United States Patent

Snyder

[15] **3,640,389**

[45] **Feb. 8, 1972**

[54] **DISPLAY STAND AND EXPENDABLE SHELF FOR USE THEREON**

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[73] Assignee: **Chicago Display Company**, Melrose Park, Ill.

[22] Filed: **May 12, 1969**

[21] Appl. No.: **823,835**

[52] **U.S. Cl.**.....**211/148**, 108/108, 211/153

[51] **Int. Cl.**.....**A47b 96/02**, A47f 5/00

[58] **Field of Search**.....211/134, 153, 148, 126, 133, 211/135, 36, 90; 108/76, 70, 96, 92, 106, 17, 108, 152; 248/165, 346, 48, 158

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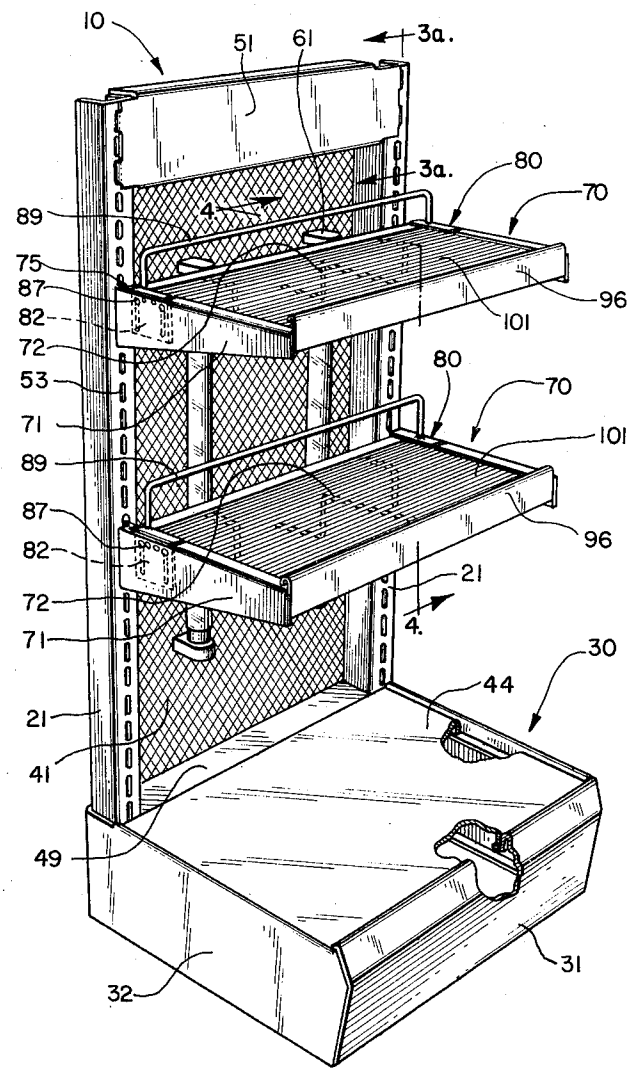
[57] **ABSTRACT**

A display stand comprising a four-sided base and a pair of upright shelf support means wherein the base is slidably assembled, and an extendable shelf for use on the display stand comprising a first shelf means, and a second shelf means wherein the second shelf means is capable of vertical movement with respect to the first shelf means.

