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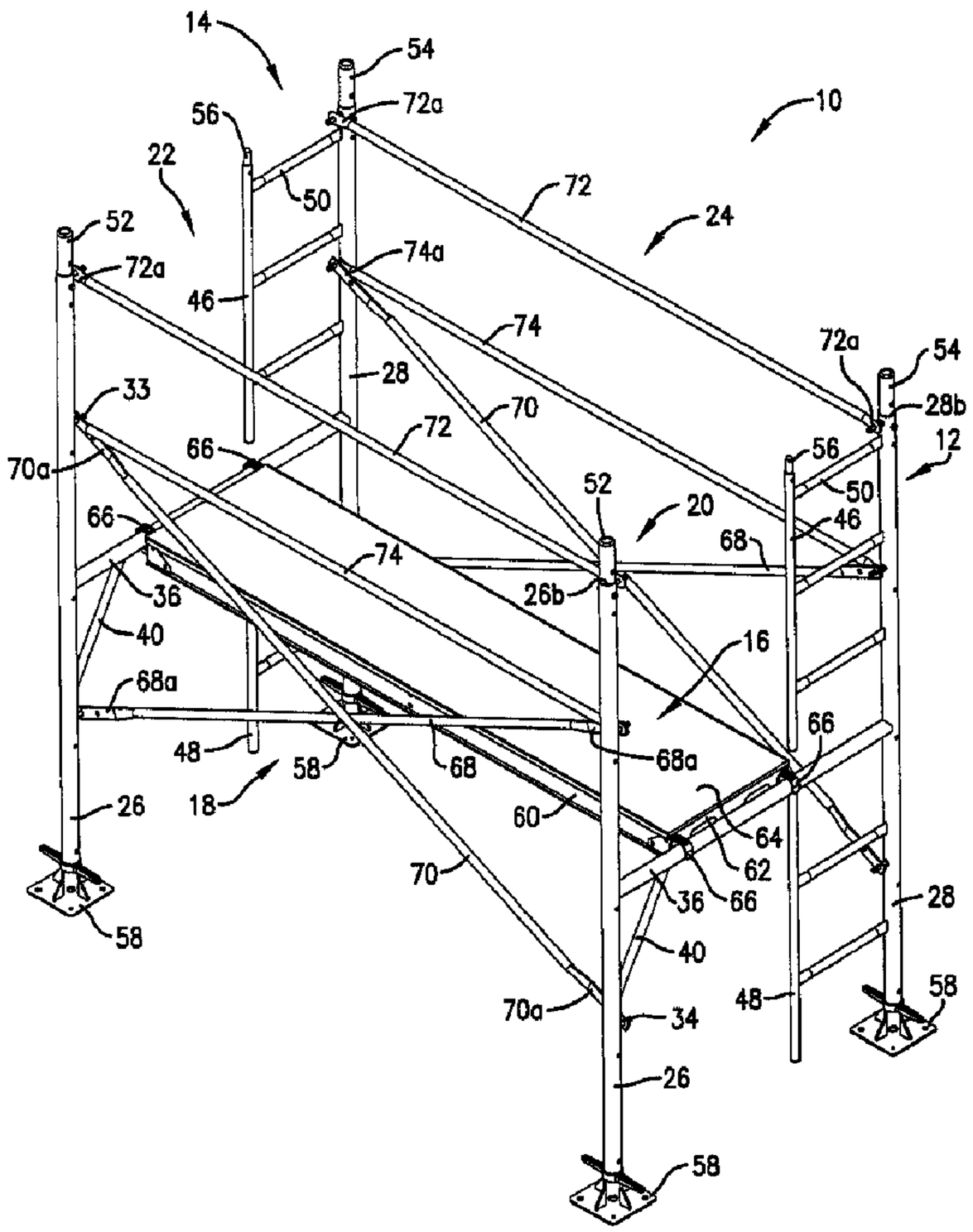

(57) Abrégé/Abstract:
An enhanced safety scaffold assembly (10) is provided including end frames (12,14) interconnected by means of cross-tie structure (18,20). The end frames (12,14) include ledgers (36) located a safety distance (38) of at least about thirty inches below

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(57) Abrégé(suite)/Abstract(continued):
the upper ends (26b,28b) of the standards (26,28), and are free of additional ledgers within the safety distance. A platform (16) is supported by the ledgers (36), and guardrail assemblies (22,24) extend between opposed standards (26,28). In this way, the platform (16) is located well below the upper ends (26b,28b) of the standards (26,28) in accordance with existing safety regulations, and placement of a platform (16) in an unsafe, elevated position is precluded. The assemblies of the invention may be constructed in a variety of ways to include optional leveling units (58), ladders (44), outriggers (134) and supplemental work platforms (144).

ABSTRACT OF THE DISCLOSURE

An enhanced safety scaffold assembly (10) is provided including end frames (12,14) interconnected by means of cross-tie structure (18,20). The end frames (12,14) include ledgers (36) located a safety distance (38) of at least about thirty inches below the upper ends (26b,28b) of the standards (26,28), and are free of additional ledgers within the safety distance. A platform (16) is supported by the ledgers (36), and guardrail assemblies (22,24) extend between opposed standards (26,28). In this way, the platform (16) is located well below the upper ends (26b,28b) of the standards (26,28) in accordance with existing safety regulations, and placement of a platform (16) in an unsafe, elevated position is precluded. The assemblies of the invention may be constructed in a variety of ways to include optional leveling units (58), ladders (44), outriggers (134) and supplemental work platforms (144).

SCAFFOLD FRAME SECTION WITH INTEGRAL GUARD RAIL POST

CROSS REFERENCE TO RELATED APPLICATION

This application is being filed contemporaneously with application for U.S. Design Patent Serial No. 29/237,566, entitled SCAFFOLD FRAME SECTION WITH INTEGRAL GUARD RAIL POST.

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The present invention is broadly concerned with improved scaffold assemblies and components thereof which are designed for enhanced user safety. More particularly, the invention is concerned with scaffold assemblies and the end frames forming a part thereof, wherein personnel platform-supporting ledgers are provided at a significant safety distance below the upper ends of the platform end frames so that a user is precluded from positioning a personnel platform at an elevated, unsafe position.

2. DESCRIPTION OF THE PRIOR ART

Scaffolding of various types has been provided in myriad forms over the years. To be effective, construction site scaffolding must be relatively easy to assemble and provide a degree of flexibility so that scaffolding of various heights and widths can be built. At the same time, such scaffolding must be sturdy and structurally sound when constructed.

In recent years, safety regulations have mandated that personnel platforms forming a part of scaffolding be located below the upper ends of the scaffolding, so that appropriate guardrails can be installed and are effective. As can be appreciated, if a personnel platform is located near the very top of a scaffolding unit, workers standing on the platforms may be subjected to significant falling hazard owing to the fact that inadequate guardrails are present.

While these safety standards have been in place for several years, it is still possible with existing scaffold designs to inadvertently or intentionally construct a scaffold assembly with improperly and unsafely positioned personnel platforms. This is because of the fact that prior scaffold frames have cross bars (often referred to as "ledgers") close to or adjacent

the upper end of the scaffold standards. In such a case, those constructing the scaffolding, either from expediency or lack of understanding of the safety rules, can place the platforms in unsafe elevated positions. Furthermore, during assembly of conventional scaffolding, workers are often required to stand on unguarded platforms while the next (upper) frame section and other scaffolding components are attached to the frame upon which the worker is supported.

There is accordingly a need in the art for improved scaffolding which makes it essentially impossible to place personnel platforms in elevated, unsafe positions in violation of existing safety standards.

