United States Patent

Rice

[15] **3,684,055**

[45] **Aug. 15, 1972**

[54] SCAFFOLD STRUCTURE

[72] Inventor: **Robert C. Rice,** 1405 Pemberton Drive, Ft. Wayne, Ind.

[22] Filed: **Aug. 27, 1970**

[21] Appl. No.: **67,359**

[52] **U.S. Cl.** **182/17,** 182/127, 182/129, 182/178

[51] **Int. Cl.** **E06c 1/397,** E06c 5/00

[58] **Field of Search**.....182/17, 129, 127, 15, 178

[56] **References Cited**

UNITED STATES PATENTS

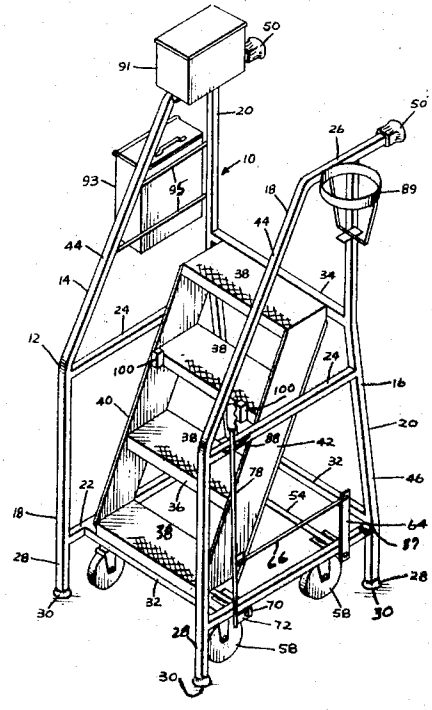
2,923,373	2/1960	Ledgerwood	182/17
2,585,763	2/1952	Gasner	182/17
2,380,160	7/1945	Fieroh	182/17
2,479,736	8/1949	Fieroh	182/17
2,624,590	1/1953	Tilton	182/17

Primary Examiner—Reinaldo P. Machado
Attorney—Hood, Gust, Irish & Lundy

[57] **ABSTRACT**

A scaffold structure having a frame with both means for stationarily supporting the frame and anti-friction means for movably supporting the frame. The anti-friction means is connected to the frame in a manner to allow movement between an extended position in which the frame is supported on the anti-friction means and a retracted position in which the frame is supported by the stationarily supporting means. Means is provided for moving the anti-friction means between its extended and retracted position and for locking the anti-friction means in its extended position. In a specific embodiment, the frame has a ladder secured to the frame and a second ladder removably connected to the frame, the removable ladder forming an extension of the secured ladder.