15 Claims, 7 Drawing Figures



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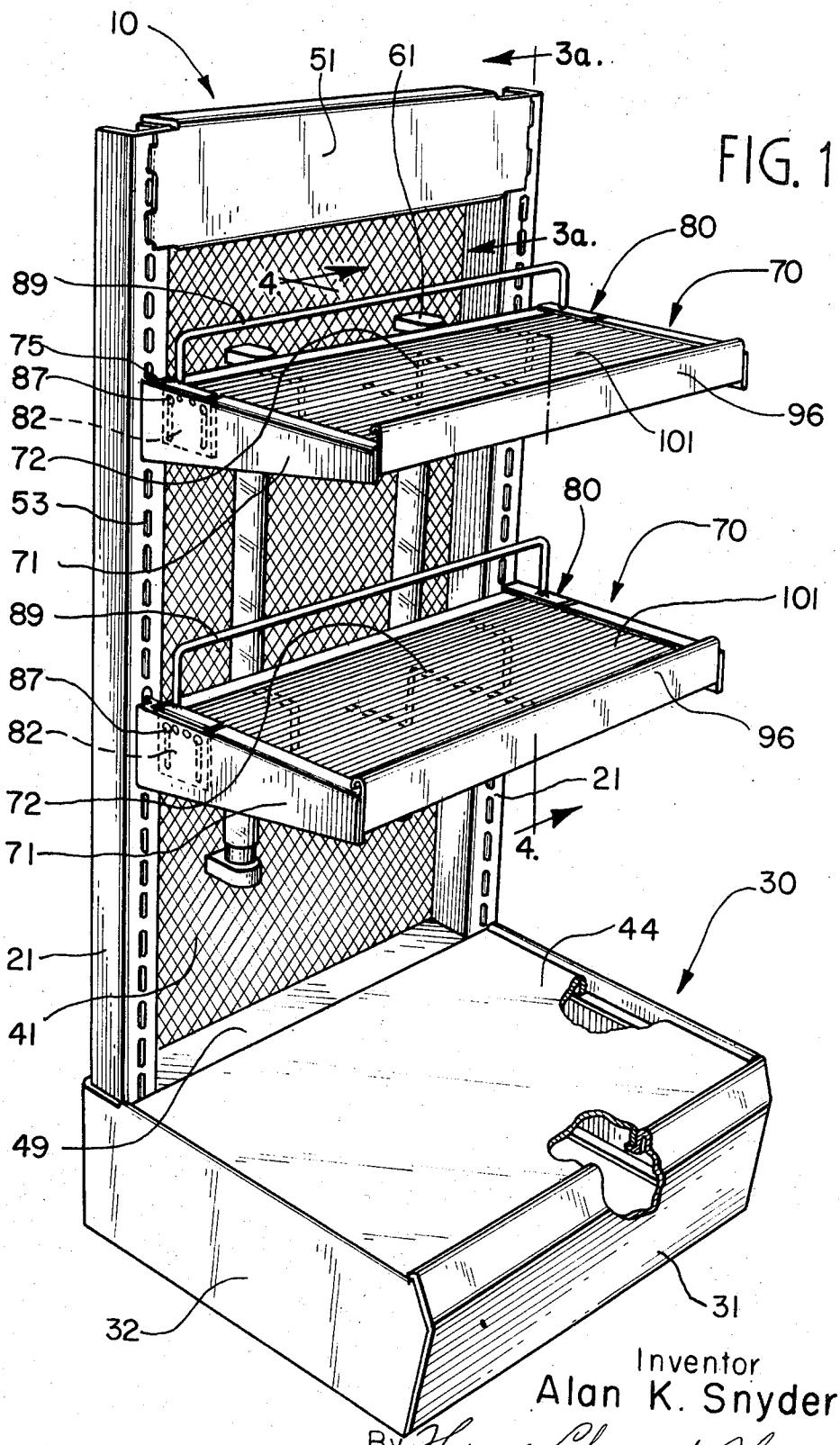

