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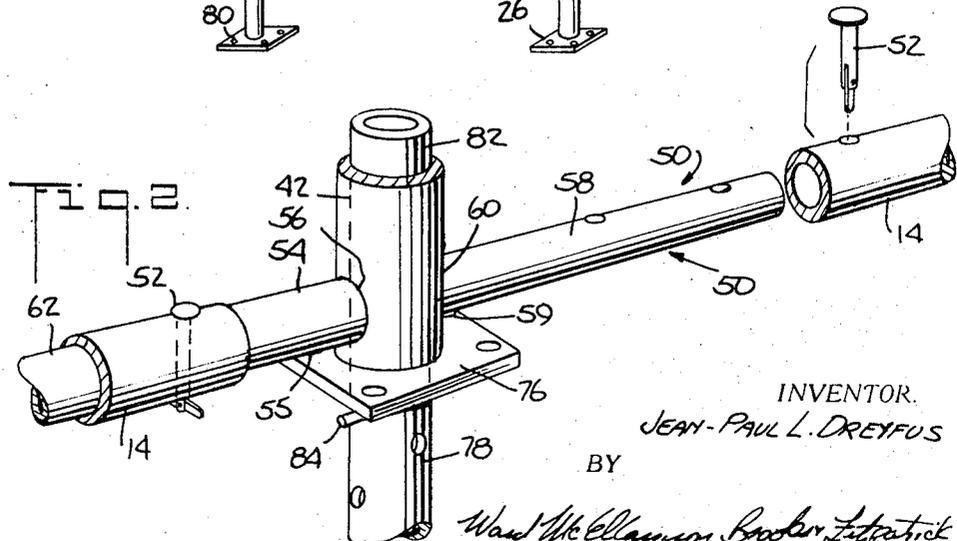
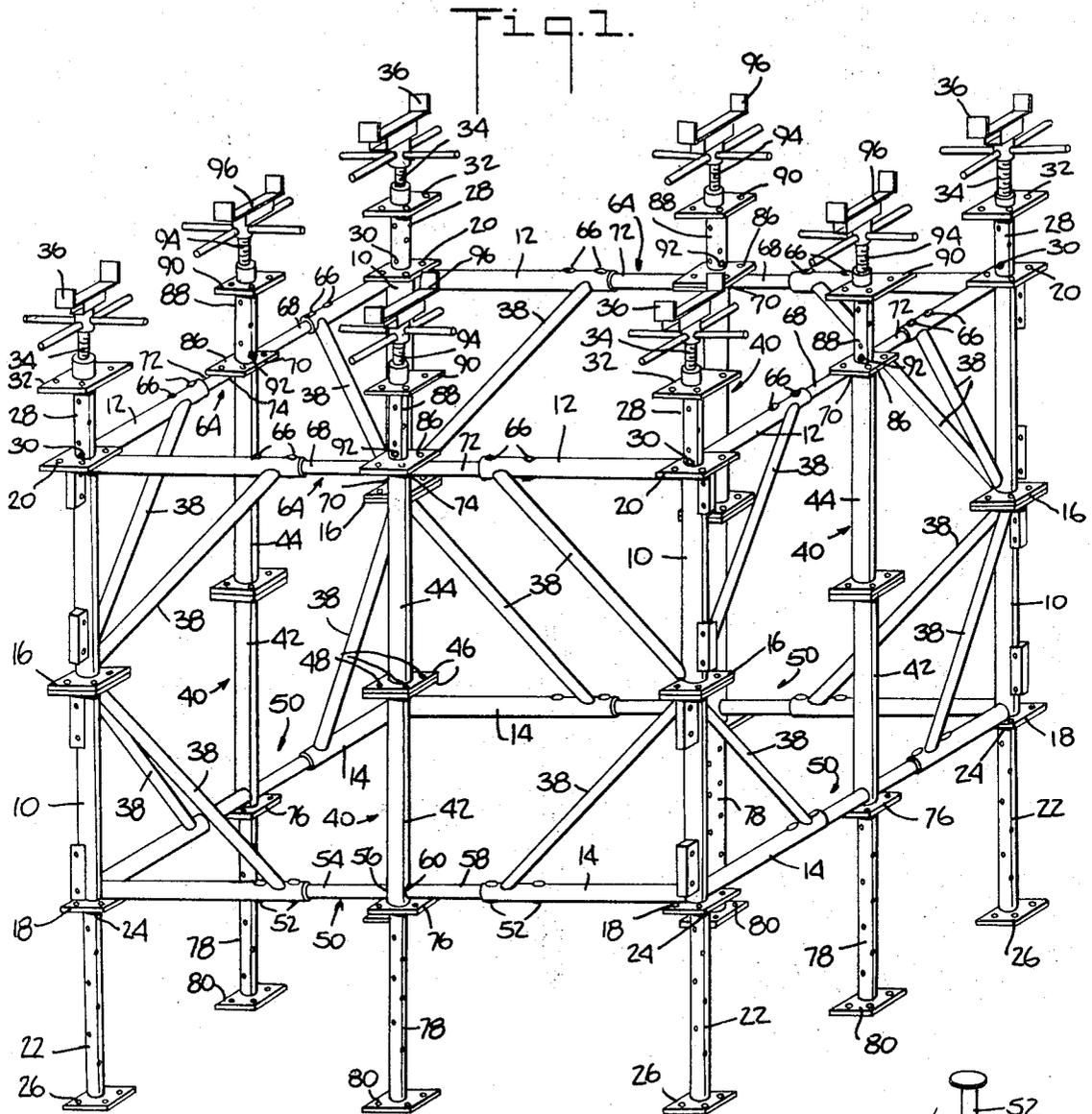
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3,564,802