SUMMARY OF THE INVENTION

The present invention overcomes the problems outlined above, and provides a scaffold assembly including a pair of end frames, each comprising a pair of laterally spaced apart, upright standards having opposed upper and lower ends, with a primary platform ledger extending between and interconnected with the standards. Each primary ledger is located a safety distance of at least about thirty (30) inches (more preferably from about thirty-six (36) to forty-two (42) inches) below the upper end of the corresponding standard. One or more personnel platforms span and are operatively supported by the end frame ledgers. Additionally, the end frames are free of platform ledgers within the safety distance above the primary ledger, so that no platform may be installed above the primary ledgers. In order to erect a free-standing scaffold, cross-tie structure is employed to interconnect the end frames. Finally, the overall scaffold assembly has a guardrail assembly extending between the end frames in the safety distance above the personnel platform.

The scaffold assemblies of the invention may be provided in stacked relationship, i.e., two or more such assemblies may be placed one atop the other and interconnected. To this end, the scaffolds are designed for such vertical interconnection by means of connection insert pins at the upper ends of the corner standards, which telescope into the tubular ends of the standards of the scaffold assembly next above.

In addition, the scaffold assemblies of the invention may be provided with auxiliary features such as leveling units, end ladders, outriggers, supplemental work platforms and quick-connectors.

Another aspect of the present invention concerns scaffold end frame including a pair of laterally spaced apart, upright standards having opposed upper and lower ends. The end frame further includes a primary platform ledger extending between and being interconnected with the standards. The primary ledger is capable of supporting the end of a personnel platform. Moreover, the primary platform ledger is located a safety distance of at least about thirty (30) inches below each of the standard upper ends. The end frame is free of platform ledgers within the safety distance above the primary ledger.

Other aspects and advantages of the present invention will be apparent from the following detailed description of the preferred embodiments and the accompanying drawing figures.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

A preferred embodiment of the present invention is described in detail below with reference to the attached drawing Figures, wherein:

Fig. 1 is a perspective view of a scaffold assembly in accordance with the invention;

Fig. 2 is a side elevational view of the scaffold assembly depicted in Fig. 1, shown during erection of another scaffold section atop the base scaffold assembly;

Fig. 3 is a perspective view of a scaffold assembly in accordance with the invention, made up of two interconnected sections;

Fig. 4 is a side elevational view of a scaffold end frame in accordance with the invention;

Fig. 5 is a perspective view of another scaffold assembly in accordance with the invention, with the work scaffold assembly positioned atop a low-rise scaffold base;

Fig. 6 is a perspective view of another type of scaffold end frame;

Fig. 7 is a perspective view similar to that of Fig. 6 but showing another type of scaffold end frame; and

Fig. 8 is a perspective view of a multiple-tier scaffold assembly in accordance with the invention, equipped with ground-engaging outriggers and an uppermost outrigger work platform.

The drawing figures do not limit the present invention to the specific embodiments disclosed and described herein. The drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to the drawings, the scaffold assembly 10 selected for illustration in Fig. 1 broadly includes a pair of preconstructed end frames 12,14, a personnel platform 16, cross-tie assemblies 18,20, and guardrail assemblies 22,24. As shown, the assembly 10 is a free-standing unit for use on construction sites or in similar contexts.

In more detail, the end frames 12,14 in the depicted embodiment are mirror images of each other. Thus, only the end frame 12 will be described in detail, with the understanding that the other end frame 14 is similarly constructed. Furthermore, the same reference numerals will be used to identify similar components of the end frame 12 and 14.

As perhaps best shown in Fig. 4, the end frame 12 preferably includes a pair of upright standards 26,28, each having lower ends 26a,28a and upper ends 26b,28b. In the preferred embodiment, the standards are formed of metal (e.g., steel or Aluminum) and have a circular, tubular configuration, although other suitable materials and configurations are within the ambit of the present invention. The standards 26,28 are preferably provided with a series of equally spaced apart accessory attachment holes 30 along the length thereof. As will be described, the attachment holes 30 removably receive connection pins so as to permit attachment of any variety of scaffolding accessories to the standard. Each standard is also preferably provided with three spaced apart inwardly projecting pin-type locks 32,33,34. The overall end frame 12 also has a primary ledger 36 which extends between and is connected to the standards 26,28. Preferably, the ledger 36 is formed of the same material as the standards 26,28 and

similarly presents a circular tubular cross-section. The preferred ledger 36 is integrally connected to the standards 26,28 by suitable means, such as welding.

Moreover, the ledger 36 is located a safety distance 38 below the upper ends 26b,28b of the ledgers. This safety distance 38 is at least about thirty (30) inches, and more preferably is from about thirty-six (36) to forty-two (42) inches. The ledger 36 is additionally supported by an end-mounted angular brace 40 secured to the underside of the ledger 36 and to the adjacent standard 26 at a point beneath the ledger. Similar to the standards 26,28 and ledger 36, the brace 40 is preferably formed of cylindrical, tubular, metal bar. However, if desired, the ledger may alternatively be constructed in a manner similar to that disclosed in copending U.S. Patent Application Serial No. 10/950,113, filed September 24, 2004, entitled WALKBOARD LEDGER FOR SCAFFOLDING, published as Publication No. US 2005/0034922 A1.

The end frame 12 preferably also includes a ladder 44. The ladder 44 includes first and second ladder side frames 46,48 as well as lateral rungs 50. As illustrated, the lower ladder side frame 48 is secured to the underside of ledger 36 and extends downwardly therefrom, with the rungs 50 connected between the side frame 48 and standard 28. The upper ladder side frame 46 is cantilever mounted through the medium of rungs 50 as shown, but does not extend to ledger 36. Those ordinarily skilled in the art will appreciate that this configuration of the upper ladder side frame 46 permits the platform 16 to be positioned on the ledgers 36 within the confines of the ladder 44. Although both end frames 12 and 14 have been shown as being provided with the ladder 44, in many instances only one of the end frames is provided with a ladder 44 to provide vertical access to the elevated platform(s) 16. It will also be appreciated that an angular brace is preferably not provided adjacent the standard 28, as the ladder 44 sufficiently interconnects the ledger 36 and standard 28 to provide the desired structural reinforcement therebetween.

In order to permit erection of a multiple-tier scaffold assembly, each of the standards 26,28 receives a reduced diameter insert pin stub section 52,54 extending above the associated upper ends 26b,28b. The and upper ladder side frame 46 also has a reduced diameter stub 56. The stacked frames may be otherwise secured to one another if desired.

Returning to Fig. 1, it will be seen that each of the end frames includes a pair of screw-type leveling units 58, each being associated with a respective one of the standards 26,28. The units 58 are conventional and can be used to individually level each of the standards as required.

The platform (also known as a walkboard) 16 preferably includes elongated side rails 60 as well as interconnected transverse end rails 62. The rails 60,62 support a substantially flat walkway or platform panel 64 to support users of the scaffold assembly. The opposed ends of the platform 16 are provided with a pair of spaced attachment hooks 66 configured to receive the ledger 36 and thus support the platform in use. As noted previously, the lower end of the upper ladder side frames 46 are spaced slightly above the ledger 36; this permits lateral shifting of the platform 16 along the lengths of the ledgers 36 as necessary. The platform 16 is preferably constructed in a manner similar to that disclosed in U.S. Patent No. 6,223,857, issued May 1, 2001, entitled SCAFFOLDING PLATFORM.

However, other suitable walkboard designs are within the ambit of the present invention.

The cross-tie assemblies 18,20 each comprise a pair of crossed, angularly oriented tie bars 68,70 which are secured to the opposed standards 26,28 of the end frames 12,14. As illustrated, each of the tie bars 68,70 has endmost apertured connectors 68a,70a which are designed to receive the pin-type locks 33,34 of the standards. The assemblies 18,20, thus operatively interconnect the end frames 12,14 so as to present a free-standing scaffold. The locks 33,34 are conventional in design and serve to releasably lock the bars 68,70 to the standards 26,28 so as to prevent inadvertent removal after assembly.

Finally, the scaffold assembly 10 includes the guardrail assemblies 22,24 each comprising a pair of vertically spaced apart guardrail ties 72,74 having apertured connection ends 72a,74a. These guardrail ties are attached to the upper pin-type locks 32,33 on the opposed standards 26,28. The guard rails 22,24 provide safety to the scaffold user by laterally constraining any workers on the platform 16. The crossbar ties 68,70 and guardrail ties 72,74 are preferably tubular cylindrical metal bars.