FIG. 1

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FIG. 2

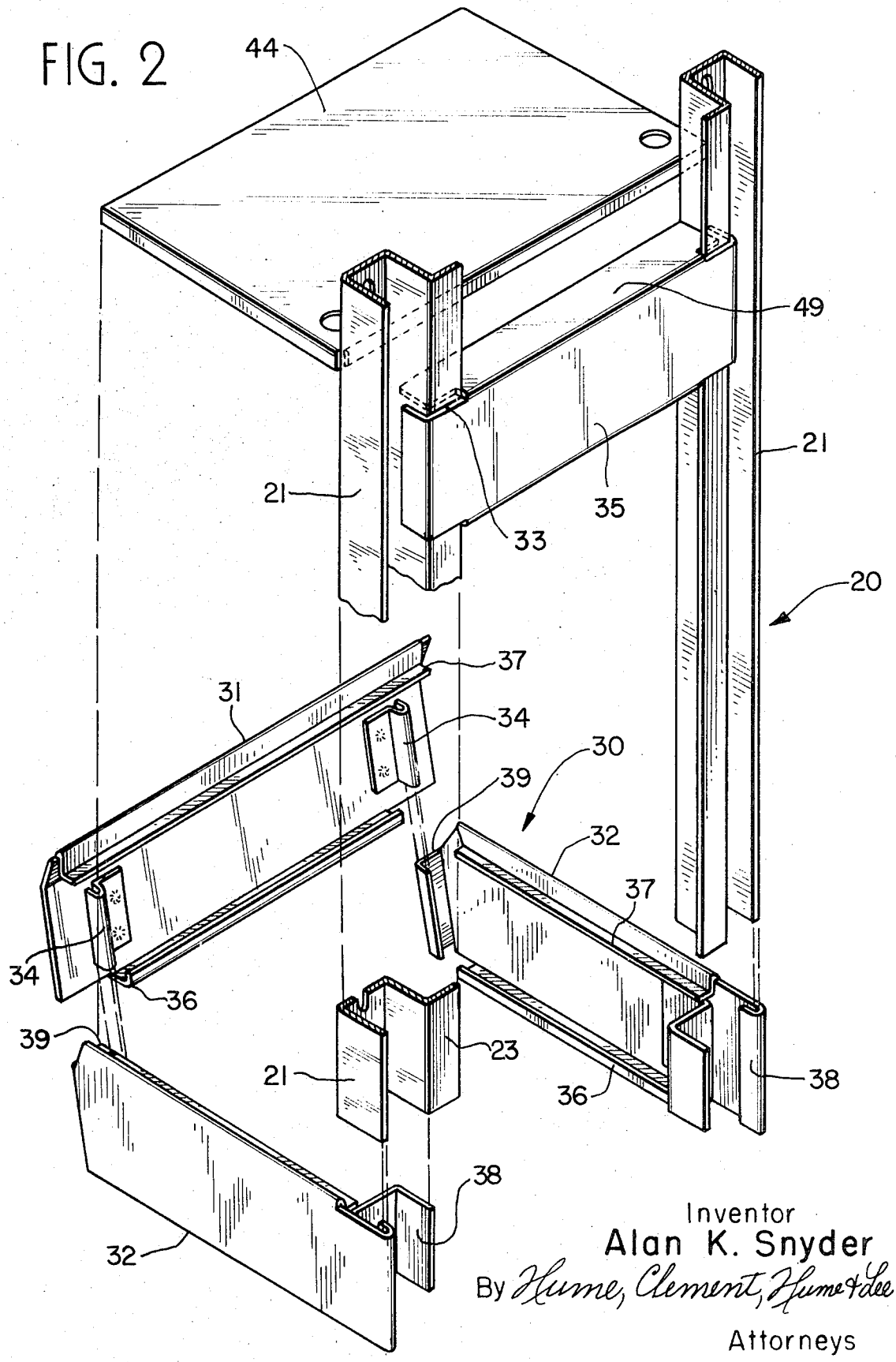

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FIG. 3

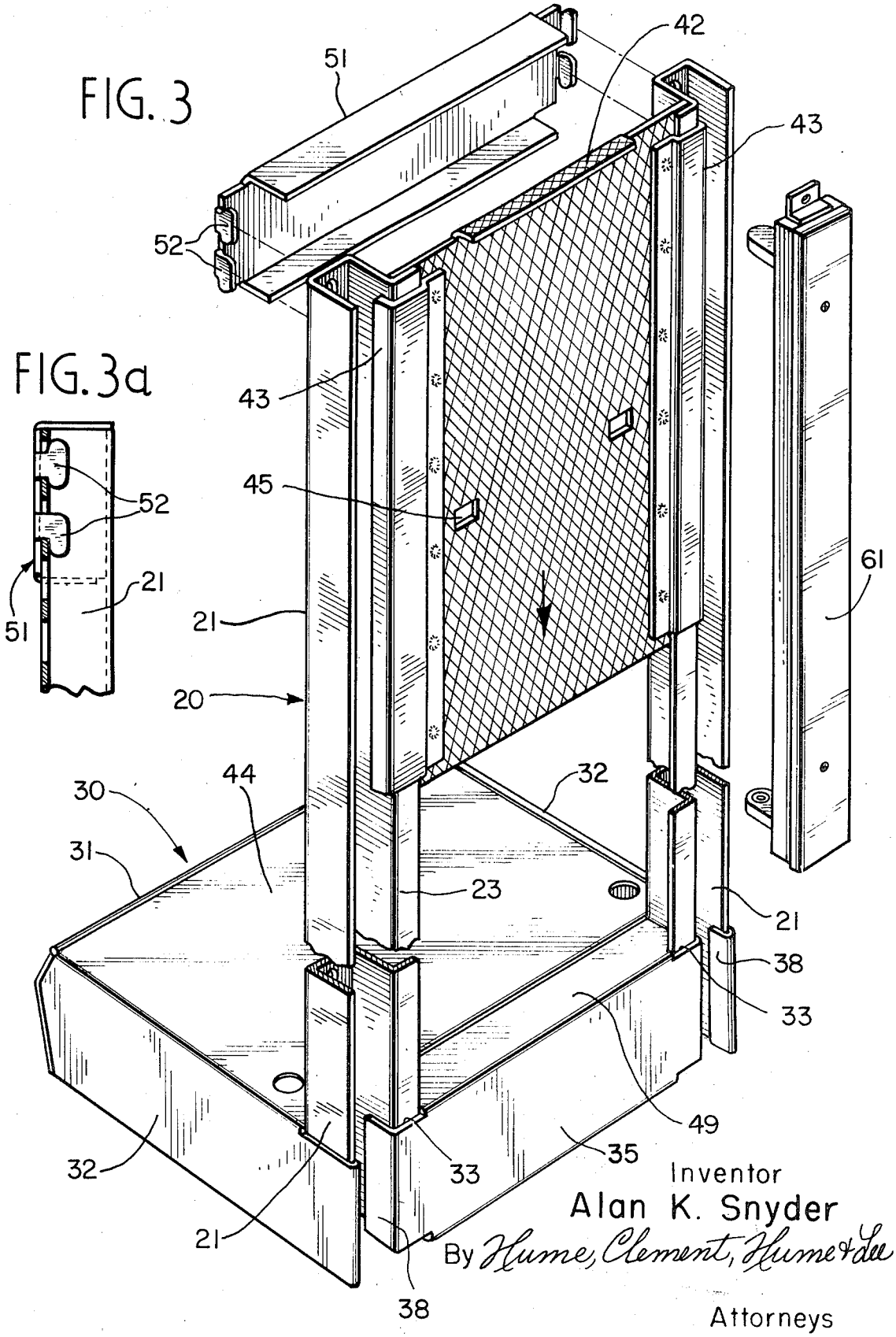

FIG. 3a

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FIG. 4

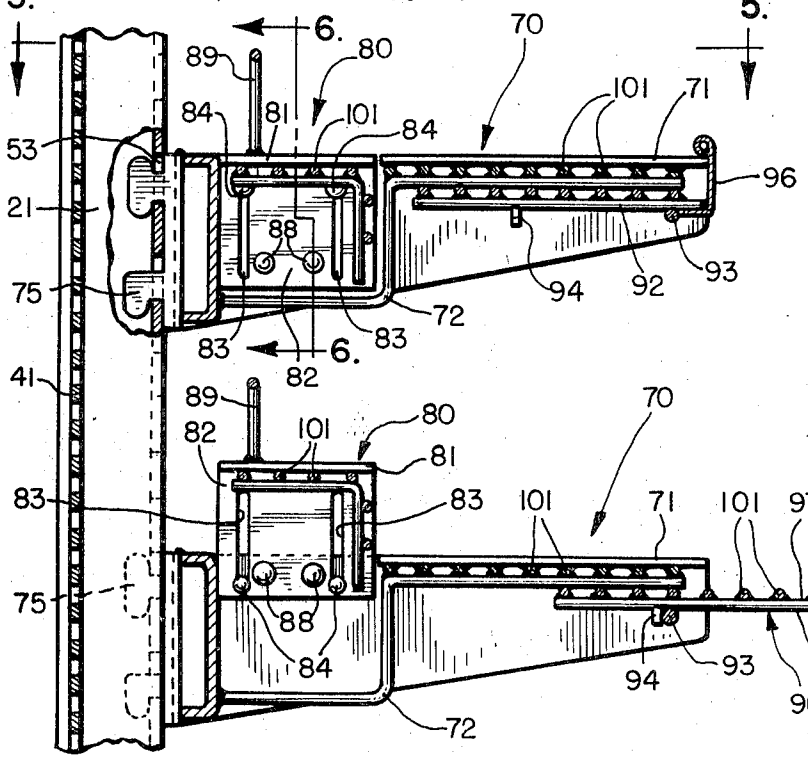


FIG. 6

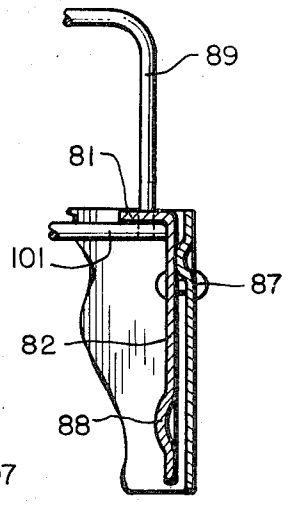
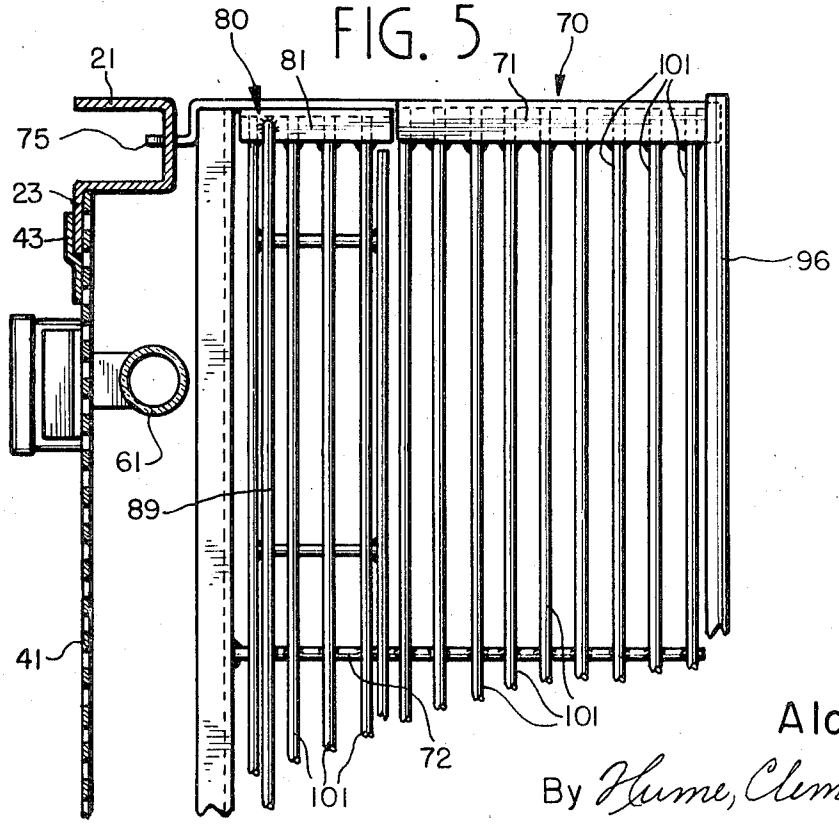


FIG. 5



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DISPLAY STAND AND EXPENDABLE SHELF FOR USE THEREON

FIELD OF INVENTION

The present invention relates to display stands and shelf structures adapted for merchandise display and more particularly to display stands and shelf structure characterized by high strength, rigidly, and ease of assembly without the use of tools.

SUMMARY OF THE INVENTION

The general purpose of this invention is to provide a display stand and a shelf for use thereon which embraces all the advantages of similarly employed display stands but which does not require the use of the usual nails, or fastening means; or