SCAFFOLDING SYSTEM

Filed Oct. 7, 1969

2 Sheets-Sheet 1



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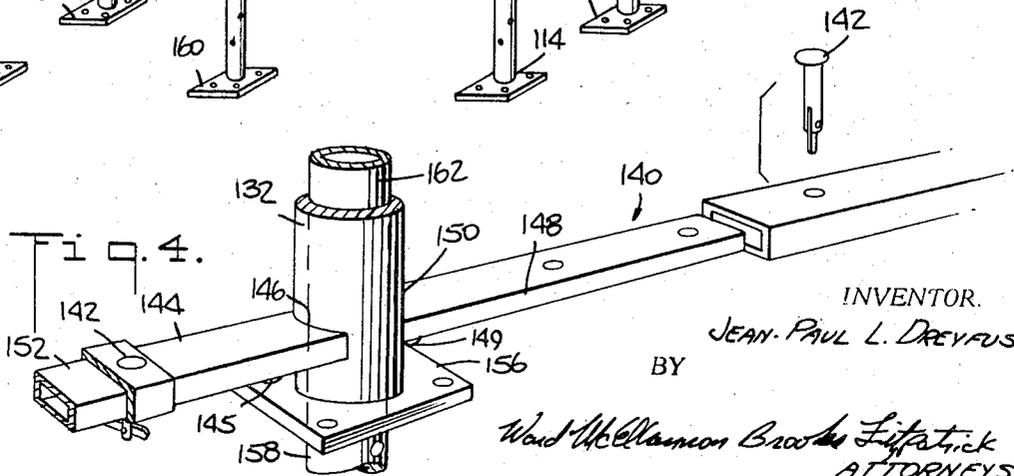
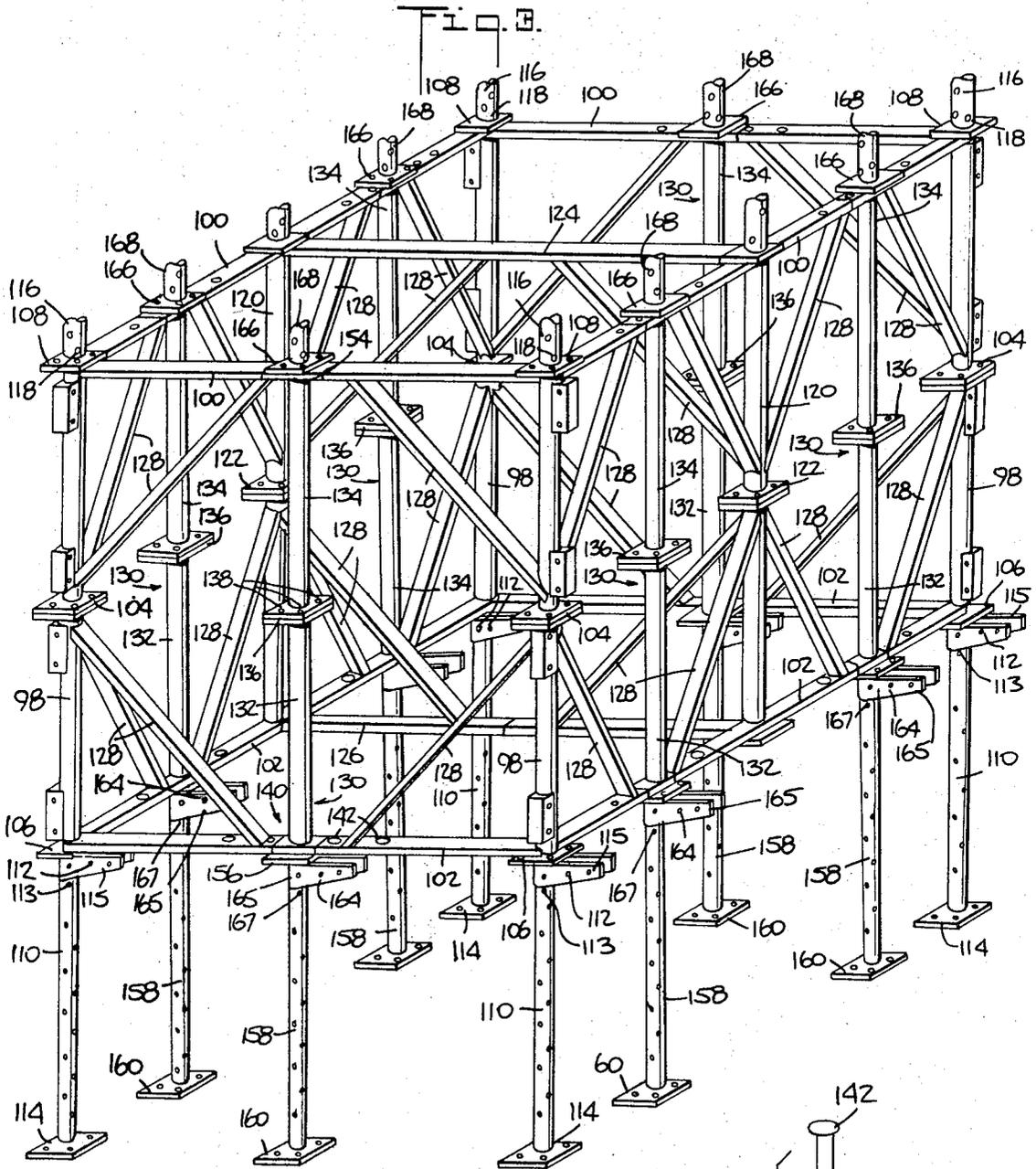
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2 Sheets-Sheet 2



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3,564,802
SCAFFOLDING SYSTEM
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9 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a three-dimensional scaffolding system having four vertically extending corner posts, upper horizontal members connecting the upper ends of adjacent posts and lower horizontal members connecting the lower ends of adjacent posts, an I-link for connecting the medial portion of one upper horizontal member with a medial portion of its adjacent lower horizontal member.

