May 8, 1956 W. B. SHEARD 2,744,794

FOLDABLE END-FRAMES FOR SECTIONAL SCAFFOLDINGS

Filed Dec. 7, 1953 2 Sheets-Sheet 1

Fig. 1.

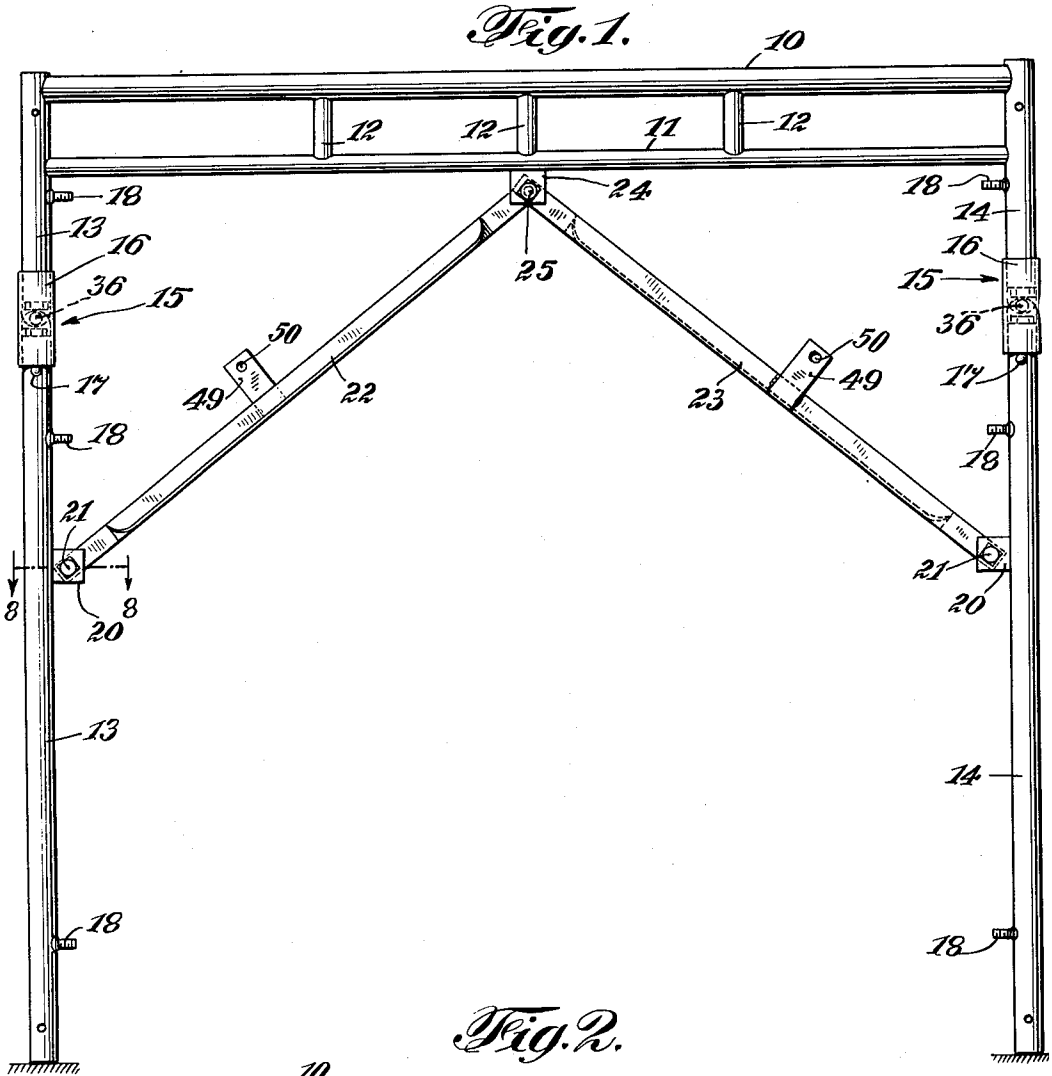
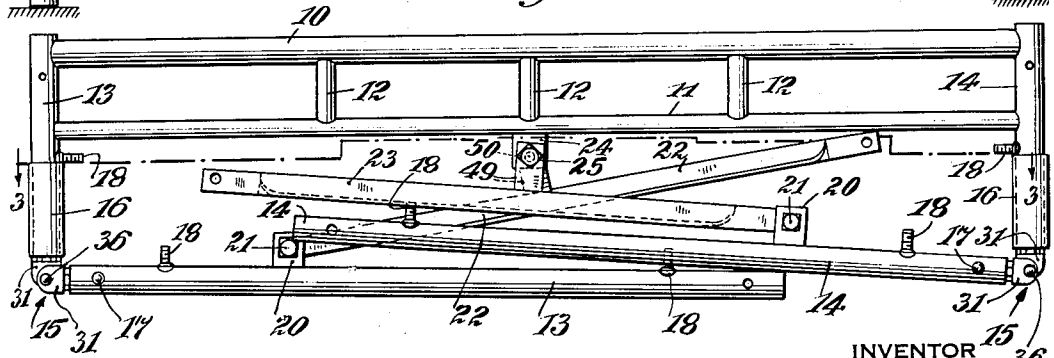


Fig. 2.