the use of tools for assembly. To attain this, the present invention contemplates a display stand having a unique base arrangement wherein the parts of the base are all slidably engageable with each other. An extendable display shelf is provided for use with the display stand. A portion of this shelf may be extended vertically and in this manner the shelf can be kept looking full with an attractive display even though a portion of the product thereon has been sold.

Therefore, an object of the present invention is the provision of a display stand which can be assembled or disassembled without the use of the usual nails, bolts, screws, and other fasteners; and which may be assembled without the use of tools.

Another object is to provide a display stand which forms the basis of a new and improved modular shelving unit.

A further object is the provision of an extendable shelf having a vertically extendable portion providing an esthetically pleasing display unit.

Still another object is to provide a novel display stand including interconnecting means which permit rapid assembly and disassembly without tools and without additional connecting means.

Yet another object is the provision of a shelving structure which may be inexpensively manufactured; and yet which is strong and versatile.

Other objects and many of the attendant advantages of this invention, will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1., is a perspective view of a display stand embodying the features of the present invention.

FIG. 2., is an exploded view of the display stand of FIG. 1., showing the several sections only partially assembled.

FIG. 3., is a partially assembled view of the uprights and backing member of the display stand.

FIG. 3*a*., is a fragmentary view of the mounting means utilized with the shelves and top front plate of the display stand taken along line 3*a*—3*a* of FIG. 1.

FIG. 4., is a cross-sectional view of a shelf structure constructed in accordance with the present invention taken along line 4—4 of FIG. 1.

FIG. 5., is a top view of the shelf structures of the display stand taken on the line 5—5 of FIG. 4.

