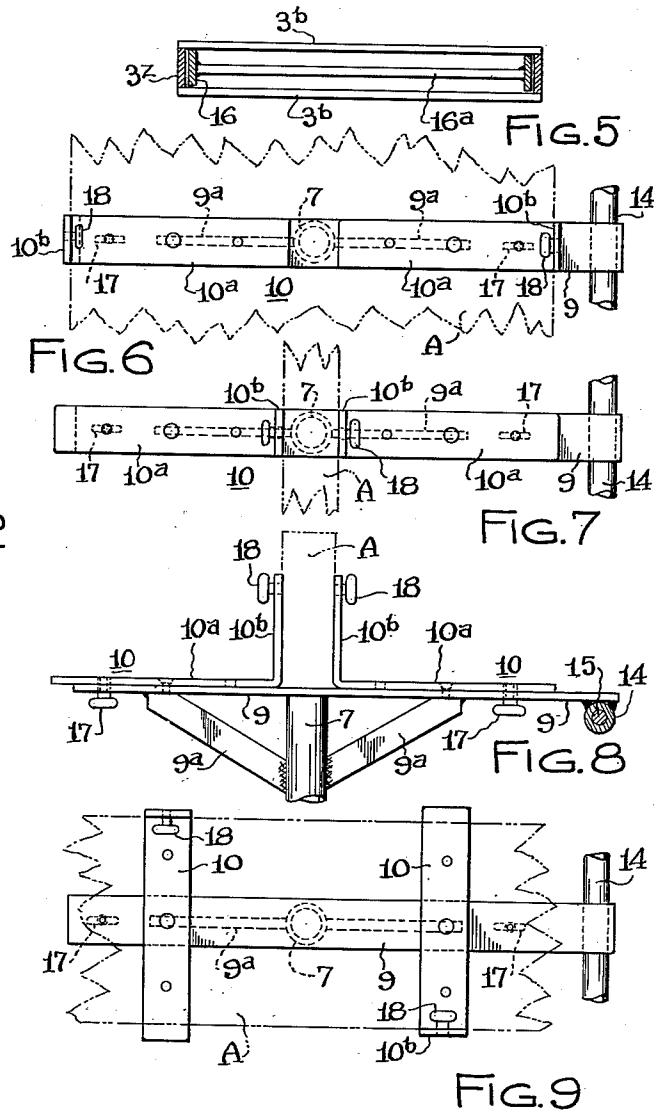
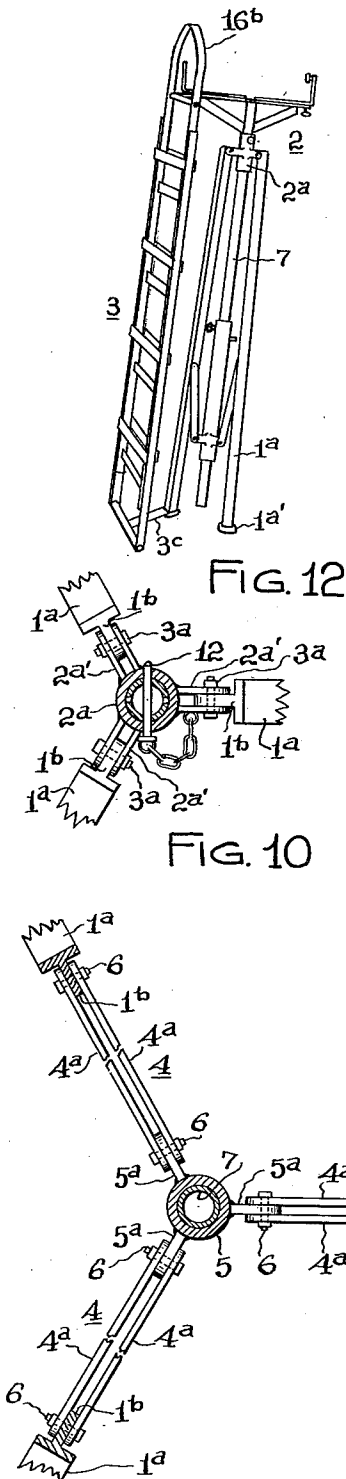


FIG. 11

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3 Claims. (Cl. 304—4)

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This invention relates to equipment for use by mechanics and masons where the work involved is above the floor level, more specifically a unitary assembly consisting of an adjustable support for a portion of a scaffold combined with an extension ladder to facilitate both time and labor.