An important feature of the end frames 12,14, and thus of the complete scaffold assembly 10, is the provision of ledger 36 located at the safety distance below the upper ends

26b,28b of the standards. Moreover, there is no ledger within the safety distance, or closer to the upper ends of the standards (it will be appreciated that low-strength reinforcements could be provided within the safety distance, but these would not be capable of supporting a platform 16). As such, the users of scaffold assembly 10 are necessarily provided with lengths of standard above the platform 16 which permit installation of safety guardrails, and it is impossible for such users to inadvertently position a platform 16 within the safety distance. Furthermore, as shown in FIG. 2, during assembly of the scaffolding 10, the user stands safely on the platform 16 as he/she stacks end frames one on top of another, all the while being safeguarded by the guardrails.

Fig. 6 illustrates another side frame 76 in accordance with the invention, which is identical with the side frame 12 of Fig. 4, save for the fact that the ladder 44 is eliminated and an angular brace 42 is provided between the ledger 36 and standard 28. Therefore, no extended discussion of this end frame 76 is needed, and the same reference numerals used in the description of the frame 12 are employed.

A still further end frame 78 is illustrated in Fig. 7. This end frame is identical with the end frame 76 of Fig. 6, except for the provision of a modified ledger. Specifically, the end frame 78 has a ledger 36 associated with longer reinforcing struts 40a,42a which extend to points below that of the corresponding struts 40,42. In addition, the ledger 36 is defined by double transoms or bars 80 that are spaced vertically apart. Short connection plates 82 extend between the ledger bars 80, as shown. Here again, it will be seen that the safety distance 38 between upper ledger 80 and the upper ends 26b,28b of the standards is maintained. In use, the platform 16 may be affixed to either of the ledger bars 80, but in either case the important safety distance 38 remains effective.

The scaffold assemblies of the invention can be constructed in a variety of ways to meet the needs of a construction site. For example (see Fig. 3), two (or more) scaffold assemblies 10,10a can be positioned one atop the other to create an overall scaffold of increased height. In Fig. 3, a lower assembly 10 is identical with that described previously, and the upper assembly 10a is supported on the assembly 10. This involves securing the lower ends 26a,28a of the upper standards to the insert pins 52,54 of the lower standards. As illustrated in Fig. 2, an upper end frame 14a is positioned on end frame 14 by telescoping the insert pins 52,54 thereof

into the lower tubular ends of the upper standards. When both of the upper end frames 12a,14a are so positioned, cross-tie assemblies and guardrail assemblies are interconnected between the upper standards to complete the construction. Fig. 3 also illustrates another feature of the invention, namely that the ledgers 36 are sufficient length to accommodate a pair of side-by-side platforms 16 as required.

Fig. 5 shows another scaffold assembly 84 made up of a scaffold assembly 10 positioned atop a low-rise height extender section 86. The latter is similar to the scaffold assembly 10, but is not designed to support a platform and is used simply to create a higher overall scaffold. To this end, the section 86 includes a pair of pre-fabricated end frames 88,90, each having upright standards 92,94 as well as uppermost cross brace 96. The end frames 88,90 are interconnected by a cross-tie assemblies 98 as illustrated.

Finally, Fig. 8 depicts a two-tier scaffold assembly 100 made up of two stacked scaffold assemblies 102,104. The assembly 102,104 is made up of end frames 106,108 including upright standards 110,112 and ledgers 114 extending between and interconnecting the standards. The ledgers 114 are located the safety distance 38 from the upper ends of the associated standards, and support a pair of platforms 116. A cross-tie structure 118,120 is used to interconnect the end frames 106,108, whereas guardrail assemblies 122,124 are secured to the standards within the safety distance. In this case, however, the end frames 106,108 have secondary guardrail assemblies 126 which augment the assemblies 122,124. Each of the end guardrail assemblies 126 is in the form of a pair of vertically spaced apart, laterally extending rails 128,130 with interconnecting angular struts 132. The end guardrail assemblies 126 are each conveniently attached to the standards 110,112 by connection pins, each of which is received in an opening defined in the assembly 126 and an aligned attachment hole 133 of the standard 110 or 112.

The lower assembly 102 is further supported by provision of four outriggers 134 respectively secured to each of the end frame standards. Each outrigger 134 includes an outboard vertical leg 136 together with horizontal and angular connection struts 138,140 secured to leg 136 and clamped to the associated end frame standard via clamps 142.

The upper scaffold assembly 104 is substantially identical with assembly 102 and thus need not be described in detail. However, it will be observed that the 104 assembly has, in lieu of the guardrail assembly 122, a secondary platform assembly 144. The assembly 144 includes a personnel platform 146 as well as upwardly extending, endmost standards 148,150 which support vertically spaced apart guardrail tie rods 152,154. The assembly 144 is secured to upper scaffold assembly 104 by means of depending angular struts 156 attached to the standards 110 via connection pins 158 (again, each being received in an opening in the strut 156 and an aligned one of the attachment holes 133). Those ordinarily skilled in the art will appreciate that the scaffolding is particularly useful in permitting various scaffolding accessories (e.g., the secondary guardrail assemblies 126, the secondary platform assembly 144, pulley-type winches, etc.) to be simply and quickly attached to the standards. That is, the equally spaced apart attachment holes provide a system by which auxiliary scaffold components can be universally designed for uncomplicated association with the end frames.

The preferred forms of the invention described above are to be used as illustration only, and should not be utilized in a limiting sense in interpreting the scope of the present invention. Obvious modifications to the exemplary embodiments, as hereinabove set forth, could be readily made by those skilled in the art without departing from the spirit of the present invention.

The inventor hereby states his intent to rely on the Doctrine of Equivalents to determine and assess the reasonably fair scope of the present invention as pertains to any apparatus not materially departing from but outside the literal scope of the invention as set forth in the following claims.

Having thus described the preferred embodiments of the invention, what is claimed as new and desired to be protected by Letters Patent includes the following:

What is claimed is:

1. A scaffold assembly, comprising:

a pair of end frames, each comprising a pair of laterally spaced apart, outermost, upright standards having opposed upper and lower ends, with a primary platform ledger extending between and fixedly interconnected with said standards,

said primary platform ledger being located a safety distance of at least about thirty inches below each of said standard upper ends,

said end frames being free of platform ledgers within said safety distance above said primary ledger;

a personnel platform removably extending between said end frames and supported by said ledgers of the end frames,

said platform presenting a lateral span dimension that is less than the lateral distance between said outermost standards, such that the platform is positionable between the standards,

said end frames each being devoid of any platform supportable structure extending between and interconnected with said standards, other than the primary ledgers;

cross-tie structure removably interconnecting said end frames to present a free-standing scaffold assembly; and

a guardrail assembly removably extending between said end frames in said safety distance above said personnel platform.

2. The scaffold assembly as claimed in claim 1,

said platform having a pair of hooks adjacent each end thereof, said hooks engaging the adjacent ledger.

3. The scaffold assembly as claimed in claim 2,

said platform being laterally shiftable along the lengths of said ledgers.

4. The scaffold assembly as claimed in claim 3,
at least one of said end frames having a ladder unit.

5. The scaffold assembly as claimed in claim 1,
said safety distance being from about thirty-six to forty-two inches below the upper ends of said standards.

6. The scaffold assembly as claimed in claim 1,
said cross-tie structure comprising a pair of crossing, angularly oriented tie bars operatively connected to opposed standards of said end frames.

7. The scaffold assembly as claimed in claim 1,
said guardrail assembly comprising at least one guardrail cross-tie extending between opposed standards of said end frames and substantially perpendicular thereto.

8. The scaffold assembly as claimed in claim 1,
each of said end frames including a pair of leveling units, each being affixed to a respective one of the lower ends of the standards.

9. The scaffold assembly as claimed in claim 1,
said ledgers being integrally attached to said standards.

10. The scaffold assembly as claimed in claim 1,
each of said standards including a pin-type lock for attachment of said cross-tie structure thereto.