INVENTOR
William Byl Sheard
BY C. P. Goepel
his ATTORNEY

May 8, 1956 W. B. SHEARD 2,744,794

FOLDABLE END-FRAMES FOR SECTIONAL SCAFFOLDINGS

Filed Dec. 7, 1953 2 Sheets-Sheet 2

Fig. 3.

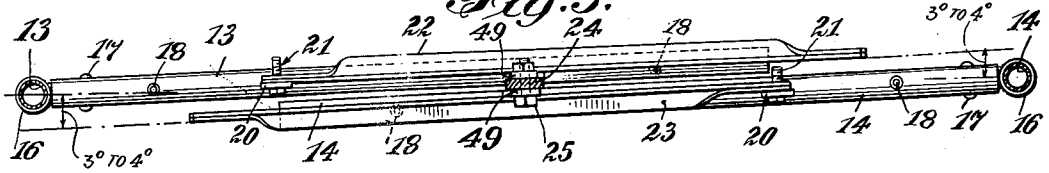


Fig. 4.

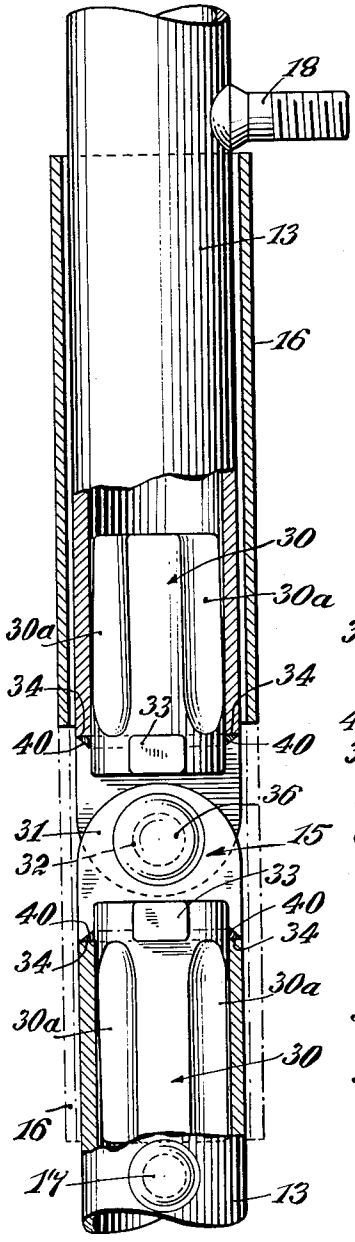


Fig. 5.

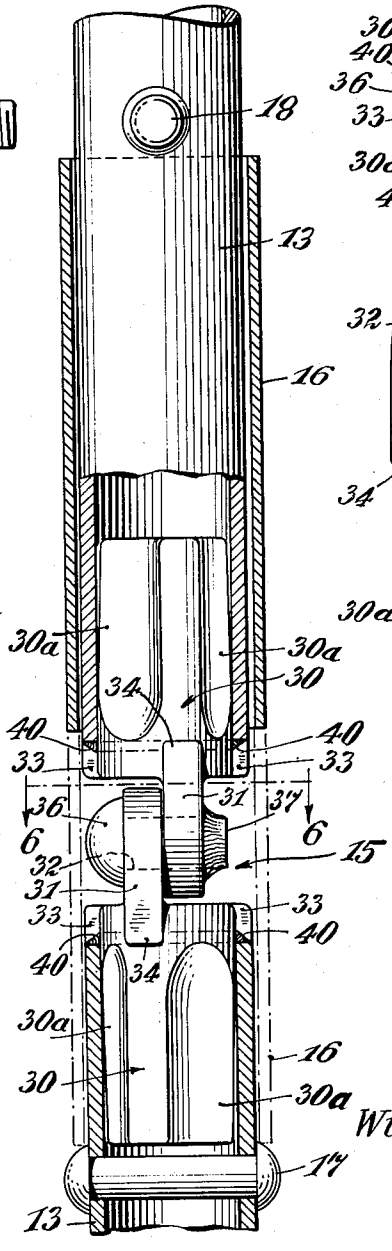


Fig. 6.