6 Claims, 7 Drawing Figures



PATENTED AUG 15 1972

3,684,055

SHEET 1 OF 3

FIG.1

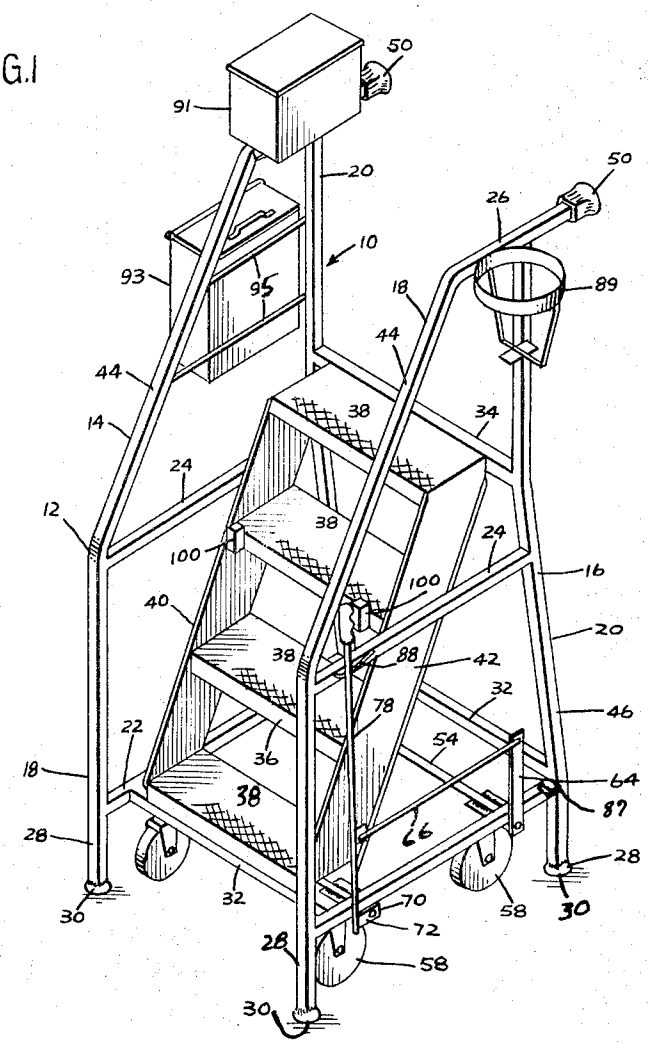
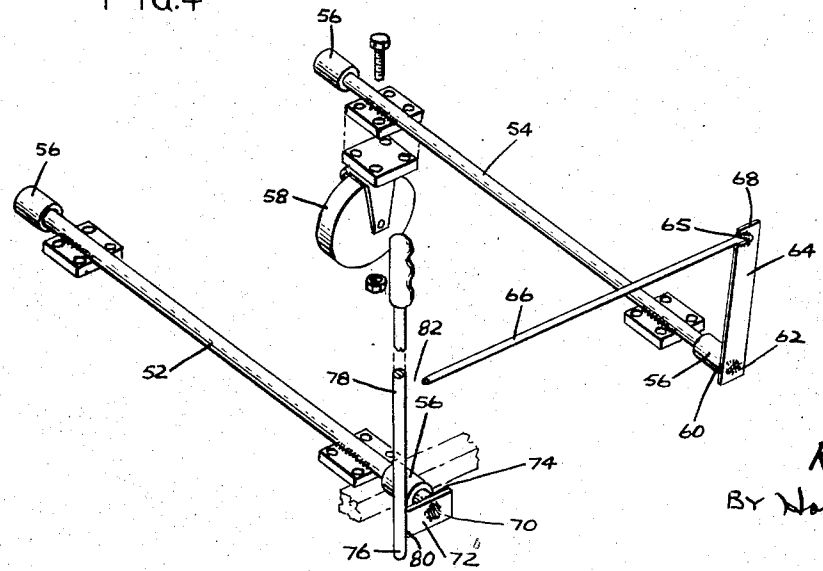


FIG.4



INVENTOR
Robert C. Rice
BY Wood, Just, Dutch & Lundy
ATTORNEYS.