11. The scaffold assembly as claimed in claim 1; and
a plurality of personnel platforms located in side-by-side relationship and each supported by said end frame ledgers.

12. The scaffold assembly as claimed in claim 1,

each of said end frames including at least one angularly disposed reinforcement brace extending between an underside of said ledger and a point on a corresponding one of the standards below the ledger.

13. The scaffold assembly as claimed in claim 1,

said primary ledger comprising a pair of closely spaced apart, laterally extending ledger bars, said ledger bars both being spaced said safety distance below each of said standard upper ends.

14. The scaffold assembly as claimed in claim 1,

said upper ends of the standards being tubular,

each of said end frames including a pair of reduced diameter insert pins, each of which is removably received in a respective one of the upper ends of the standards and projecting upwardly therefrom so as to permit attachment of another end frame atop of the end frame.

15. The scaffold assembly as claimed in claim 14; and

another of said scaffold assemblies located atop said first-mentioned scaffold assembly and secured to and supported thereby,

said insert pins being received within the lower ends of the standards of said another of said scaffold assemblies.

16. The scaffold assembly as claimed in claim 1; and

an outrigger assembly operatively coupled to and extending from each of said standards.

17. The scaffold assembly as claimed in claim 1; and

a secondary personnel platform assembly secured to opposed standards of said end frames and including a secondary personnel platform, with said secondary platform being located at said safety distance below the upper ends of said standards,

said secondary personnel platform assembly further including a secondary guardrail assembly extending upwardly from the secondary platform.

18. The scaffold assembly as claimed in claim 1,

each of said standards being provided with a plurality of accessory attachment holes spaced equidistantly along the length thereof; and

a scaffolding accessory having at least a pair of attachment openings spaced apart a distance equal to that defined between corresponding attachment holes,

each of said end frames including a plurality of connection pins, each being received in aligned ones of the attachment holes and openings to removably attach the accessory to the corresponding standard.

19. The scaffold assembly as claimed in claim 18,

said scaffold accessory comprising a secondary personnel platform assembly secured to opposed standards of said end frames and including a secondary personnel platform, with said secondary platform being located at said safety distance below the upper ends of said standards.

20. A scaffold end frame comprising:

a pair of laterally spaced apart, outermost, upright standards having opposed upper and lower ends; and

a primary platform ledger extending between and being fixedly interconnected with said standards, said primary ledger being capable of supporting an end of a personnel platform,

said primary platform ledger being located a safety distance of at least about thirty inches below each of said standard upper ends,

said end frame being free of platform ledgers within said safety distance above said primary ledger,

said end frame being devoid of any platform supportable structure extending between and interconnected with said standards, other than the primary ledger.

21. The scaffold end frame as claimed in claim 20; and

a ladder unit extending generally vertically alongside one of the standards.

22. The scaffold end frame as claimed in claim 20,

said safety distance being from about thirty-six to forty-two inches below the upper ends of said standards.

23. The scaffold end frame as claimed in claim 20; and

a pair of leveling units, each being affixed to a respective one of the lower ends of the standards.

24. The scaffold end frame as claimed in claim 20,

said upper ends of the standards being tubular; and

a pair of reduced diameter insert pins, each of which is removably received in a respective one of the upper ends of the standards and projecting upwardly therefrom so as to permit attachment of another end frame atop said end frame.

25. The scaffold end frame as claimed in claim 20,

each of said standards including a pin-type lock secured thereto.

26. The scaffold end frame as claimed in claim 20; and

at least one angularly disposed reinforcement brace extending between an underside of said ledger and a point on a corresponding one of the standards below the ledger.

27. The scaffold end frame as claimed in claim 20,

said primary ledger comprising a pair of closely spaced apart, laterally extending ledger bars, said ledger bars both being spaced said safety distance below each of said standard upper ends.

28. The scaffold end frame as claimed in claim 20,

each of said standards being provided with a plurality of accessory attachment holes spaced equidistantly along the length thereof; and

a plurality of connection pins, each being received in aligned ones of the attachment holes to permit removable attachment of a scaffolding accessory to the corresponding standard.

29. The scaffold assembly as claimed in claim 4,
said ladder unit comprising a ladder side frame and rungs extending between said ladder side frame and one of the upright standards.

30. The scaffold assembly as claimed in claim 29,
said ladder side frame being disposed between the outermost pair of laterally spaced apart upright standards.

31. The scaffold assembly as claimed in claim 30,
said ladder side frame having a lower end that is spaced vertically above the ledger, such that the platform is positionable under the ladder unit.

32. The scaffold end frame as claimed in claim 21,
said ladder unit comprising a ladder side frame and rungs extending between said ladder side frame and one of the upright standards.

33. The scaffold end frame as claimed in claim 32,
said ladder side frame being disposed between the outermost pair of laterally spaced apart upright standards.

34. The scaffold end frame as claimed in claim 33,
said ladder side frame having a lower end that is spaced vertically above the ledger, such that a personnel platform is capable of being positioned under the ladder unit.