This invention relates to scaffolding systems, and more particularly to a new and improved three-dimensional scaffolding system which is particularly adapted, among other possible uses, for use in the construction of airport terminals, parking garages, bridges, highway overpasses, water reservoirs and various other concrete constructions.

The present invention involves a novel combination of features combined in such a way as to afford a very efficient solution to the difficulties encountered with the prior art, as will be discussed more fully hereinafter.

The invention has, as one of its objectives, the provision of a new and improved three-dimensional scaffolding system which is particularly suitable for repetitive concrete structures used in the construction industry, such as when moving dome or form structures from one pouring position to the next. It is economical from the standpoint of time, labor and overall job costs and becomes increasingly cost saving with an increasing number of repetitive forming operations.

The invention provides as another of its objectives a scaffolding system of the character aforesaid which may be rapidly assembled and disassembled, which provides vertical linkage and support medially of the sides, and which makes possible the provision of an additional supporting leg medially of the sides as an integral part of the system. The invention provides as still another of its objectives, a scaffolding system as aforesaid which is reusable and which can raise and lower form structures when in position.

These and other advantages of the scaffolding system as compared to systems and techniques heretofore utilized for the above-stated purposes, will become apparent as the description proceeds.

In order to accomplish the desired results, this invention provides, in combination with a scaffolding tower having four vertically extending corner posts, upper horizontal members connecting the upper ends of adjacent posts and lower horizontal members connecting the lower ends of adjacent posts, an improvement comprising an I-link for connecting the adjacent ends of one upper horizontal member with adjacent ends of its adjacent lower horizontal member.

There has thus been outlined rather broadly the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described more fully hereinafter. Those skilled in the art will appreciate that the conception on which this disclosure is based may readily be utilized as the basis for the designing of other

structures for carrying out the several purposes of the invention. It is important, therefore, that this disclosure be regarded as including such equivalent constructions as do not depart from the spirit and scope of the invention.

Several embodiments of the invention have been chosen for purposes of illustration and description, and are shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a perspective view of a scaffolding tower constructed according to the concept of my invention;

FIG. 2 is an enlarged, fragmentary perspective view showing details of construction of an I-link for interconnecting horizontal members;

FIG. 3 is a perspective view of another embodiment of a scaffolding tower constructed according to the invention; and

FIG. 4 is an enlarged, fragmentary perspective view showing details of construction of an I-link for interconnecting horizontal members in the embodiment of FIG. 3.

In the embodiment of the invention illustrated in FIGS. 1 and 2, a scaffolding tower includes four vertically extending corner tubular posts 10, upper horizontal tubular members 12 connecting the upper ends of the adjacent posts and lower horizontal tubular members 14 connecting the lower ends of the adjacent posts. Each corner post 10 includes two portions which are interconnected as by means of flanges 16, provided for the purpose. A flange 18 is mounted on the bottom of the post, and a flange 20 is mounted on the top thereof. A bottom telescopic leg 22 is adjustably mounted in the lower portion of the post, as by means of a load pin mounted in holes 24 in the telescopic leg. A flange 26 is mounted on the lower end of the telescopic leg 22. An upper leg 28 is adjustably mounted in the upper portion of the post, as by means of a load pin mounted in holes 30 on the telescopic leg. A flange 32 is mounted on the upper end of the telescopic leg 28, and a threaded bolt 34 extends upwardly from the leg to carry a stirrup 36. In operation joists (not shown) are mounted on the stirrups, upon which superstructure rests. Stays 38 are provided in each corner at angles of 45°, for example, for structural reinforcement.

