May 10, 1966 M. ROMANO 3,250,344

STEPLADDER-SCAFFOLD COMBINATION

Filed Oct. 8, 1964

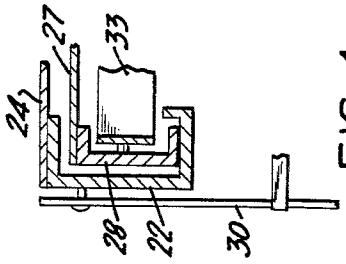


FIG. 4

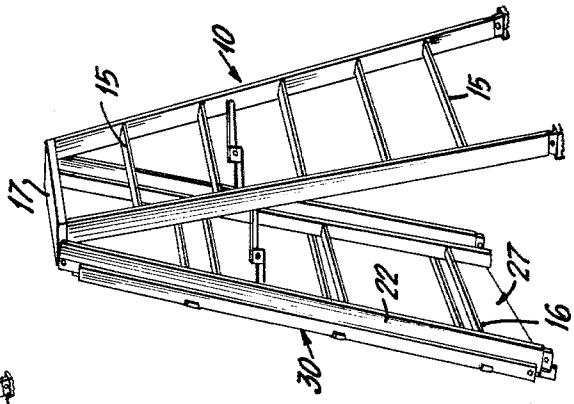


FIG. 3

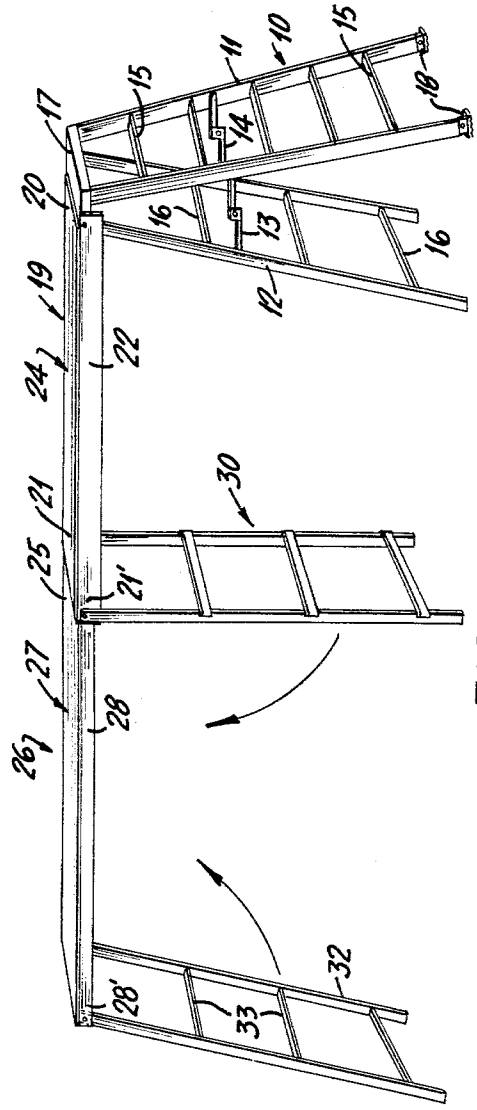


FIG. 1

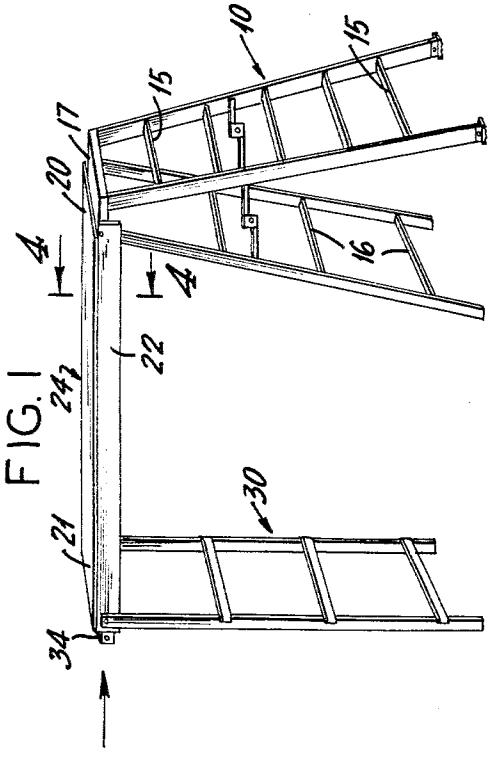


FIG. 2

INVENTOR.
MARIO ROMANO

BY Cushman & Thomas

ATTORNEYS.