FIG. 6., is an enlarged fragmentary view of the locking means of the vertically extendable shelf structures taken on the line 6—6 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, wherein like reference characters designate like or corresponding parts throughout the several views, there is shown in FIG. 1., which illustrates a preferred embodiment, a display stand **10** having a frame **20**, a base section **30**, and a plurality of shelf structure **70**. Broadly, the base section **30** comprises a front panel **31**, two side panels **32**, a rear panel **35**, and a base shelf **44**. The frame **20**, which

fits into base section **30**, broadly comprises a pair of upright shelf support means **21**, having apertures **53** along their length, a top panel **51**, and back panels **41**. Fluorescent light fixture **61** may also be attached to back panel **41**. Each shelf structure **70** has a vertically extendable shelf means **80**. The shelves are arranged to lock into apertures **53** of upright shelf support means **21**, thereby forming a complete display stand.

Referring now to FIG. 2., the construction of the base section **30** will be explained. Front panel **31** has a flange member **36** on its lower edge and a flange member **37** along its upper edge. Both flange members **36**, **37** extend inwardly from the interior face of front panel **31**. Also, along the inner face, a pair of tongue shaped members **34** are fastened vertically on either end. Side panels **32** each have a groove shaped member **39** on one end and a groove shaped member **38** on the opposite end. Upper and lower flange members **36** and **37**, identical to those mentioned with regard to the front plate, are also present on the side panels **32**. To assemble the base section, the two side panels **32** are placed in parallel relation to each other with the flanged members **36** and **37** facing inwardly. The front panel **31** is slid down between the two side panels **32** so that the tongue shaped members **34** slide over the groove shaped members **39** on side panel **32**. With three sides now assembled, the end portions of the upright shelf support means **21**, having inwardly projecting ribs **23**, are inserted into the groove shaped member **38** of the side panels **32** as shown in FIG. **2**. After both upright shelf support means **21** are positioned, the rear panel **35**, carrying slots **33** fitting over inwardly projecting ribs **23** of upright shelf support means **21**, is then installed between the uprights. FIG. **3**., shows rear panel **35** in place. Flange members **37** on the front and side panels **31** and **32**, respectively, as well as a flange member **49** on the rear panel **35** form a convenient seat on which to place a base shelf **44**. At this stage of construction base shelf **44** is is placed in its preformed seat. Flange members **36** provide a convenient support member for the entire structure when placed on the floor.

Referring now to FIGS. **3** and **3***a* , the completion of the base section **30** and the upright shelf support means **21** is shown. The completed display stand of the preferred embodiment utilizes two back panels **41**. However, the back panels **41** are not required for a functional unit and any number of back panels **41** may be utilized depending on the size of the rack. Back panels **41** may be made of any suitable material such as metal, plastic, or wood. The back panel **41** has a groove-shaped member **43** secured along either side edge and which is shaped to conform to inwardly projecting rib **23** of the upright shelf support means **21**. When backing plate **41** is inserted between the upright shelf support means **21**, rib portion **23** and groove-shaped member **43** cooperate to form a rigid joint.

Display stand **20** is completed by the insertion of a display panel **51**. Display panel **51** has a pair of mounting means **52** attached thereto which are adapted to fit into apertures **53** on the upright shelf support means **21**. While two mounting means are shown, it is to be understood that any number of mounting means **52** may be utilized. The display panel **51** is placed so that the mounting means **52** is inserted up into apertures **53** of the upright shelf support means **21** as shown in FIG. **3**. By pushing downwardly on display panel **51**, the display panel **51** then locks to the upright shelf support means **21**, forming a completed display stand without the shelves. If desired, fluorescent light fixture **61** may be attached to back panel **41** by any suitable fastening means. Apertures **45** are provided in the back panel **41** so as to allow any electrical connections that are required.

While conventional shelves may be used on the aforedescribed display unit, a preferred shelf structure **70** is shown in FIGS. **4**, **5**, and **6**. Referring now to these figures, there is shown an extendable shelf structure **70** having a vertically extendable shelf structure **80** which is capable of movement between a position coplanar with shelf means **71**, and a vertically upwardly extended position. A preferred embodiment of shelf structure **70** also includes a horizontally ex-

tendable structure 90. However, in order to practice the present invention, it is not necessary that this horizontally extendable means 90 be incorporated.