According to my invention, an I-link, indicated generally at 40 is provided as a connecting medial portion of each upper horizontal member 12 with its symmetrical equivalent as the medial portion of its adjacent lower horizontal member 14. Each of the I-links include a lower vertical tube 42 and an upper vertical tube 44. A flange 46 is mounted on the adjacent ends of the vertical tubes, and four bolts 48 serve to interconnect same. As best seen in FIG. 2, a lower horizontal link, indicated generally at 50, is interposed in the lower horizontal member 14, and two lock pins 52 at each end thereof serve to fasten the link to the horizontal member 14. The lower horizontal link 50 has a first portion 54 which is fixedly attached, as by means of welding at 56, to one side of the lower vertical tube 42 and a second portion 58 is fixedly attached, as by means of welding 60 to the opposite side of the lower vertical tube. It will be appreciated that the lower horizontal link 50 is of round, tubular configuration with an outside diameter slightly smaller than the inside diameter of the lower, horizontal, tubular member 14 so that it is slidable therein, as at 62, FIG. 2.

An upper horizontal tubular link, indicated generally at 64, FIG. 1, is similar to the lower horizontal link 50 described hereinbefore. This upper horizontal link is interposed in the upper horizontal member 12, and two locking pins 66 at each end thereof serve to fasten the link to the horizontal member 12. The upper horizontal link 64 has a first portion 68 fixedly attached, as by means of welding at 70, to one side of the upper vertical tube 44, and a second portion 72 fixedly attached, as by means

of welding at 74, to the opposite side of the upper vertical tube.

As best seen in FIG. 2, a flange 76 is mounted on the lower end of the lower vertical tube 42 below the connection with the lower horizontal link 50. This flange 76 is also welded to the first portion 54 as at 55 and it is also welded to the second portion 58 as at 59. A telescopic leg 78 is mounted in the lower portion 42 of the vertical tube and a flange 80, FIG. 1, is mounted on the bottom thereof. A telescopic leg 78 is adapted to be movable inside the vertical tube 42 and passes through the connection with the lower horizontal link 50, as at 82, FIG. 2. A load pin 84 serves to adjustably secure the telescopic leg to the lower vertical tube 42.

A flange 86, FIG. 1, is mounted on the upper end of the upper vertical tube 44 above the connection with the upper horizontal link 64. This flange is also welded to the first portion 68 and the second portion 72. A telescopic leg 88 is mounted in the upper portion of the upper vertical tube 44 and a flange 90 is mounted on the top thereof. The telescopic leg 88 is adapted to be movable inside the vertical tube 44 and passes through the connection with the upper horizontal link 64. A load pin 92 serves to adaptably secure the telescopic leg to the upper vertical tube 44. A threaded bolt 94 extends upwardly from the leg 88 to carry a stirrup 96. In operation, joists (not shown) are mounted on the stirrups, upon which superstructure rests.

Referring next to the embodiment of FIGS. 3 and 4, a scaffolding tower is shown which is adapted for supporting a heavier load than the structure of FIGS. 1 and 2. This tower includes four vertically extending corner posts 98, upper horizontal channel members 100 connecting the upper ends of the adjacent posts and lower horizontal channel members 102 connecting the lower ends of the adjacent posts. Each corner post 98 includes two portions which are interconnected as by means of flanges 104. A flange 106 is mounted on the bottom of the post, and a flange 108 is mounted on the top thereof. A bottom telescopic leg 110 is adjustably mounted in the lower portion of the post, as by means of a safety pin 112 and a load pin 113, the safety pin 112 being mounted through form releasing bracket 115. A flange 114 is mounted on the lower end of the telescopic leg 110. An upper leg 116 is adjustably mounted in the upper portion of the post, as by means of a load pin mounted in holes 118 on the telescopic leg. A flange, a threaded bolt, and a stirrup (not shown) are mounted on the upper end of the upper leg 116 in a manner similar to that described hereinbefore in connection with the embodiment of FIGS. 1 and 2.