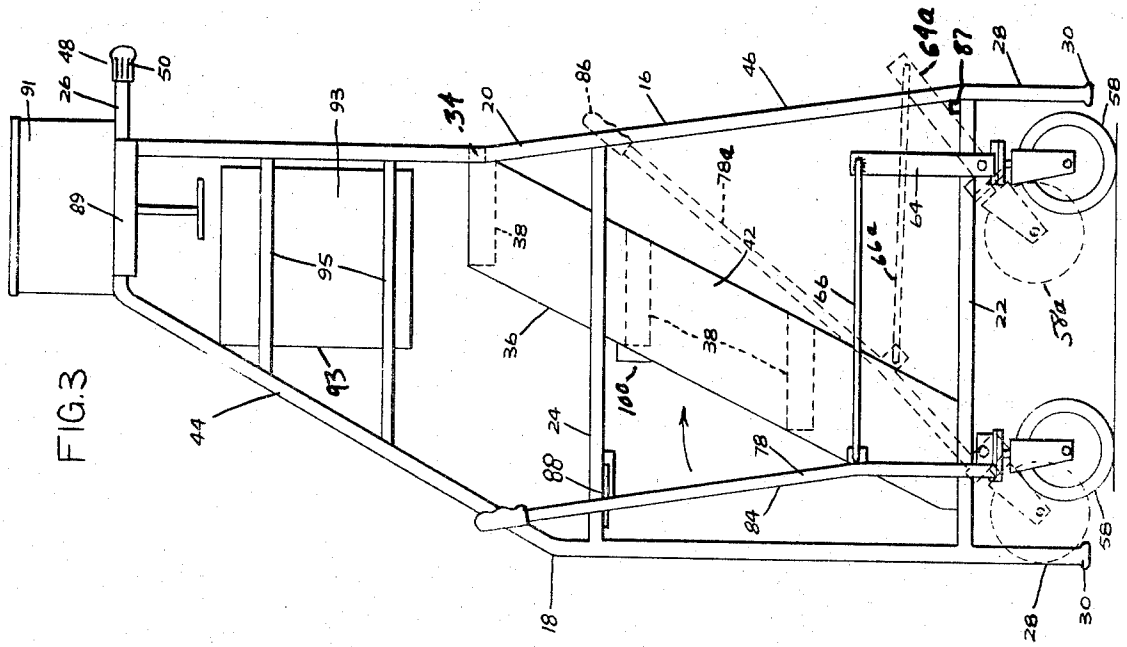


FIG.3

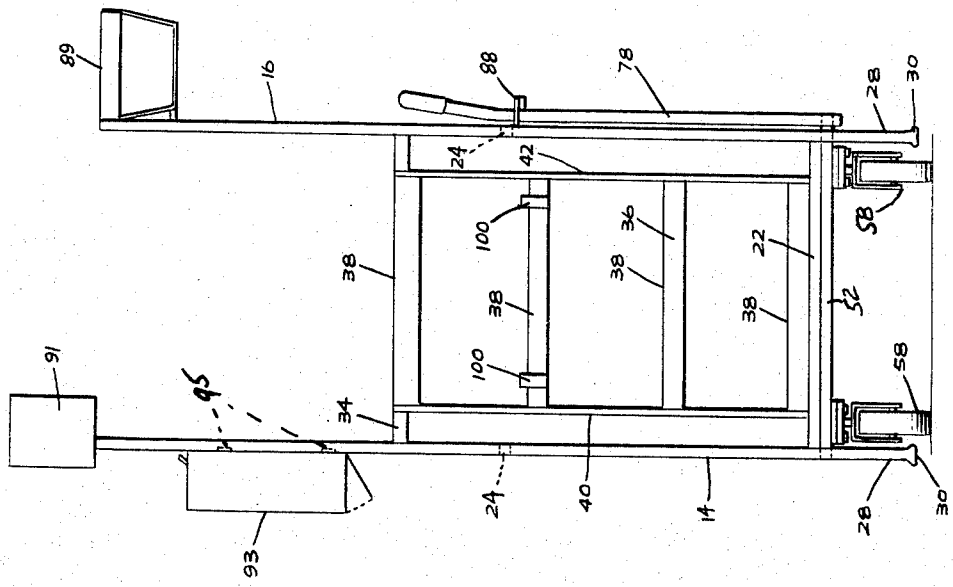


FIG.2

INVENTOR:
Robert C. Rice
BY Wood, Herron, Dick & Lundy
ATTORNEYS.