Referring now to FIGS. 4 and 5, there is shown an extendable shelf structure 70 having a first shelf means 71, a second shelf means 81, and a third shelf means 91. In the embodiment shown the shelf means 71, 81, 91, comprise a series of spaced crossbars 101 placed upon a pair of support members 72, 82, 92 respectively. First shelf means 71 is composed of crossbars 101 rigidly engaged to a pair of support members 72, while shelf surfaces 81 and 91 are composed of crossbars 101 rigidly engaged to support members 82 and 92, respectively However it will be recognized by one skilled in the art that any conventional shelf means may be substituted for crossbars 101, e.g., a solid sheet of wood, metal, plastic or any similarly suitable material. This solid shelf surface would then be rigidly mounted to support members 72, 82, and 92, forming a shelf unit.

First shelf means 71 is stationary and is connected to support member 72. The support member 72 contains a mounting means 75 which is adapted to engage apertures 53 of upright shelf support means 21 in a conventional manner. A second shelf means 81 is located adjacent to shelf means 71. Shelf means 81 is connected to support member 82. Support member 82 may be a panel having shelf guide means 83 therein. Guide members 83 in a preferred embodiment are vertical slits. Shelf guide means 83 slidably engage guide pins 84 which are connected to the first shelf means 71. When it is desired to vertically raise, vertically extendable shelf structure 80, a handle 89 is grasped, raising the entire shelf structure 80. This vertically extendable shelf structure 80 is guided vertically by guide means 83 and guide pins 84 until guide means 83 engages guide pins 84 at the bottom most end of guide means 83. At this point, the upward vertical movement of the shelf is restrained and locking pin 87 shown more clearly in FIG. 6, engages depression 88 located in the side of frame 82, thereby forming a locking means which prevents the shelf from receding. To lower shelf means 81, slight pressure on support member 82 will disengage depression 88 from locking pin 87, thereby allowing the vertically extendable structure 80 to be guided vertically downward until the guide means 83 engage guide pins 84 at the top most end of the guide means 83.

Horizontally extendable shelf structure 90 in FIG. 6 is slidably connected to move horizontally between a lower shelf support means 93 and first shelf means 71. Shelf means 91 is moved horizontally by grasping a handle 96. Upon reaching the outermost limit of travel, a stop pin 94 will engage lower shelf support means 93, preventing further travel.

When vertically extendable shelf structure 80 is vertically extended simultaneously with horizontally extendable shelf structure 90 a three tier shelf arrangement is presented. When shelf structures 80 and 90 are retracted, a flat coplanar shelf structure as shown in FIG. 5 is present.

The utilization of the vertically expandable shelf allows for a shelf which can be kept looking full, with an attractive display, even though a portion of the product thereon has been sold. After a row of the product is sold, the horizontally extended shelf structure 90 may be slid inwardly forming a more compact arrangement. As still more products are sold, the vertically extendable shelf structure 80 may be raised to form a step-shaped arrangement. Since the shelf is still largely covered with the product, it will appear quite full, maintaining a tiered product display.

It should be understood, of course, that the foregoing disclosure relates only to a preferred embodiment of the invention and that numerous modifications or alterations may be made therein without departing from the spirit and the scope of the invention as set forth in the appended claims.

What is claimed is:

1. An extendable shelf structure for mounting on a display stand comprising:

a pair of support members having means adapted for engaging said display stand;

a plurality of upper crossbars interconnecting said side members forming a first shelf means;

a lower shelf support means interconnecting said support members and spaced from said upper crossbars;

a second shelf means adapted to move horizontally between said upper crossbars and shelf support means between a retracted position and an extended position;

a third shelf means positioned adjacent to said first shelf means connected for vertical movement between a coplanar position and a vertically upwardly extended position;

said third shelf means comprising a top portion and a pair of vertical support members each having a pair of parallel vertical slots;

said first shelf means further comprising a pair of pins for engaging said pair of vertical slots; and

locking means attached to said first shelf means and said third shelf means to maintain said third shelf means in said vertically upwardly extending position.

2. A merchandise display stand comprising:

a base section having a front panel, a rear panel and two side panels;

said side panels each having a first groove member along a first edge and a second groove member along a second edge thereof and said front panel having tongue-shaped members adapted to slidable engage said first groove members of said side panels;

upright shelf support means slidably connected to said groove members of said side panels, said upright shelf support means having a plurality of apertures therein, said apertures being adaptable to secure a shelf structure;

said rear panel being slidably engaged with said upright shelf support means thereby forming said base section;

an extendable shelf structure mounted on said shelf support means said extendable shelf structure comprising,

a pair of support member having means adapted for engaging said display stand;

a plurality of upper crossbars interconnecting said support members forming a first shelf means;

a lower shelf support means interconnecting said support members and spaced from said upper crossbars;

a second shelf means adapted to move horizontally between said upper crossbars and said lower shelf support means between a retracted position and an extended position;

a third shelf means positioned adjacent to said first shelf means connected for vertical movement between a coplanar position and a vertically upwardly extended position;

said third shelf means comprising a top portion and a pair of vertical side members each having a pair of parallel vertical slots;

said first shelf means further comprising a pair of pins for engaging said pair of vertical slots; and

locking means attached to said first shelf means and said third shelf means to maintain said third shelf means in said vertically upwardly extending position.