Still referring to FIG. 3, medial posts 120 connect a medial portion of the upper horizontal channel members 100 and a medial portion of the lower horizontal channel member 102. Each medial post 120 includes two portions which are interconnected, as by means of flanges 122. Upper transverse member 124 serves to connect the upper ends of the two medial posts 120 and a lower transverse member 126 connects the lower ends of the posts. Stays 128 are provided for each post at angles of 45°, for example, for structural reinforcement.

According to my invention, an I-link, indicated generally at 130, is provided for connecting a medial portion of the upper horizontal member 100 with a medial portion of its adjacent lower horizontal member 102. One I-link is provided at each end of the scaffolding tower and two I-links are provided on each side of the tower. Each of the I-links includes lower vertical tube 132 and an upper vertical tube 134. A flange 136 is mounted on the adjacent ends of the vertical tubes, and four bolts 138 serve to interconnect same. As best seen in FIG. 4, a lower horizontal link, indicated generally at 140, is interposed in a lower horizontal member 102, and two locking pins 142 at each end thereof serve to fasten the link to the horizontal member 102. The lower horizontal

link 140 has a first portion 144 which is fixedly attached, as by means of welding at 146, to one side of the lower vertical tube 132, and a second portion 148 is fixedly attached, as by means of welding at 150, to the opposite side of the lower vertical tube. It will be appreciated that the lower horizontal link 140 is of rectangular channel configuration and sized to slidably fit inside the lower horizontal channel member 102, as shown at 152, FIG. 2.

An upper horizontal link, indicated generally at 154, FIG. 1, is interposed in the upper horizontal member 100. This link is constructed and operates in the same manner as that described hereinbefore in connection with the lower horizontal link 140.

As best seen in FIG. 4, a flange 156 is mounted on the lower end of the lower vertical tube 132 below the connection with the lower horizontal link 140. This flange 156 is also welded to the first portion 144 as at 145 and it is also welded to the second portion 148 as at 149. A telescopic leg 158 is mounted in the lower portion 132 of the vertical tube and a flange 160, FIG. 3, is mounted on the bottom thereof, a telescopic leg 158 is adapted to be movable inside the vertical tube 132 and passes through the connection with the lower horizontal link 140, as at 162, FIG. 4. The safety pin 164, mounted through form releasing bracket 165, and load pin 167, FIG. 3, serve to adjustably secure the telescopic leg to said lower vertical tube 132.

A flange 166, FIG. 3, is mounted on the upper end of the upper vertical tube 134 above the connection with the upper horizontal link 154. A telescopic leg 168 is mounted in the upper portion of the upper vertical tube 134. The telescopic leg 168 is adapted to be movable inside the vertical tube 134 and passes through the connection with the upper horizontal link 154. A load pin (not shown) serves to adjustably secure the telescopic leg to the upper vertical tube. A flange, a threaded bolt, and a stirrup (not shown) are mounted on the upper end of the upper leg 168 in a manner similar to that described hereinbefore in connection with the embodiment of FIGS. 1 and 2.

It will thus be seen that the present invention does indeed provide an improved scaffolding tower which is superior in simplicity, economy and efficiency as compared to prior art such systems.

Although certain particular embodiments of the invention are herein disclosed for purposes of explanation, various modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains.

What is claimed and desired to be secured by Letters Patent is:

1. In a scaffolding tower having four vertically extending corner posts, upper horizontal members extending from said posts toward adjacent posts, and lower horizontal members extending from said posts toward adjacent posts, the improvement comprising an I-link for connecting the adjacent ends of said upper horizontal members with the adjacent ends of the lower horizontal members, said I-link including a lower vertical tube and an upper vertical tube, means interconnecting said vertical tubes, a lower horizontal link interconnecting the adjacent ends of said lower horizontal members, said lower horizontal link having a first portion fixedly attached to one side of said lower vertical tube and a second portion fixedly attached to the opposite side of said lower vertical tube, an upper horizontal link interconnecting the adjacent ends of said upper horizontal member, said upper horizontal link having a first portion fixedly attached to one side of said upper vertical tube and a second portion fixedly attached to the opposite side of said upper vertical tube.