United States Patent Office 3,250,344 Patented May 10, 1966

3,250,344

STEPLADDER-SCAFFOLD COMBINATION

Mario Romano, 16 Tower Court, Hempstead, N.Y.

Filed Oct. 8, 1964, Ser. No. 403,447
6 Claims. (Cl. 182—27)

This invention relates to stepladder-scaffold combinations. More particularly, it relates to an improved stepladder-scaffold structure which is simple, durable, efficient and readily transportable.

The many known combined stepladder and scaffold arrangements which may function as a stepladder and which are expandable to a scaffold are all characterized by stepladder to scaffold expansion mechanisms which may comprise such devices such as complex pivotally constructed lazy tong levers, hingedly connected scaffold platform sections, and pivotable links which connect the scaffold platform to the stepladder components. Of necessity, these hinge, pivot and link constructions are complicated expensive, difficulty maintained and quite heavy for ready manual transportation from one location to another. Furthermore, because of such constructions, these arrangements, even when collapsed to a stepladder, cannot be compact and are disadvantageously space consuming.

Accordingly, it is an important object of this invention to provide an efficient stepladder-scaffold which is simple in construction and durable.

Another object of the invention is to provide a stepladder-scaffold in accordance with the proceeding object which is collapsible to a compact stepladder structure and which is readily manually transportable from one location to another.

Generally speaking and in accordance with the invention, there is provided a combined stepladder-scaffold arrangement which includes a foldable stepladder adapted to rest firmly on a flat surface when in an unfolded position, a first channel wider than the ladder and adapted to be disposed in a plane parallel to the aforesaid surface, the first channel comprising a platform section having one end supported by the top of one ladder and side walls extending downwardly from the platform portion, a portion of the top of the ladder being received in the first channel. There is further provided a second channel sufficiently narrower than the first channel to be nestably slidable thereinto, the second channel being adapted to be disposed substantially continuous with the first channel and having a platform section parallel to the flat surface and side walls extending downwardly therefrom, one end of the second channel being received in the other end of the first channel, and upright support means, the platform portions constituting the platform, the upright support means being carried by the channels to support the platform. Preferably, the upright means comprises a first support located at the junction of the first and second channels and a second support located at the other end of the second channel. For the combination advantages of maximum platform length and optimum space saving when the stepladder-scaffold is collapsed to a stepladder, the second platform portion slightly exceeds the first platform portion in length and the second support has a length slightly greater than that of the first, each support and each platform portion having a length substantially equal to the length of the ladder, approximately

equal to the height of the ladder. The second support preferably is hinged to the other end of the second channel to be able to be underfolded into the second channel and the second channel containing the second support is slidable into the first channel. The first support preferably is hinged to the outer surfaces of the side walls of the other end of the first channel to enable the first support to be folded to contain the first channel. The first channel is hinged at its one end to the top of the ladder whereby the combination of the first support engirdling the first channel which has received thereby the second channel containing the underfolded second support is enabled to be folded in abutting relationship with a side of the ladder.

Although such novel feature or features believed to be characteristic of the invention are pointed out in the claims, the invention and manner in which it may be carried out may be further understood by reference to the following description and the accompanying drawings.

In the drawings, FIG. 1 is a three dimensional view of a stepladder-scaffold arrangement constructed in accordance with the principles of the invention in its fully expanded position;

FIG. 2 is a three dimensional view showing the stepladder-scaffold arrangement of FIG. 1 in a partially expanded position;

FIG. 3 is a three dimensional view showing the stepladder-scaffold arrangement of FIG. 1 in its collapsed condition; and

FIG. 4 is a section taken along lines 4—4 of FIG. 2 looking in the direction of the arrows.