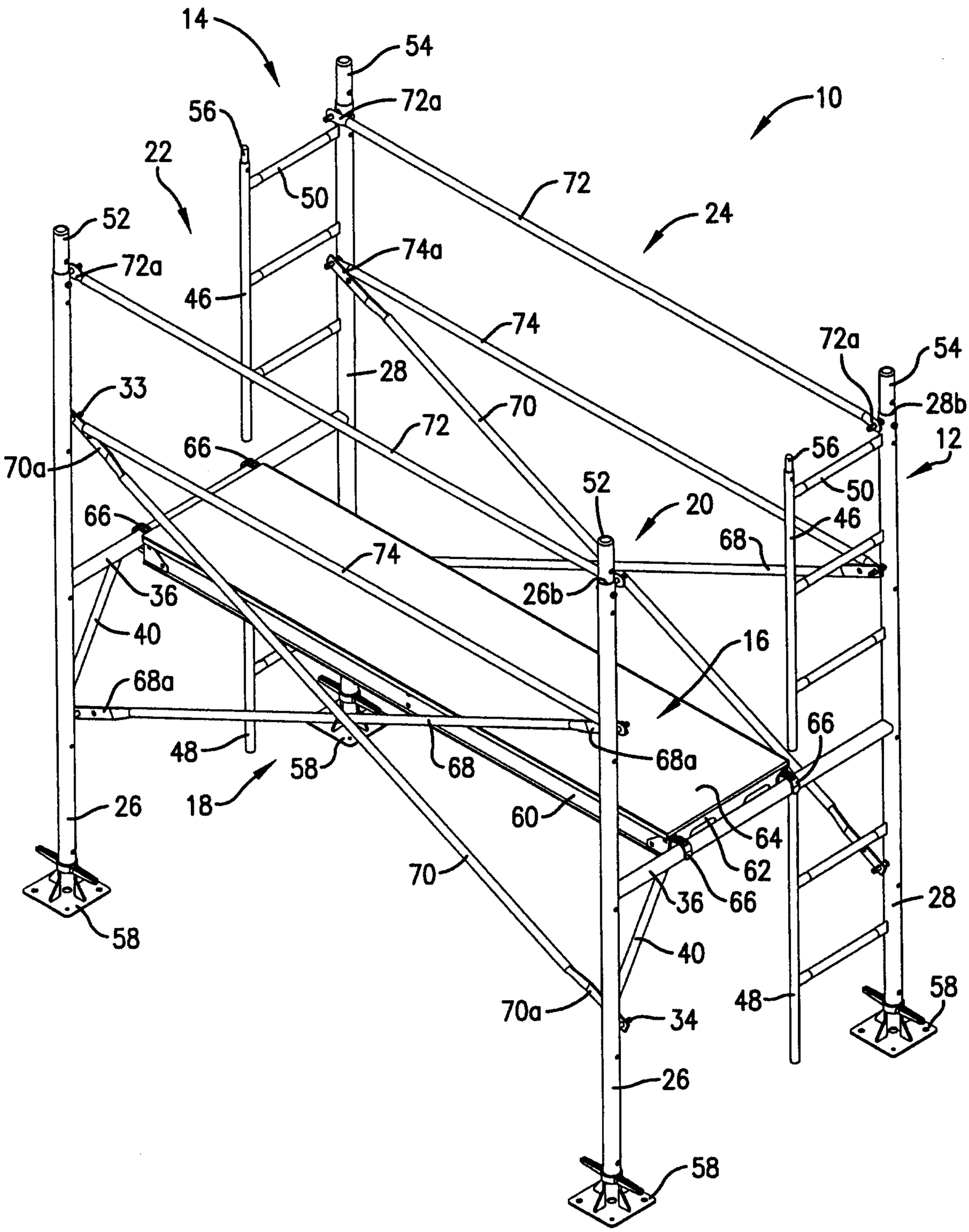
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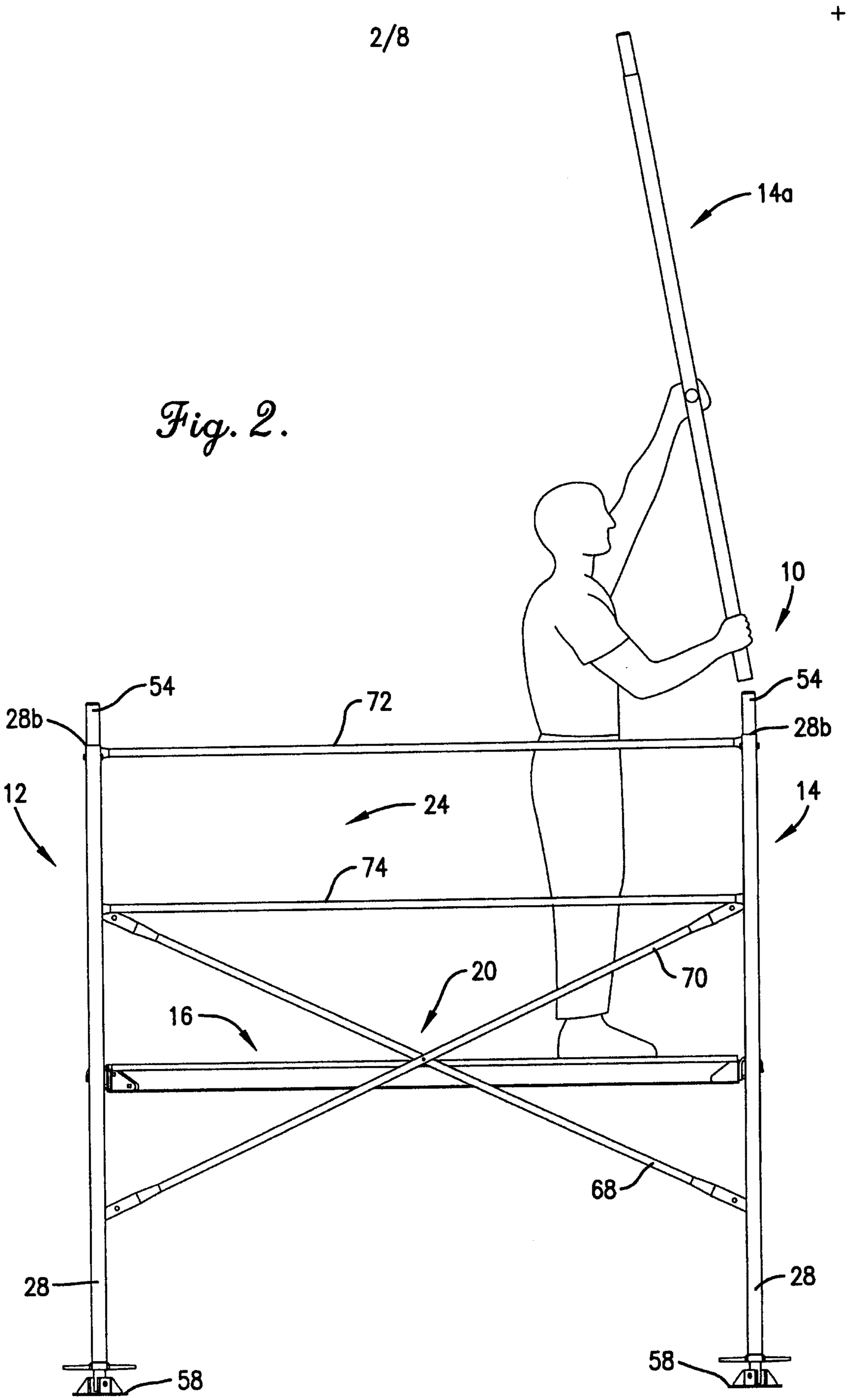
Fig. 1.

Fig. 2.



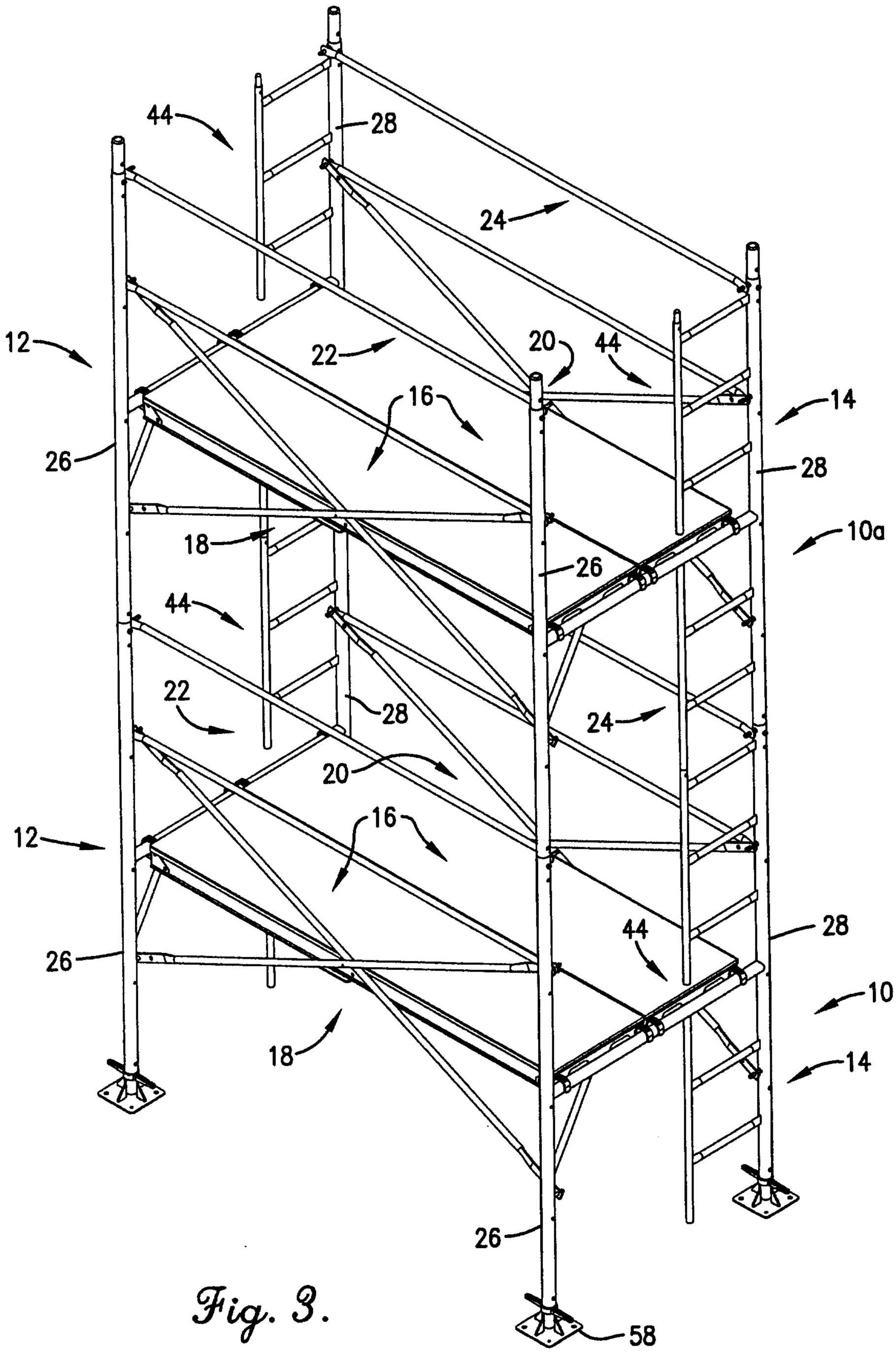

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Fig. 3.