One object of the invention is to provide an improved equipment of this type capable of being readily collapsed for transportation or repositioning from time to time and expanded for use, whereby the mechanic or mason may readily orient himself on or off the scaffold.

Another object of the invention is to provide an improved equipment of this type having supporting legs and a supporting head adjustable thereon and an extension ladder the sections of which are connected to one of the legs and the head for adjustment therewith.

Another object of the invention is to provide an improved combined scaffold jack having an adjustable head and ladder having an extensible section connected to the adjustable head of the jack so that in any adjustment of the head the ladder is co-extensive in length to the height of the head.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in connection with the accompanying drawings, wherein

Fig. 1 is a perspective view of a scaffold supported at one end by an adjustable jack and supported at its opposite end by equipment embodying my invention.

Fig. 2 is an enlarged elevational view.

Fig. 3 is a fragmentary elevation on the line 3—3 of Fig. 2.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a section on the line 5—5 of Fig. 3.

Fig. 6 is a plan view on the line 6—6 of Fig. 2.

Fig. 7 is a view similar to Fig. 6, but showing certain parts in a different position.

Fig. 8 is a side elevation of parts as shown in Fig. 7.

Fig. 9 is a view similar to Fig. 6, but showing certain parts in another position.

Figs. 10 and 11 are sections on the lines 10—10 and 11—11, respectively, of Fig. 2.

Fig. 12 is an elevational view showing the equipment in collapsed position.

In the drawings, 1 indicates as an entirety a jack having an adjustable head indicated as an entirety at 2. 3 indicates as an entirety a ladder, the jack and ladder forming a unitary assembly.

The jack 1 consists of the following: 1a indicates a plurality of legs, three legs being shown to simplify the construction and reduce its weight to facilitate handling. The legs 1a are preferably cut from T-stock, having pads 1a' welded on their lower ends to provide a large bearing surface on the flooring when the jack is in use. The upper ends of the legs 1a are pivotally connected to a tubular member 2a. As shown in Fig. 10, the tubular member 2a is provided with pairs of outwardly extending lugs 2a', each pair being spaced to accommodate the flange 1b of one of the legs 1a, so that by means of a pivot pin, such as a bolt 3a, the leg 1a and member 2a may be pivotally connected together for relative movement. Intermediate its ends each leg 1a is pivotally connected to the outer end of a link 4, the inner end of which is pivotally connected to a lower tubular member 5, each connection between one link 4 for the adjacent leg 1a being in alignment with the connection of the leg with the tubular member 2a. As the links 4 are of equal length, the tubular member 5 is axially related to the tubular member 2a and by reason of the pivotal connections between the legs 1a and tubular members 2a, 5, the legs 1a may be collapsed, as shown in Fig. 12 to permit ready handling, as well as occupy a relatively small space. The tubular member 5 is provided with lugs 5a, aligned with the lugs 2a', respectively, and each link 4 consists of a pair of bars 4a cut from suitable bar stock, the bars engaging the opposite sides of one lug 5a and the flange 1b of the adjacent leg 1a to accommodate pivot pins, such as bolts 6, to provide the pivotal connections therewith.

7 indicates a supporting member slidably and rotatably fitting the tubular members 2a, 5, for endwise and angular adjustment therein and carrying at its upper end the head 2. The supporting member 7 is preferably hollow, being cut to the desired length from suitable metal tubing, so that when the head 2 is in its lowest position the lower end of the supporting member 7 clears the flooring (see Fig. 2). Between its lower end and the head 2, the supporting member 7 is formed with a set of diametrically extending openings 7a, the purpose of which is later set forth.