3. A merchandise displace stand comprising:

a base section;

an upright shelf support means connected to said base section said upright shelf support means including vertically spaced means for mounting a plurality of shelf support means thereon;

a first shelf support means connected to said upright shelf support means;

a first shelf means, connected to said first shelf support means, defining a relatively flat surface; and

a second shelf means operably connected to said first shelf support means, defining a relatively flat surface coplanar with said first shelf means, wherein said second shelf means is operably connected for vertical movement from said coplanar position to a second position and wherein said second shelf means in said second position is vertically raised a preselected height in relation to said first shelf means.

4. The merchandise display stand of claim 3 further comprising:

a third shelf means operably connected to said first shelf support means wherein said third shelf means is adapted to move horizontally between a retracted position and an extended position.

5. The merchandise display stand of claim 3 wherein said second shelf means further comprises:

a top portion;

a pair of vertical side members, said side members each having a first guide means; and wherein

said first shelf support means further includes a second guide means operably engaging said first guide means.

6. The merchandise display stand of claim 5 wherein said first guide means comprises a slot and said second guide means comprises a pin.

7. The merchandise display stand of claim 5 wherein said first guide means comprises a pair of parallel slots and said second guide means comprises a pair of pins.

8. The merchandise display stand of claim 6 wherein said display stand further includes locking means to maintain said second shelf means in said second position.

9. The merchandise display stand of claim 8 wherein said locking means comprises a depression means on said second shelf means and a locking pin means on said first shelf support means wherein said depression means and said locking pin are operable to maintain said second shelf means in said second position.

10. The merchandise display stand of claim 8 further comprising:

a third shelf means operably connected to said first shelf support means wherein said third shelf means is adapted to move horizontally between a retracted position and an extended position.

11. A merchandise display stand comprising:

a base section having a front panel, a rear panel and two side panels;

said side panels each having a first groove member along a first edge and a second groove member along a second edge thereof and said front panel having tongue-shaped members adapted to slidably engage said first groove members of said side panels;

upright shelf support means slidably connected to said second groove members of said side panels;

said rear panel being slidably engaged with said upright shelf support means thereby forming said base section whereby said upright support means is solely supported by said base section; and

a back panel having preformed groove-shaped members along its vertical edge and wherein said groove-shaped members slidably engage said upright shelf support means.

12. The merchandise display stand of claim 11, wherein said upright support means contain a plurality of apertures therein, said apertures being adaptable to secure a shelf structure.

13. The merchandise display of shelf of claim 12 further comprising a top supporting means having mounting means capable of engaging said apertures in said upright shelf support means.

14. A merchandise display stand comprising:

a base section having a front panel, a rear panel and two side panels;

said side panels each having a first groove member along a first edge and a second groove member along a second edge thereof and said front panel having tongue-shaped members adapted to slidably engage said first groove members of said side panels;

upright shelf support means slidably connected to said second groove members of said side panels;

said rear panel being slidably engaged with said upright shelf support means thereby forming said base section whereby said upright support means is solely supported by said base section;

a first shelf support means connected to said upright shelf support means;

a first shelf means, connected to said first shelf support means, defining a relatively flat surface; and

a second shelf means operably connected to said first shelf support means, defining a relatively flat surface coplanar with said first shelf means, wherein said second shelf means is operably connected for vertical movement from said coplanar position to a second position and wherein said second shelf means in said second position is vertically raised a preselected height in relation to said first shelf means.

15. The merchandise display stand of claim 14 further comprising:

a third shelf means operably connected to said first shelf support means wherein said third shelf means is adapted to move horizontally between a retracted position and an extended position.

* * * * *

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,640,389 Dated February 8, 1972

Inventor(s) Alan K. Snyder

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

Column 4, line 30, insert the word "second" before the word "groove."

Signed and sealed this 6th day of June 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

FORM PO-1050 (10-69)

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