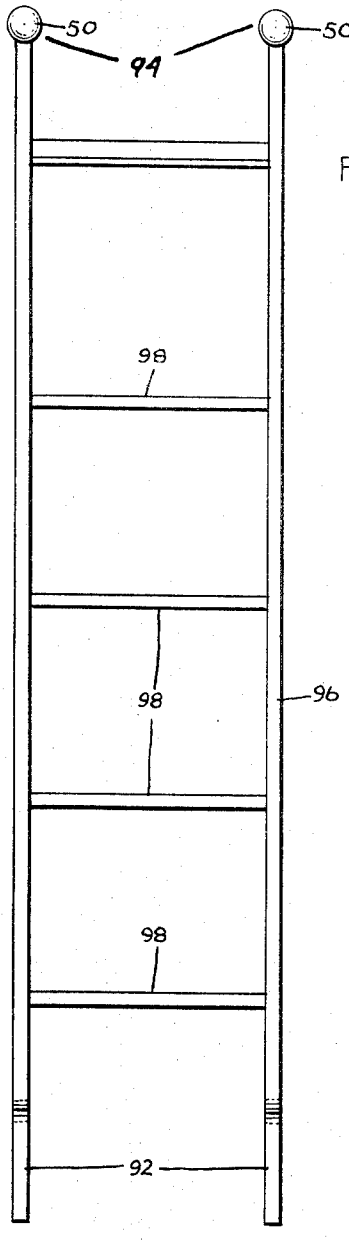


FIG. 5

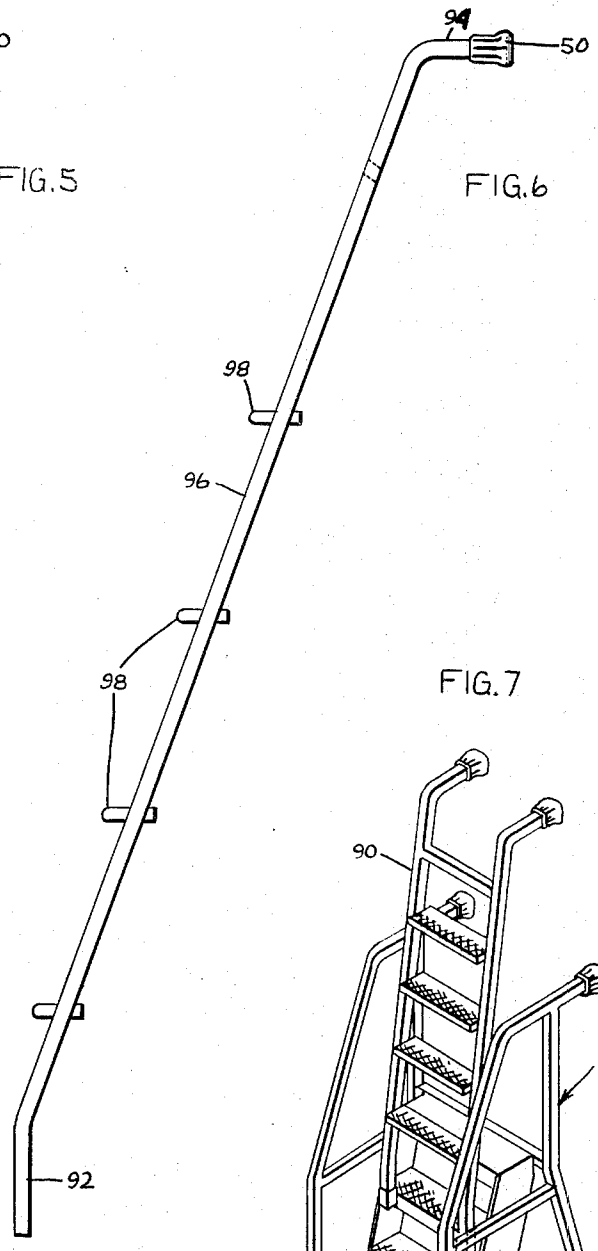


FIG. 6

FIG. 7

INVENTOR.
Robert C. Rice
BY Hood, Gust, Irish & Lundy
ATTORNEYS.

SCAFFOLD STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a scaffold structure, and more particularly, to a scaffold structure which is provided with both means for stationarily supporting and for movably supporting the structure.

2. Description of the Prior Art

A great variety of scaffold structures have heretofore been proposed. However, there remains a need for an improved scaffold structure having both means for stationarily supporting the structure and anti-friction means for movably supporting the structure which is simple in construction, can be relatively inexpensively manufactured, and which is both convenient and entirely safe to use.

SUMMARY OF THE INVENTION

It is an object of this invention to provide an improved scaffold structure.

It is another object of this invention to provide an improved scaffold structure which has both means for stationarily supporting the structure and anti-friction means for movably supporting the structure.

A further object of this invention is to provide an improved scaffold structure which has both means for stationarily supporting the structure and anti-friction means for movably supporting the structure, which is relatively simple in construction and free of maintenance, inexpensive to manufacture, and, at the same time, is both convenient and entirely safe to use.