Referring now to the figures, the stepladder portion **10** therein comprises the usual two slanted upright **11** and **12** which are foldable to an open and a closed position by hinged braces **13** and **14**. Portion **11** includes the usual vertically spaced steps **15** and portion **12** includes the spaced crossbars **16**, the top of the ladder being designated by the numeral **17**. To insure firm full surface contact of portion **11** with a flat surface when ladder **10** is in the unfolded position, rubber treaded safety shoes may be provided at the bottom ends of the side rails of portion **11**.

A first channel **19** having a width greater than ladder **10** has one end **20** thereof resting on, and substantially parallel to the long dimension of a portion of top **17**, channel **20** comprising a surface, i.e. platform portion **24** adapted to be disposed parallel to the flat surface upon which ladder **10** rests, and side walls **22** which extend perpendicularly downwardly from platform **24**.

A second channel **26** comprises a platform portion **27** which also comprises sidewalls **28** which extend downwardly perpendicularly from platform portion **27**. Channel **26** is chosen to have a length slightly longer than that of channel **19**, a width less than that of channel **19**, and sidewalls **28** are chosen to be shorter than sidewalls **22** whereby channel **26** is slidable into channel **19** and its substantially full length is receivable therein. When the arrangement of the figures is in its fully expanded position, end portion **25** of channel **26** is received in end portion **21** of channel **19**.

A runged upright support **30** is hingedly connected to the outer surface of the ends **21'** of sidewalls **22** and has a length such that it is disposed perpendicularly to the flat base and the platform portions and rests firmly on

the flat base when the stepladder-scaffold arrangement is in the expanded position.

A support **32** having rungs **33** is hingedly connected to the inner surfaces of ends **28'** of sidewalls **28**. Upright support **32** is chosen to be slightly longer than support **30** and the bottom of its side rails so cut that when the combination stepladder-scaffold is in its expanded position, it rests firmly on the flat base and extends upwardly to platform **27** at an angle displaced from the perpendicular. With this arrangement, of course, greater stability is provided to the arrangement.

Preferably, channel **19** is chosen to have a length just slightly less than the length of portion **12** of ladder **10**, upright **30** is optimally chosen to have a length about equal to that of channel **19**, channel **26** is chosen to have a length slightly greater than channel **19** and support **32** is chosen to have a length substantially equal to that of channel **26**, the greater length of channel **26** and support **32** enabling the oblique disposition of support **32**.

To collapse the arrangement shown in FIG. 1 to the position of FIG. 3, support **32** is first folded under to be received flush in the space defined by the undersurface of platform **27** and the inner surface of sidewalls **28**. Channel **26** containing upright **32** is now slid into channel **19** as far as it can go. As shown in FIG. 2, because of its greater length than channel **19**, a small portion **34** will protrude from the end of channel **19**. Upright **30** is now pivoted outwardly a 270° angle to flushly receive channel **19** and the flush combination is pivoted at end **20** to be in abutting relationship with portion **12** of ladder **10**.

From the foregoing, it is readily appreciated that with this invention there is provided a simple readily collapsible stepladder-scaffold combination which is readily manually transportable.

The terms and expressions which are employed are used as terms of description. It is recognized, though, that various modifications are possible within the scope of the invention claimed.

Having thus described certain forms of the invention in some detail what is claimed is:

1. A combined stepladder-scaffold arrangement comprising a foldable stepladder adapted to rest firmly on a flat surface when in an unfolded state, a first channel wider than said ladder and adapted to be disposed in a plane parallel to said surface, said first channel having a first platform portion substantially continuous with the top of said ladder and first side walls extending from said first platform portion and receiving a portion of said top therebetween, a second channel sufficiently narrower than said first channel to be nestably slidable into said first channel, said second channel being adapted to be disposed substantially parallel to said flat surface and having a second platform portion and second side walls one end of said second channel being normally received in the end portion of said first channel, said first and second platform portions constituting an extensible platform, and upright support means carried by said channels for supporting said extensible platform, said last named means comprising a first support located at the junction of the first and second channels, said first support pivotally attached to the outer surface of said first sidewalls substantially at said junction and a second support located at the other end of said second channel, said second support pivotally attached to the inner surface of said second sidewalls substantially at said other end of said channel, said second platform portion slightly exceeding in length that of said first portion, said second support slightly exceeding in length that of said first support, each of said platform portions and said uprights being substantially equal in length of said ladder.