2. A scaffolding tower according to claim 1 wherein said I-link means interconnecting said vertical tubes comprises a flange mounted at the adjacent ends of each said tubes and four bolts interconnecting said flanges.

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3. A scaffolding tower according to claim 1 wherein said lower horizontal link interposed in said lower horizontal member is fastened to said horizontal member by two lock pins at each end thereof, and wherein said upper horizontal link interposed in said upper horizontal member is fastened to said upper horizontal member by two lock pins at each end thereof.

4. A scaffolding tower according to claim 1 further comprising an I-link for connecting each upper horizontal member with its adjacent lower horizontal member.

5. A scaffolding tower according to claim 4 further comprising a second, spaced I-link for connecting, on the sides of said tower, the upper horizontal member with its adjacent lower horizontal member.

6. A scaffolding tower according to claim 1 wherein said lower vertical tube has a flange mounted on the lower end thereof below the connection with and welded to said lower horizontal links, and wherein said upper vertical tube has a flange mounted on the upper end thereof above said connection with and welded to said upper horizontal links.

7. A scaffolding tower according to claim 6 further comprising a telescopic leg adjustably mounted in the lower portion of said lower vertical tube and movable inside said lower vertical tube, a flange mounted on the bottom of said telescopic leg, a telescopic leg adjustably mounted in the upper portion of said upper vertical tube and movable inside said upper vertical tube, and a flange mounted on the top of said telescopic leg.

8. A scaffolding tower according to claim 7 wherein a safety pin form releasing bracket and a load pin secure said telescopic legs to the upper and lower vertical tubes, respectively.

9. In a scaffolding tower having four vertically extending corner posts, upper horizontal members extending from said posts toward adjacent posts, and lower horizontal members extending from said posts toward adjacent posts, the improvement comprising an I-link for connecting the adjacent ends of said upper horizontal members with the adjacent ends of the lower horizontal members, said I-link including a lower vertical tube and an upper vertical tube, a flange mounted on the adjacent ends of said vertical tubes, a plurality of bolts interconnecting said flanges, a lower horizontal link interconnect-

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ing the adjacent ends of said lower horizontal member, two lock pins at each end thereof for fastening said link to said horizontal members, said lower horizontal link having a first portion fixedly attached to one side of said lower vertical tube and a second portion fixedly attached to the opposite side of said lower vertical tube, an upper horizontal link interconnecting the adjacent ends of said upper horizontal members, two lock pins at each end thereof for fastening said link to said horizontal members, said upper horizontal link having a first portion fixedly attached to one side of said upper vertical tube and a second portion fixedly attached to the opposite side of said upper vertical tube, said lower vertical tube having a flange mounted on the lower end thereof below said connection with said lower horizontal link, a telescopic leg adjustably mounted in the lower portion of said lower vertical tube and movable inside said lower vertical tube, a flange mounted on the bottom of said telescopic leg, a safety pin form releasing bracket and a load pin for adjustably securing said telescopic leg to said lower vertical tube, said upper vertical tube having a flange mounted on the upper end thereof above said connection with said upper horizontal link, a telescopic leg adjustably mounted in the upper portion of said upper vertical tube and movable inside said upper vertical tube, a flange mounted on the top of said telescopic leg, a load pin for adjustably securing said telescopic leg to said upper vertical tube.

References Cited

UNITED STATES PATENTS

1,552,333	9/1925	Mosher	52-638
2,465,813	3/1949	Moore	52-638
2,900,870	8/1959	Jackson	182-178
3,037,588	6/1962	Causey	52-637
3,120,941	2/1964	Cameron	182-178
3,245,188	3/1966	Evans	52-638
3,506,090	4/1970	Beziat	182-178

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