In the broader aspects of this invention, there is provided an apparatus having a frame with means thereon for stationarily supporting the frame and anti-friction means thereon for movably supporting the frame. The anti-friction means is movable between an extended position in which the frame is supported thereby and a retracted position in which the frame is supported by the stationarily supporting means. Operatively connected to the anti-friction means is a means for moving the same between its extended and retracted positions. Secured to the frame is a means for locking the anti-friction means in its extended position.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view showing a preferred embodiment of the scaffold structure of this invention:

FIG. 2 is a front view of the scaffold structure of this invention illustrated in FIG. 1;

FIG. 3 is a side view of this scaffold structure of this invention illustrated in FIGS. 1 and 2 taken substantially along the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary, broken away, and exploded view of the anti-friction means for movably supporting the improved scaffold structure of this invention and the means for moving the same from between its retracted and extended positions;

FIG. 5 is a front view of the removable ladder of the improved scaffold structure of this invention;

FIG. 6 is a side view of the removable ladder of the improved scaffold structure of this invention; and

FIG. 7 is a perspective view partially broken away showing the improved scaffold structure of this invention having the removable ladder attached thereto.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, the improved scaffold structure **10** is shown to have a frame **12** with opposite spaced apart side portions **14** and **16**. Each of the side portions are identical.

Side portions **14** and **16** each have a front member **18** and a rear member **20**. Front member **18** and rear member **20** each extend generally vertically. Front member **18** and rear member **20** are secured together by a bottom generally horizontal member **22**, a central generally horizontal member **24** and a top generally horizontal member **26**.

The lower portions of both members **18** and **20** define leg portions **28**. Each leg portion **28** has a downwardly facing supporting surface **30**. Surfaces **30** are generally in the same plane.

Side portions **14** and **16** are joined together so as to be generally parallel to each other by two bottom, generally horizontal members **32** and a top generally horizontal member **34**. Member **34** extends between members **20** of side portions **14**, **16**. Members **32** are spaced apart and extend between members **22** of side portions **14** and **16**. Frame **12**, as thus constructed, is stationarily supported by leg portions **28** on supporting surfaces **30**.

Secured to the frame **12** is a stationary ladder **36**. Ladder **36** has a plurality of steps **38** and opposite side portions **40** and **42**. Side portions **40** and **42** join the steps together into a integral ladder structure. Ladder **36** is secured to the member **32** most adjacent to members **18** and member **34**. Ladder **36** slopes rearwardly of the frame **12**; the bottom of the ladder **36** is adjacent to members **18**, the top of the ladder **36** is adjacent to members **20**.

Members **18** have a top portion **44** which also slopes rearwardly of the frame **12**. The slope of the portion **44** is similar to the slope of the ladder **36** such that the portion **44** is useful in connection with ladder **36** as a handrail.

Similarly, member **20** have a bottom portion **46** which slope with respect to a vertical. The slope of portion **46** is such that leg portions **28** of members **20** are the most rearward extending portion of members **20**.

Members **26** have distal ends **48** which extend rearward of the leg portions **28** of member **20**. Distal ends **48** are the most rearward portions of the frame **12**. Distal ends **48**, in the specific embodiment illustrated, are provided with a rubber bumper **50**.

The frame structure **12** above-described has a general overall shape. The lower portion of the frame structure **12**, below members **24**, has the general shape of a cube. The general shape of the upper and remaining portion of the frame **12** is that of a half-cube formed by cutting a cube in half by a plane including the center of the cube and tow opposite edges of the cube.

Referring now specifically to FIGS. **1** through **4**, the structure of the anti-friction movable supporting means of the scaffold of this invention is shown. This structure includes two shafts **52** and **54** pivotally secured to

members 22 of the frame 12. Shafts 52 and 54 extend generally parallel to members 32 and generally perpendicularly to member 22. In the specific embodiment illustrated, shafts 52 and 54 are each supported in a pair of sleeves 56. Shafts 52 and 54 are positioned in sleeves 56 and sleeves 56 are secured to members 22 thereby pivotally connecting the shafts 52 and 54 to the frame 12. Sleeves 56 are spaced apart and positioned adjacent the opposite ends of the shafts 52 and 54. A pair of casters 58 are secured to each shaft 52 and 54. Casters 58 are spaced apart and each positioned adjacent to a sleeve 56.