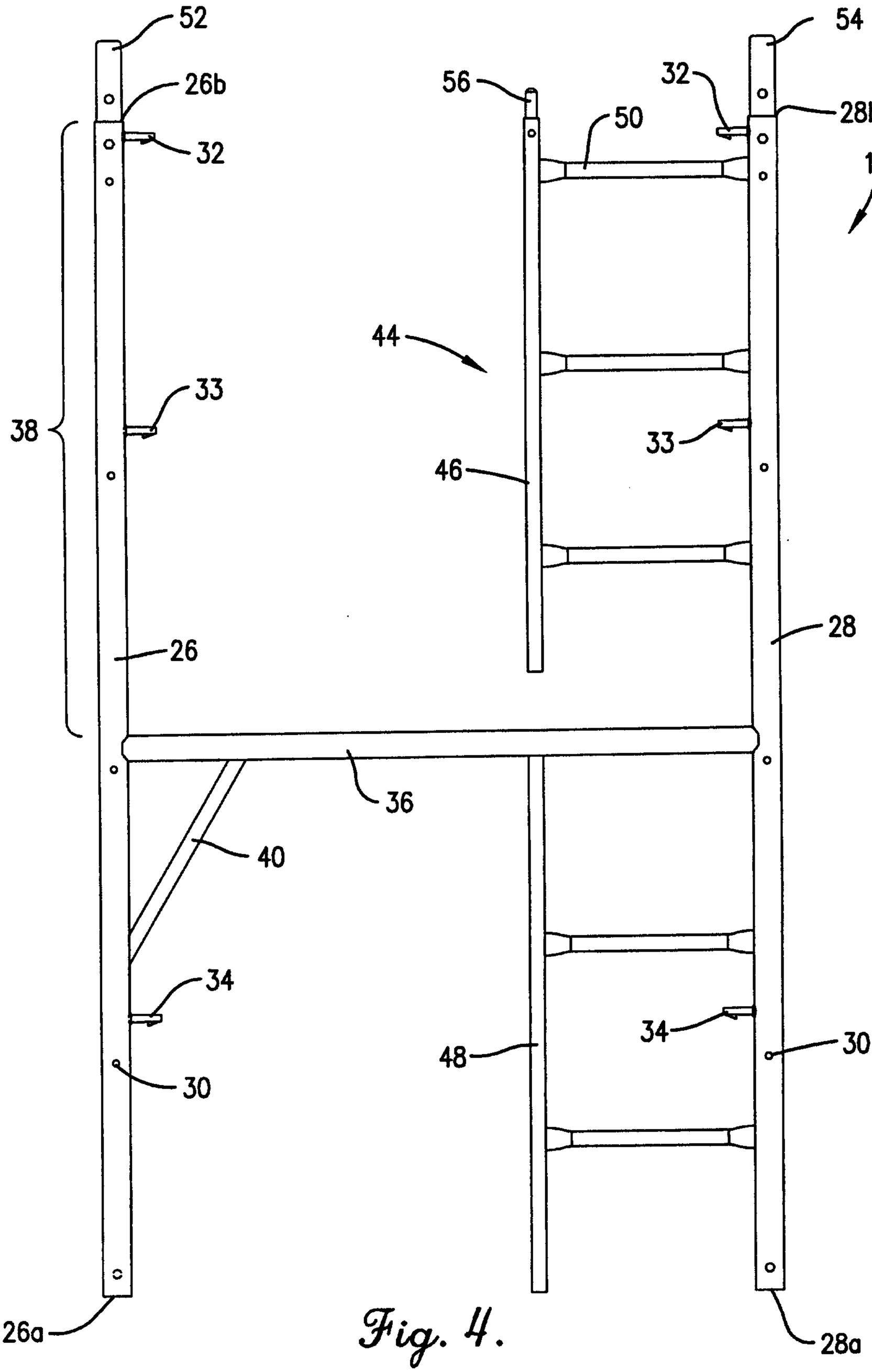
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Fig. 4.

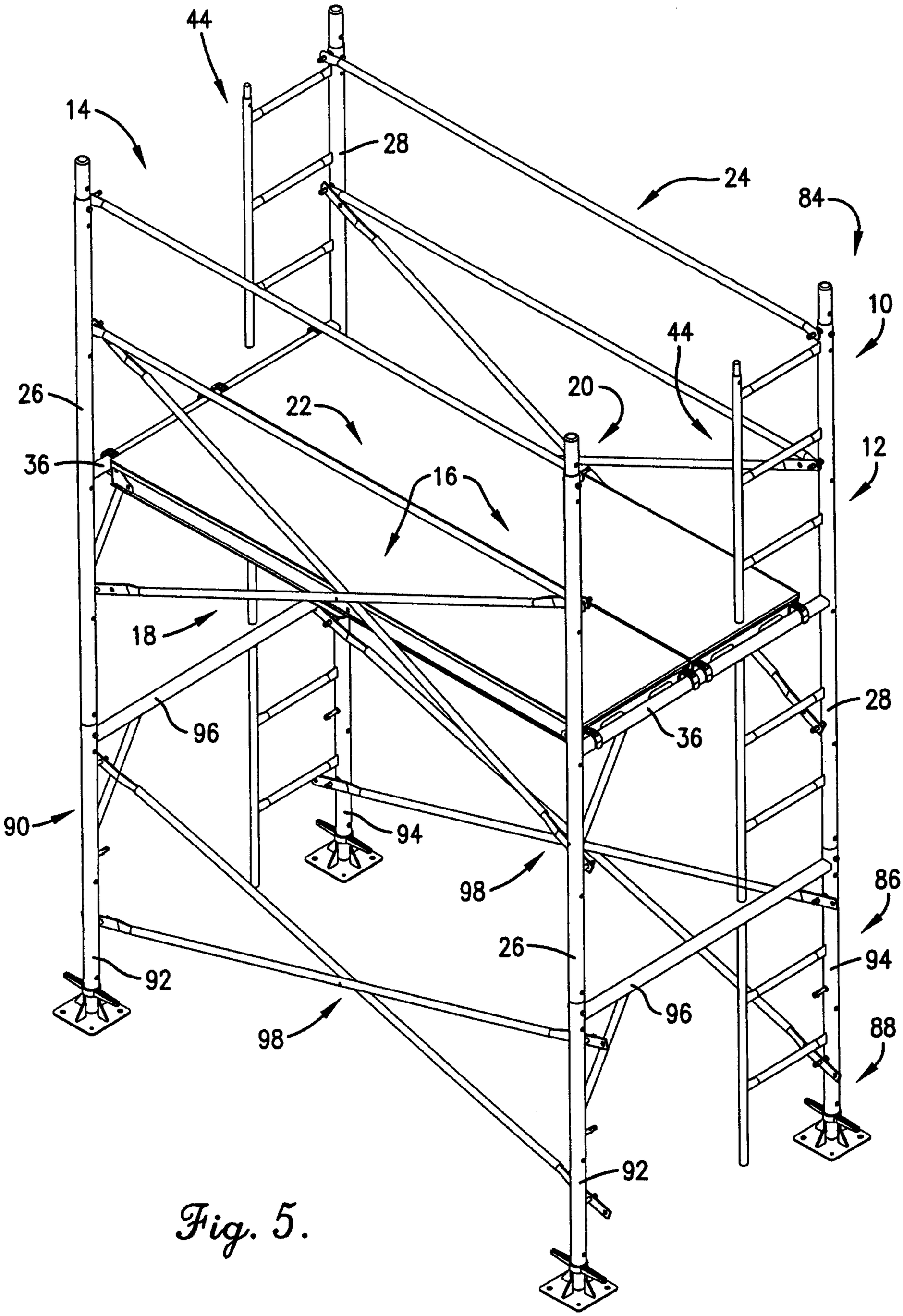
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Fig. 5.