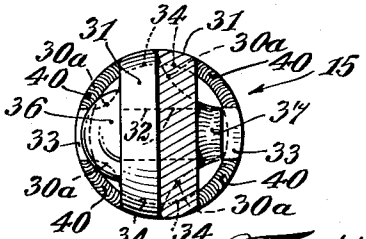


Fig. 7.

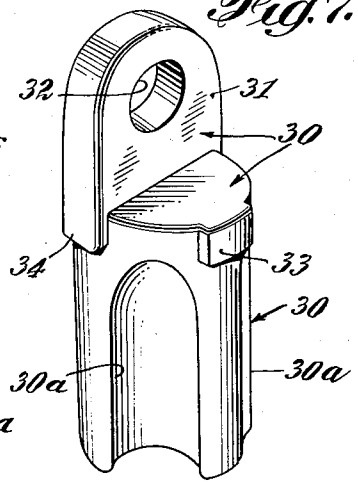
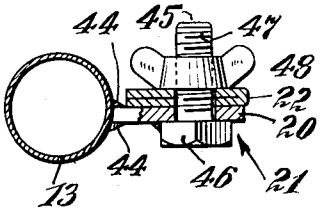


Fig. 8.



INVENTOR
William Byl Sheard
BY C. P. Goepel
his ATTORNEY

United States Patent Office

2,744,794

Patented May 8, 1956

2,744,794

FOLDABLE END-FRAMES FOR SECTIONAL SCAFFOLDINGS

William Byl Sheard, Pleasantville, N. Y., assignor to The Patent Scaffolding Co., Inc., Long Island City, N. Y., a corporation of New York

Application December 7, 1953, Serial No. 396,393

1 Claim. (Cl. 304—2)

This invention relates to end-frames for sectional scaffolding and has for its object to provide an end-frame whose parts may be collapsed when the same is not in use, so as to save space in the storage or in the transporting of said end-frames and to enable the same to pass through small manholes as in tanks, ships, boilers, furnaces, etc.

The invention consists of an improved end frame which has the usual top portions with strengthening braces and uprights with cross braces, but the uprights are provided with hinges to enable one part of the upright to be swung over to be parallel with the top frame, and the braces of the top frame to be swung over the folded upright.

By the means described a compact member is provided requiring a small area when not in use, while in storage, during transport or when being passed through manholes or small openings.

The invention will be further described and shown in the embodiments of the drawings, and finally set forth in the claim.

In the accompanying drawings:

Fig. 1 is a front view of the improved end frame in full operative position;

Fig. 2 is a front view of the same end frame, but in collapsed position;

Fig. 3 is a section taken on line 3—3 of Fig. 2;

Fig. 4 is a front view of the hinge part of the end frame;

Fig. 5 is a side view of hinge part of the end frame;

Fig. 6 is a section taken on line 6—6 of Fig. 5;

Fig. 7 is a perspective view of the lower hinge unit; and

Fig. 8 is a sectional view taken on line 8—8 of Fig. 1.

Similar characters of reference indicate corresponding parts throughout the views.

Referring to the drawings, and more particularly to Figs. 1 and 2, the improved end frame has a horizontal top bar **10**, with a second top bar **11** spaced therefrom and parallel therewith, and with spaced braces **12** between said horizontals. The braces **12** may be changed to other designs, and they and the lower bar **11** could be omitted.

To the ends of said horizontals **10** and **11**, uprights **13** and **14** are secured by welding or the like, and while the heights of said uprights vary, they usually follow a standard height. Each upright has a hinge knuckle **15** of the same structure which is surrounded by a slidable sleeve **16** held in position against lowering by a pin **17**. Each upright also has brace holding studs **18** in the embodiment shown in Fig. 1, usually two or three in number. Each upright has a small bracket **20**, supporting a fastening bolt or stud **21** with a nut to enable the lower end of each of the two braces **22** and **23** to be fastened to the bracket and thus to the upright, since end backet **20** is welded or otherwise secured to the upright. The other ends, i. e. the upper ends of the braces **22** and **23** overlap and are fastened to a bracket **24**, placed in the medium of the bar **11**, the upper ends of the braces **22** and **23** being smoothly fastened to the bracket **24** by a bolt and nut **25**.

The studs **18**, preferably screw threaded, are known and

serve as supports and a part of fastening means for longitudinal braces holding two end frames placed parallel to each other and spaced from each other in sectional structure position. These longitudinal braces are well known; they are usually shown in any patent for sectional scaffolding, and therefore not shown herein.