Secured adjacent to one end 60 of shaft 54 is one end 62 of a lever 64. One end 65 of rod 66 is secured to the other end 68 of lever 64. Similarly, one end 70 of a lever 72 is secured to one end 74 of shaft 52. The end 76 of a lever 78 is secured to the other end 80 of lever 72. The other end 82 of rod 66 is secured to the lever 78 at a position spaced from 76.

Referring to FIGS. 1 through 3, it is shown that levers 78 and 64 extend from the shafts 52 upwardly and generally parallel to side portion 16 of frame 12. Referring to FIG. 3, the casters 58, lever 64, rod 66 and levers 72 and 78 are shown in their extended position 84, in solid lines, and in their retracted position 86, in dashed lines. A suffix *a* is used to identify casters 58, lever 64,rod 66 and levers 72 and 78 in their retracted position 86. When the casters 58 are in their extended position, levers 64 and 78 extend generally vertically and rod 66 and lever 72 extend generally horizontally. A detent device 88 is secured to member 24 of side portion 16. This detent device 88 engages lever 78 adjacent to the distal end thereof so as to hold lever 78 in its vertical position which corresponds to the extended position 84 of the casters 58. A stop 87 is secured to member 22 of side portion 16 adjacent to member 20. Stop 87 engages lever 64 when lever 64 is in its position corresponding to retracted position 86.

In a specific embodiment, various accessory items may be secured to the frame 12. For example, the drawings show a specific embodiment useful in washing windows having a bucket holder 89 secured to member 26 of side portion 16, a towel dispenser 91 secured to member 26 of side portion 14, and a container 93 for used towels secured to members 95 extending between and secured to members 8 and 20 of side portion 14.

Referring now to FIGS. 5, 6 and 7, there is shown a removable ladder portion 90. Ladder portion 90 has a bottom end portion 92 and an intermediate portion 96. Intermediate portion 96 has a plurality of rungs 98. Bottom portion 92 and top portion 94 are both angularly disposed with respect to intermediate portion 96. Bottom portion 92 is generally perpendicular to top portion 94 such that bottom portion 92 can be positioned generally vertically and top portion 94 can be positioned generally horizontally when the ladder is in use. Top portion 94, in a specific embodiment, is provided with rubber bumpers 50.

Secured to one of the steps 38 of ladder 36 are two spaced apart recesses 100. Bottom portion 92 and recesses 100 are shaped, sized and spaced apart such that bottom portion 92 can be positioned in recesses 100 to removably attach ladder portion 90 to the scaffold structure 10 as shown in FIG. 7. Attached in this manner, ladder portion 90 extends upwardly of the ladder 36 and forms an extension thereof.

In operation, the scaffold structure 10 can be moved from location to location as desired when the casters 58 are in their extended position 84. When lever 78 is engaged by the detent device 88, casters 58 are locked in position 84. Once the scaffold structure 10 is positioned as desired, the casters 58 can be moved into their retracted position to stationarily support the scaffold structure 10 on supporting surfaces 30 by disengaging lever 78 from detent device 88 and moving the lever 78 toward member 20 into its position 86 abutting stop 87 shown in dashed lines in FIG. 3. Supported in this manner, the scaffold structure 10 is rigid and safe to use as conventional scaffold structures. The rubber bumpers 50 allow the scaffold structure 10 to be placed against a surface such as a painted finish without marking the same.

The specific embodiment of the scaffold structure 10 of this invention illustrated in the drawings is provided with a ladder 36 to make the structure more useful. If an extended ladder is desired, bottom portion 92 of removable ladder 90 can be positioned in recesses 100 so as to form an extension of the ladder 36. (See FIG. 7).

Obviously, the scaffold structure 10 of this invention can be modified in many ways without departing from the invention. The scaffold structure 10 can be provided with a taller ladder than ladder 36, can have no ladder at all, and/or be used to support a platform or the like. The scaffold structure 10, in general can be used in any way conventional scaffold structures have been used in the past. The size and shape of the scaffold structure is not part of the invention.