2. A combined stepladder-scaffold arrangement comprising a foldable stepladder adapted to rest firmly on a flat surface when in an unfolded state, a first channel wider than said ladder and adapted to be disposed in a plane parallel to said surface, said first channel having a first platform portion substantially continuous with the top of said ladder and first side walls extending from said first platform portion and receiving a portion of said top therebetween, a second channel sufficiently narrower than said first channel to be nestably slidable into said first channel, said second channel being adapted to be disposed substantially parallel to said flat surface and having a second platform portion and second side walls, one end of said second channel being normally received in the end portion of said first channel, said first and second platform portions constituting an extensible platform, upright support means carried by said channels for supporting said extensible platform, said last named means comprising a first support located at the junction of the first and second channels and a second support located at the other end of said second channel, said first support adapted to be pivoted upward and about said first channel and said second support adapted to pivot upward and within said second channel when said arrangement is collapsed.

3. A combined stepladder-scaffold arrangement comprising a foldable stepladder adapted to rest firmly on a flat surface when in an unfolded state, a first channel wider than said ladder and adapted to be disposed in a plane parallel to said surface, said first channel having a first platform portion substantially continuous with the top of said ladder and first side walls extending from said first platform portion and receiving a portion of said top therebetween, a second channel sufficiently narrower than said first channel to be nestably slidable into said first channel, said second channel being adapted to be disposed substantially parallel to said flat surface and having a second platform portion and second side walls, one end of said second channel being normally received in the end portion of said first channel, said first and second platform portions constituting an extensible platform, upright support means carried by said channels for supporting said extensible platform, said last named means comprising a first support located at the junction of the first and second channels and a second support located at the other end of said second channel, said first support adapted to be pivoted upward and about said first channel and said second support adapted to pivot upward and within said second channel when said arrangement is collapsed, each of said platform portions and said uprights being substantially equal in length to the length of the ladder.

4. A combined stepladder-scaffold arrangement comprising a foldable stepladder adapted to rest firmly on a flat surface when in an unfolded state, a first channel wider than said ladder and adapted to be disposed in a plane parallel to said surface, said first channel having a first platform portion substantially continuous with the top of said ladder and first side walls extending from said first platform portion and receiving a portion of said top therebetween, a second channel sufficiently narrower than said first channel to be nestably slidable into first channel, said second channel being adapted to be disposed substantially parallel to said flat surface and having a second platform portion and second side walls, one end of said second channel being normally received in the end portion of said first channel, said first and second platform portions constituting an extensible platform, upright support means carried by said channels for supporting said extensible platform, said last named means comprising a first support located at the junction of the first and second channels and a second support located at the other end of said second channel, said first support adapted to be pivoted upward and about said first channel and said second support adapted to pivot upward and within said second channel when said arrangement is collapsed, said second platform portion slightly exceeding in length that of said first portion, said second support slightly exceeding in length that of said first support, each

of said platform portions and said uprights being substantially equal in length to the length of said ladder.

5. A combined stepladder-scaffold arrangement as defined in claim 4 in which said first support is pivotally attached to the outer surface of said first sidewalls substantially at said junction and said second support is pivotally attached to the inner surface of said second sidewalls substantially at said other end of said channel.

6. A combined stepladder-scaffold arrangement as defined in claim 5 wherein said first support is disposed substantially vertically and said second support is disposed obliquely when said arrangement is in expanded position.

References Cited by the Examiner

UNITED STATES PATENTS

575,397	1/1897	Hilliker	182—118
1,033,389	7/1912	Fritz	182—223
1,474,250	11/1923	Folliard	182—116
2,394,221	2/1946	Waltz	182—152

HARRISON R. MOSELEY, *Primary Examiner.*

REINALDO P. MACHADO, *Examiner.*