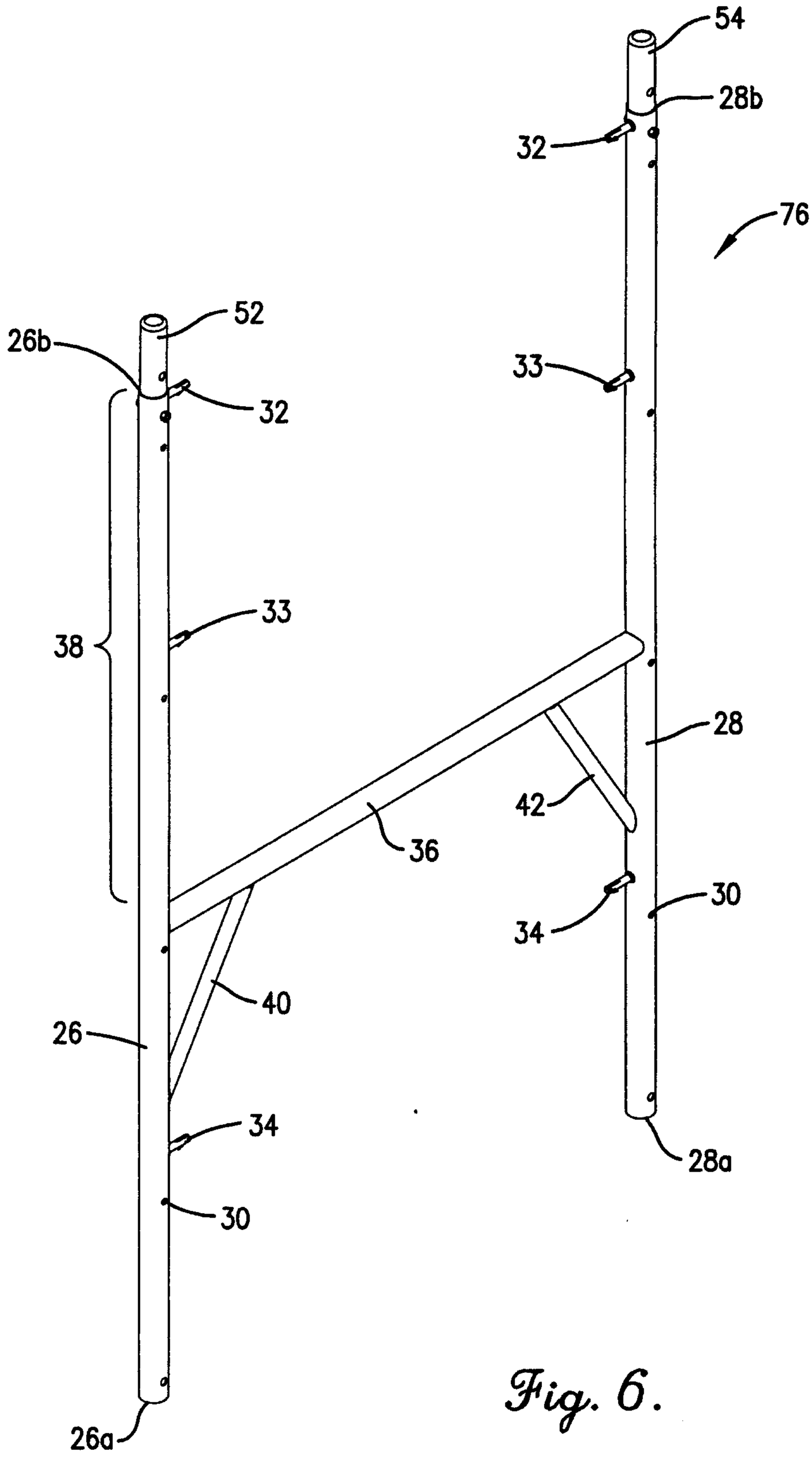

Fig. 6.

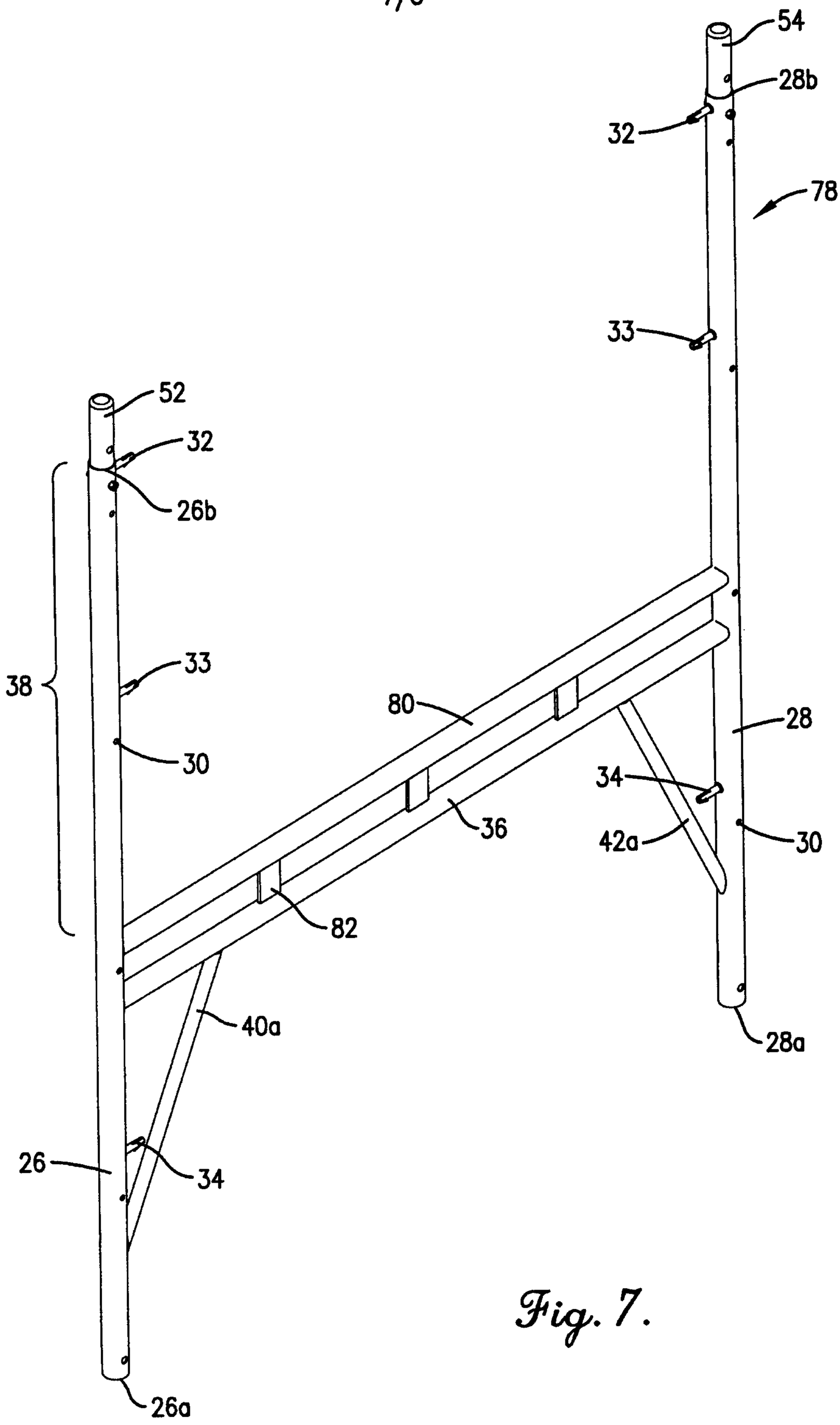
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Fig. 7.