The head 2 comprises the following: 9 indicates a base element suitably welded to the upper end of the supporting member 7 and extending laterally in opposite directions therefrom. The outer ends of the base element 9 are preferably braced or reenforced by arms 9a welded thereto.

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at their outer ends and welded at their inner ends to the supporting member 7. 10, 10, indicate a pair of seating elements each consisting of a base section 10a and a wall 10b extending upwardly from one end thereof. Each base section 10a is mounted on the base element 9 and pivotally connected thereto intermediate its ends for rotative movement, whereby the seating elements 10 may be positioned in different relationships, as later set forth.

When the head 2 is disposed in its lowest position, the arms 9a engage the upper end of the tubular member 2a; in this position the supporting member 7 may be locked to the tubular member 2a to prevent rotative movement therein, as later set forth.

The head 2 may be supported at various levels above the flooring by sliding the supporting member 7 upwardly and securing the latter in its adjusted position by means which interlock it to the tubular member 2a against downward and angular movement.

The interlocking means consist of the aligned openings 7a formed in the member 7, diametrically extending openings 7c formed in the tubular member 2a and a pin 12 which extends through the openings; thus, the pin 12 connects the tubular member 2a and supporting member 7 together to prevent outward movement of the latter when the assembly is being transported and through the member 7 supports the head 2 in its elevated position.

13 indicates a pressure device carried by the tubular member 5 and arranged to engage the supporting member 7 under pressure. The device 13 preferably consists of a thumbscrew threaded into an opening formed in the tubular member 5 and tightened against the supporting member and co-operates with the tubular member 2a to prevent wobbling or vibration of the head 2 incident to the movement of workmen on the scaffold. Also, since the device 13 connects the tubular member 5 to the supporting member 7 and in any position of the latter it is connected through the pin 12 to the tubular member 2a, it will be seen that the tubular members 2a, 5, are held in fixed relation, and the tubular members in turn support the legs in expanded fixed relation and thus prevent inward movement of the legs 1a, so that danger of one or more of the legs being engaged and displaced by some propelled or operated machine or body is eliminated.

14 indicates an elongated tube which is rigidly secured to one end of the base 9 in any desired manner, preferably by welding, disposed at right angles to the base 9 and extending equal distances to opposite sides thereof. The tube 14 provides a bearing for a removable shaft 15 the opposite ends of which extend through aligned openings formed in the side bars 16 of the ladder 3, the tube 14 and shaft 15 serving to pivotally connect the ladder to the head 2. The shaft 15 consists of a bar having a head 15a at one end and provided at its opposite end with an opening to accommodate a cotter pin 15b, the head 15a and pin 15b engaging the outer sides of the bars 16 and serving to prevent endwise displacement of the shaft 15. The tube 14 is preferably of a length to fit between the opposed inner sides of the bars 16 to provide a long bearing for the shaft 15. In this arrangement it will be seen that the weight of the ladder and the weight of a mechanic when ascending or descending thereon on the head are transmitted to the latter in