The improved end frame is shown in front view in Fig. 1. When it is desired to callapse this end frame, the nut or bolt **25** is removed. The sleeve **16** is raised so as to move out of way for the operation of the hinge knuckle **15**, and the lower part of the upright **13** is moved on its upper end hinge in a position at right angles to upper end of the upright. The brace **22** is then pivoted on studs or bolts **21** to a position substantially parallel with the upright **13**; likewise the upright **14** is swung over, and the brace **23** swung over, all as shown in Fig. 2.

To braces **23** are welded plates **49** with hole **50** which, when braces are folded into position as shown in Fig. 2, will slip over stud or bolt **25**. The nut is then replaced on stud or bolt **25** to hold both braces **23** and uprights **14** in the folded position, as shown in Fig. 2, thus simplifying the handling as it prevents braces **23** and uprights **14** from flopping around.

As seen in Fig. 3, the end frame in collapsed condition is very compact. There is only a 3° to 4° inclination to the line connecting the axes of the uprights **13** and **14**.

Referring to Fig. 4, it may be seen that the upper and lower portions of the tubular uprights **13** and **14** are sleeved to a hinge member **30**, having grooves **30***a*, to lighten the weight and facilitate its insertion into the tube, and has a pivot support **31**, with an opening **32** therein, slightly off center. The top of each member **30** has two diametrically opposed shoulders **33**, and the pivot support **31** extends downwardly to provide a shoulder **34**, one at each end of the hinge member. Above the hinge member **30** and vertically aligned therewith is a like member, but in the opposite direction. The two hinge members **30** have their pivot support **31** facing each other, that is, they have their contact planes in one common plane and the openings of holes **32** registering with each other, so that a headed bolt **36**, having its opposite end **37** welded or headed will act as a pivot to the two adjacent pivot members **31**. (See Fig. 6.) The hinge members **30** are each secured to the interior of the ends of uprights, as by welding **40** or the like. Below the end of the lower upright **13** or **14** is a stop **17** in the form of a double headed bolt passing through tubular upright; its two ends forming a support for the sleeve **16** and limiting its downward movement, which the sleeve **16** takes, to cover this pivotal mechanism when released from the full line position in Fig. 4. The two joined parts of the upright **13** or **14** may be pivotally operated with respect to each other when said sleeve is raised. Then, when the parts of the upright **13** are again aligned, the sleeve **16** is lowered against the stop **17** to prevent the buckling of the upright **13**.

In Fig. 8, a section taken on line 8—8 of Fig. 1 is shown. The tubular upright **13** has the bracket **20** secured thereto by welding **44** or the like. The bent overlapping end of the brace **22** has a hole in registration with a hole in the bracket **20**. A bolt **45**, having a fixed head **46**, and screwthreads **47**, engaged by a wing nut **48**, serves to clamp said brace **22** to the bracket **20**.

The length of the plug or hinge member **30** is about 2 to 4 times the diameter of the tubular bore of the upright.

The other surface of the plug **30** tapers a little but has a tight fit with the inner surface of the tubular bore of the upright.

The invention has been described in the light of the embodiments shown, but changes may be made without departing from the spirit of the invention as set forth in the following claim:

I claim:

In a foldable end frame for sectional scaffolds, said frame including a horizontal member, a first bracket depending from the median portion of said horizontal member and having a bore, a first upright, a second upright, said uprights depending from and having their upper ends rigidly connected to the ends of said horizontal member, each of said uprights consisting of two hingedly connected sections, the length of the lower of said sections being less than the length of said horizontal member, adjustable locking means for retaining said sections of said uprights in axial alignment, a first diagonal brace having the lower extremity thereof hingedly attached to the lower section of said first upright, a second diagonal brace having the lower extremity thereof hingedly attached to the lower section of said second upright, said braces having bores in the upper extermities thereof registerable with said bore in said first bracket when said sections of said uprights are in axial alignment, and a locking device insertable into said bores of said first bracket and said braces for locking said end frame in erected position, in combination: a second bracket attached to and spaced a predetermined distance from the upper extremity of said

first brace, and a third bracket attached to and spaced a predetermined distance from the upper extremity of said second brace, said second and said third bracket each having an opening registerable with said bore in said first bracket when said lower sections of said uprights are folded below said horizontal member, said locking device being insertable into said bore of said first bracket and said openings in said second and said third bracket for locking said end frame in collapsed position.

References Cited in the file of this patent

UNITED STATES PATENTS

927,713	Clausen	July 13, 1909
1,766,085	Rumer	June 24, 1930
2,293,489	Causey	Aug. 18, 1942
2,467,688	Oertle et al.	Apr. 19, 1949
2,593,386	Dirks	Apr. 15, 1952
2,594,464	Loucks	Apr. 29, 1952

FOREIGN PATENTS

284,333	Switzerland	July 31, 1952