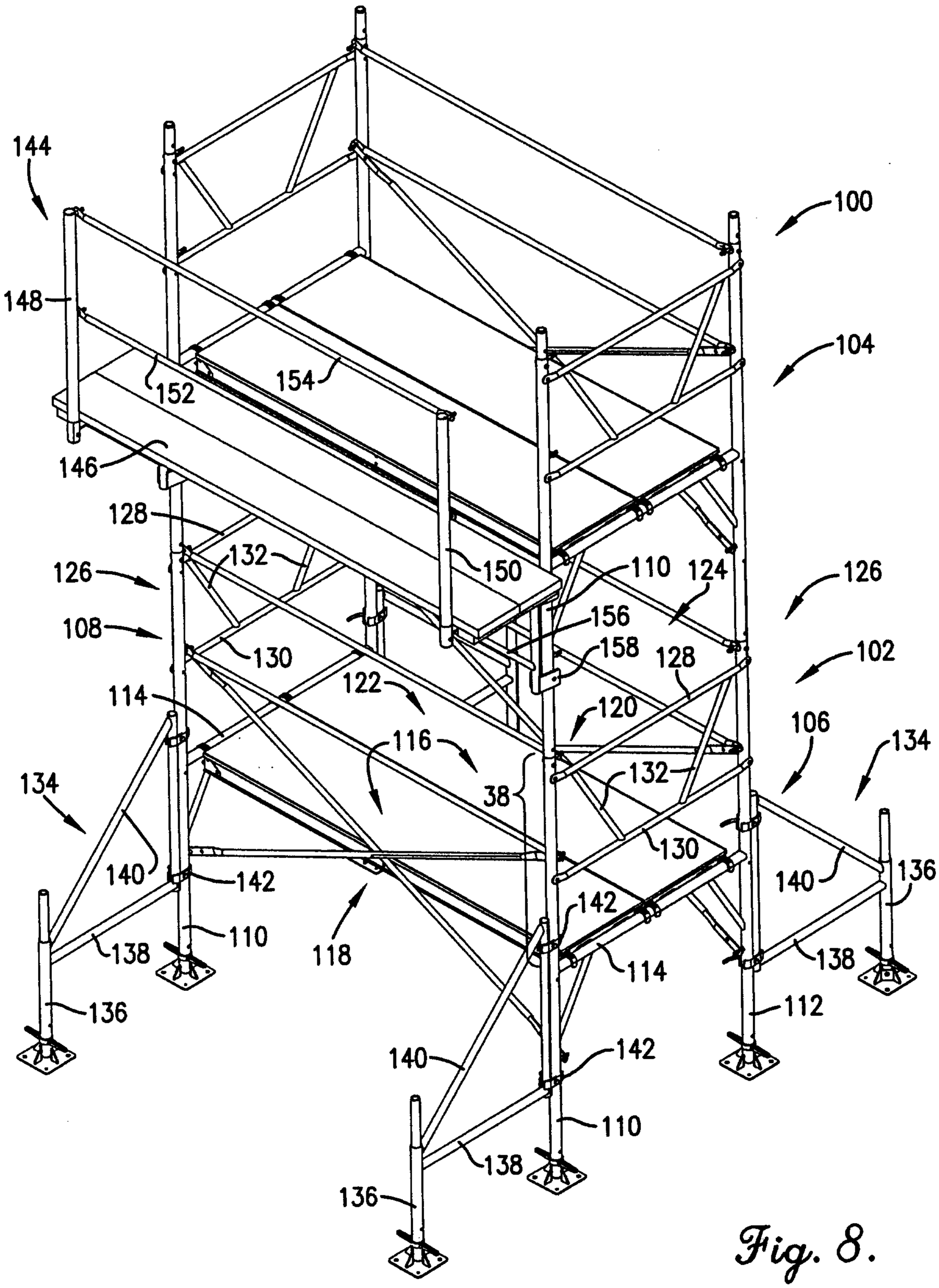
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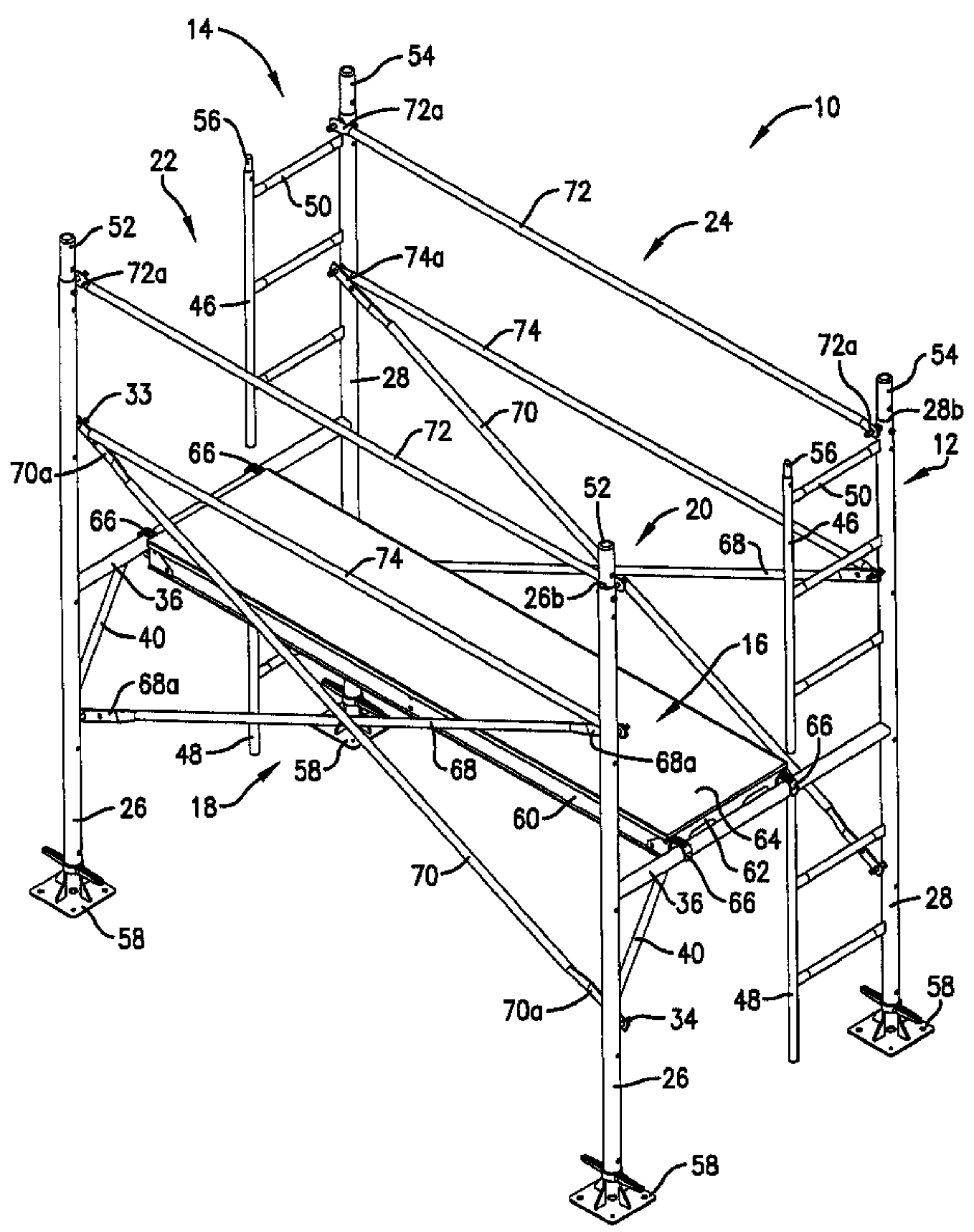
Fig. 8.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