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a plane disposed midway the sides of the ladder and endwise of the base 9, so that uneven stresses are not imparted to the jack and scaffold when a mechanic is traversing the ladder in either direction. The ladder 3 consists of a main or lower section 3x and an extensible section 3x'. The main section consists of side bars 3z spacedly connected together by spaced pairs of inner and outer aligned cross members 3b preferably welded to the opposite side edges of the bars 3z. As shown the outer cross bars provide steps or rungs, whereby the mechanic can ascend or descend on the ladder. The extensible section 3x' consists of the side bars 16 (already referred to) and cross members 16a extending between and welded at their opposite ends to the side bars 16. The bars 16a provide steps or rungs when the extension 3x' is raised or extended. As shown, the side bars 16 are disposed within and slidably fit the side bars 3z. As the width of the bars 16 approximates that of the side bars 3z (see Fig. 4), the bars 16 slidably engage with and are guided longitudinally of the bars 3z, during endwise movement of the ladder section 3x', by the inner faces of the cross members 3b. The upper ends of the side bars 16 are preferably integrally connected to an arcuate section 16b adapted to be gripped by the mechanic when stepping off the ladder onto the scaffold or stepping from the scaffold onto the steps of the ladder. The lower ends of the side bars 3z are removably pivotally connected to the outer end of an extension 3c fixed to the lower end of one of the legs 1a. By preference the extension 3c and pad 1a' for the adjacent leg 1a may be formed of one piece. The pivotal connection for the bars 3z is similar to the pivotal connection between the bars 16 and the base 9 of the head 2, as above set forth. As the lower end of the main ladder section is pivotally connected to one of the legs and the upper end portion of the extensible ladder section is connected to the adjustable head 2, the ladder and the jack may be collapsed, as shown in Fig. 12, and, with respect to the ladder's length and inclination, it readily adjusts itself to any adjustment of the head 2 vertically so that manual handling of the ladder after any adjustment of the head 2 is not required nor does the adjustment of the head and ladder affect the collapsibility thereof. Accordingly, any adjustment of the head 2 in either direction to any desired elevation is effective to position the ladder for use. By connecting the lower end of the ladder section 3x to the lower end of a leg 1a, the ladder always rests on the flooring or other surface which supports the legs and by connecting the ladder sections to a leg and the head 2, the ladder is held against lateral displacement relative to the head and bears inwardly on the latter in line with the adjacent leg 1a, the connecting link therefor and axis of the tubular members 2a, 5.

Fig. 1 shows one adaptation of my equipment supporting one end of a scaffold A but two such mechanisms may be employed when desired.

Figs. 1, 2 and 6 show the seating elements 10 in one position arranged to engage the opposite sides of a scaffold and Fig. 9 shows the elements in a different position engaging the opposite sides of a scaffold, whereas Figs. 7 and 8 show the position of the elements engaging a sill A' on which a scaffold is to be supported. Set screws 17 are provided for securing the seating elements to the base 9 and set screws 18 are provided on

the walls 10b to secure the latter to the scaffold or a sill.

No claim is made herein to the construction of the jack and the head thereon, as such parts form the subject-matter of my co-pending application Ser. No. 724,949, filed January 29, 1947.

To those skilled in the art to which my invention relates many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. My disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

What I claim is:

1. In portable equipment for supporting one end of a scaffold and the like, the combination of a supporting element having a scaffold support at its upper end, means for vertically and rotatably adjustably supporting said element consisting of upper and lower aligned tubular members through which said element slidably and rotatably extends, a plurality of legs uniformly space about said tubular members pivotally connected at their upper ends to said upper tubular member for swinging movement toward and from said lower member radially of the latter, a linkage pivotally connected at its opposite ends to each of said legs and said lower tubular member, separate means for detachably securing said tubular members to said supporting element to support the latter in adjusted position, a ladder consisting of a main section and an extensible section, a pivotal connection between the lower end of said main ladder section and one of said legs and a pivotal connection between the upper end of said extensible ladder section and said scaffold support, whereby said extensible section moves with said support relative to said

main ladder section when said supporting element is adjusted vertically, said tubular members being adapted to relatively move endwise of said supporting element to permit said legs to be collapsed into close relation to said tubular members.

2. Equipment as claimed in claim 1 wherein the pivotal connection for said extensible ladder section consists of a shaft supported at its opposite ends in the side bars of said section, a tube rotatably fitting said shaft between said side bars and engaging the latter at its opposite ends and a rigid connection between said tube and scaffold support.

3. Equipment as claimed in claim 1 wherein the pivotal connection for said main ladder section consists of a shaft supported at its opposite ends in the side bars of said section and a tube rotatably fitting said shaft and a rigid connection between said tube and one of said legs.

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