Whenever the scaffold structure 10 of this invention is desirably relocated, lever 78 is moved back into position 84 and positioned in detent device 88. This movement of the lever 78 will raise scaffold structure onto the casters 58 and move the casters 58 into their extended position 84. Detent device 88 will hold the lever 78 in this position until the lever 78 is manually released therefrom. The length of the lever 78 allows the casters 58 to be moved from their retracted position into their extended position and the scaffold structure 10 to be lifted onto the casters 58 with ease.

While there have been described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of the invention.

What is claimed is:

1. An apparatus comprising a frame, said frame having means thereon for stationarily supporting said frame, said frame also having anti-friction means thereon for movably supporting said frame, said anti-friction means being moveable between an extended position in which said frame is supported thereby and a retracted position in which said frame is supported by said stationarily supporting means, means for moving said anti-friction means between said extended and retracted positions, means on said frame for attaching a removable ladder to said frame a removable ladder, said ladder having opposite end portions and an intermediate portion, said ladder having a plurality of rungs, all of said rungs being in said intermediate portion, the end portion at the bottom of said ladder being angularly disposed to said intermediate portion so as to be generally vertically disposed when said ladder is in use,

the other end portion of the top of said ladder also being angularly disposed to said intermediate portion so as to be generally horizontally disposed when said ladder is in use, said bottom end portion being removably attachable to said frame by said attaching means.

2. The apparatus of claim 1 further comprising a ladder secured to said frame, and wherein said removable ladder is attachable to said frame by said attaching means over said secured ladder, whereby said removable ladder forms an extension of said said secured ladder.

3. The apparatus of claim 1 wherein said stationarily supporting means comprises a plurality of frame supporting members, each of said supporting members having a supporting surface, said supporting surfaces being in a common plane, said anti-friction means comprising a plurality of wheels pivotally connected to said frame, and said moving means includes a lever connected to each of said wheels, said lever being movable with said wheels between positions corresponding to said extended and retracted positions of said wheels, whereby said lever provides a mechanical advantage for lifting said frame from said supporting members onto said wheels.

4. The apparatus of claim 3 wherein said locking means includes means engaging said lever for holding said lever in said position corresponding to said extended position.

5. The apparatus of claim 4 wherein said holding means is a detent device.

6. An apparatus comprising a frame, said frame having means thereon for stationarily supporting said frame, said frame also having anti-friction means thereon for movably supporting said frame, said anti-friction means being movable between an extended position in which said frame is supported thereby and a retracted position in which said frame is supported by said stationarily supporting means, means for moving said anti-friction means between said extended and retracted positions, means for locking said anti-friction means in said extended position, means secured to said frame for removably attaching a ladder to said frame, and means on said frame including said attaching means and frame surfaces against which a ladder attached to said frame by said attaching means abuts for preventing movement between a ladder attached to said frame and said frame, said supporting means comprises a plurality of frame supporting members, each of said supporting members having a supporting surface, said supporting surfaces being in a common plane, said anti-friction means comprises a plurality of wheels pivotally connected to said frame, and said moving means includes a lever connected to each of said wheels, said lever being movable with said wheels between positions corresponding to said extended retracted positions of said wheels, whereby said lever provides a mechanical advantage for lifting said frame from said supporting members onto said wheels, said locking means includes means engaging said lever for holding said lever in said position corresponding to said extended position, two elongated shafts pivotally connected to said frame, said shafts being rotatable about their axes, wherein said wheels are casters, said casters being secured to said shafts, said casters being movable between said extended and retracted positions upon rotation of said shafts, said shafts being operatively connected so as to move together, said lever being connected to one of said shafts.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,684,055 Dated August 15, 1972

Inventor(s) Robert C. Rice

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 48, "member" should be ---members---;
Column 2, line 64, "tow" should be ---two---;
Column 3, line 17, "The" should be ---One---; (2nd occurrence)
Column 3, line 20, after "from" insert ---end---.

Claim 1, Column 4, line 61, insert ---,--- before "a removable ladder".

Signed and sealed this 6th day of February 1973.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents