United States Patent [19]

Crosslen

[11] **3,820,862**

[45] **June 28, 1974**

[54] **THEFT PROOF DISPLAY DEVICE**

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[73] Assignee: **Frank Mayer & Associates, Inc.,** Grafton, Wis.

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[21] Appl. No.: **347,906**

[52] **U.S. Cl.** **312/123,** 312/117, 312/216

[51] **Int. Cl.** **A47f 3/00**

[58] **Field of Search** 312/117, 123, 126, 128, 312/135, 136, 215–218, 252, 283, 324, 326, 329; 49/395; 292/26

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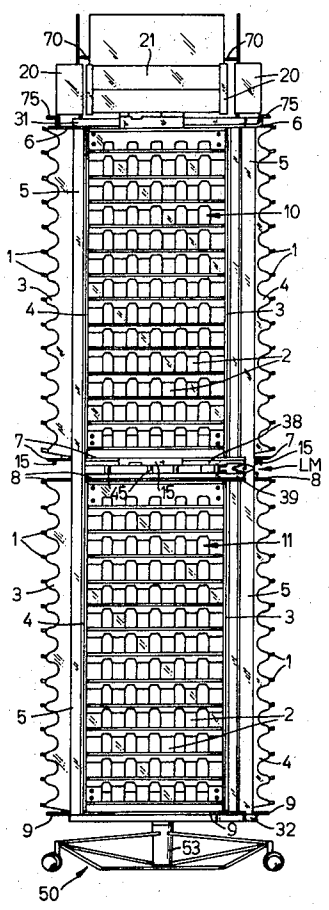
Primary Examiner—James C. Mitchell

Attorney, Agent, or Firm—James E. Nilles

[57] **ABSTRACT**

A theft proof display device including a plurality of vertical shelf units, each of which is pivotally mounted along one of its vertical sides so that each unit can be swung from a center support structure and between an open display position from which merchandise can be removed, and a closed position in which the open side of the shelves face inwardly toward the center support structure and thereby prevent removal of the merchandise from the shelves. Locking means are provided for simultaneous locking of all of the shelves, such locking being accomplished by turning a single handle.

16 Claims, 16 Drawing Figures



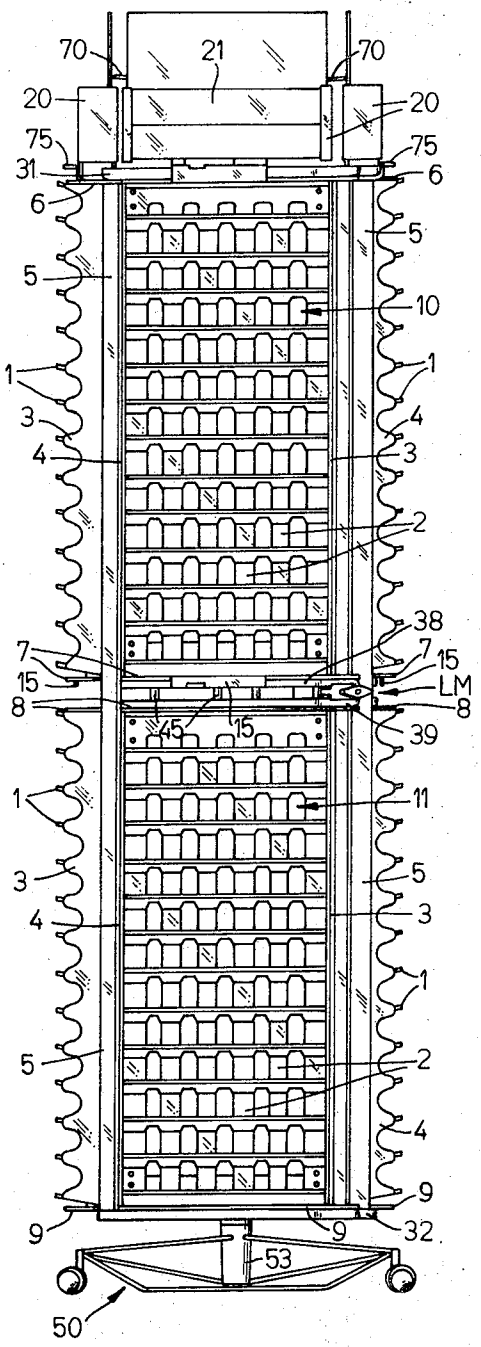

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FIG. 1

FIG. 2

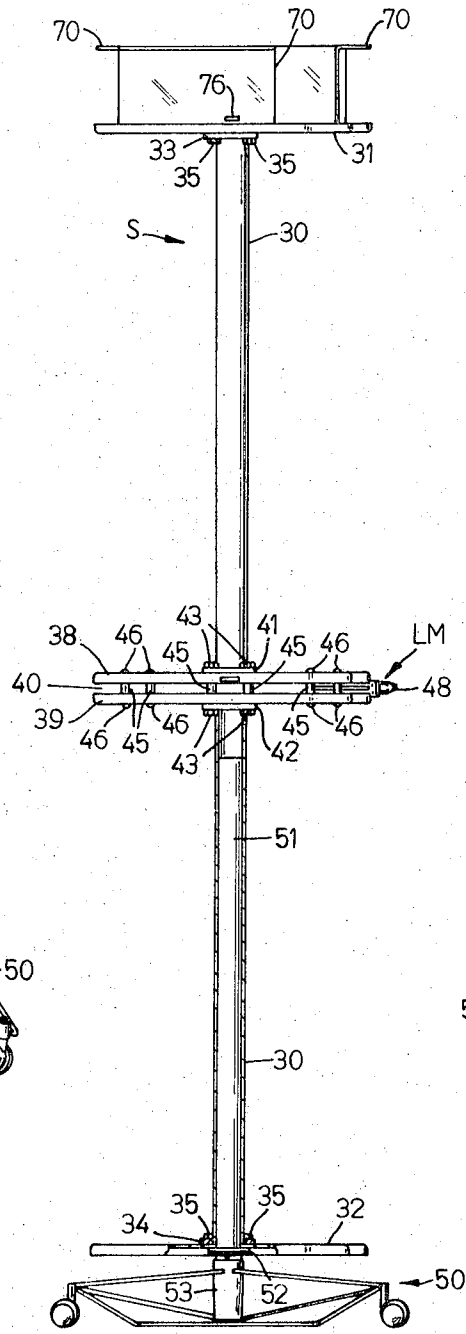


FIG. 3

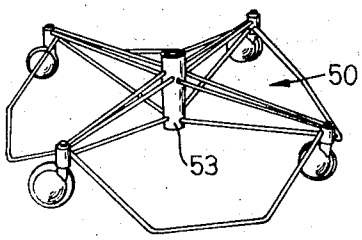
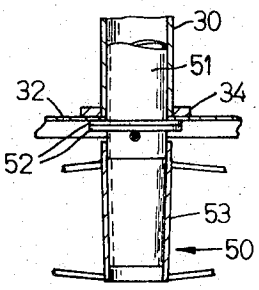


FIG. 4



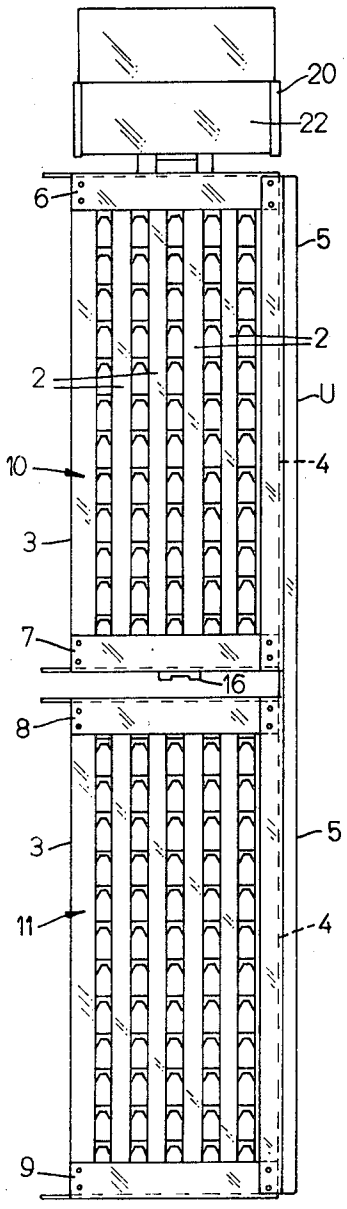


FIG. 7

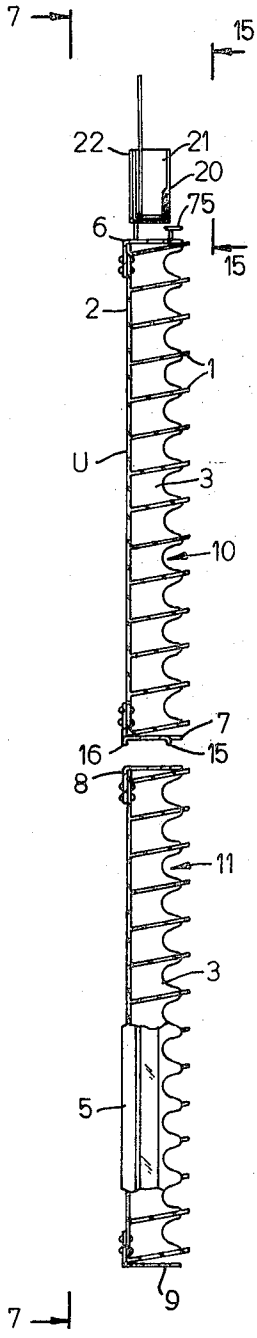


FIG. 6

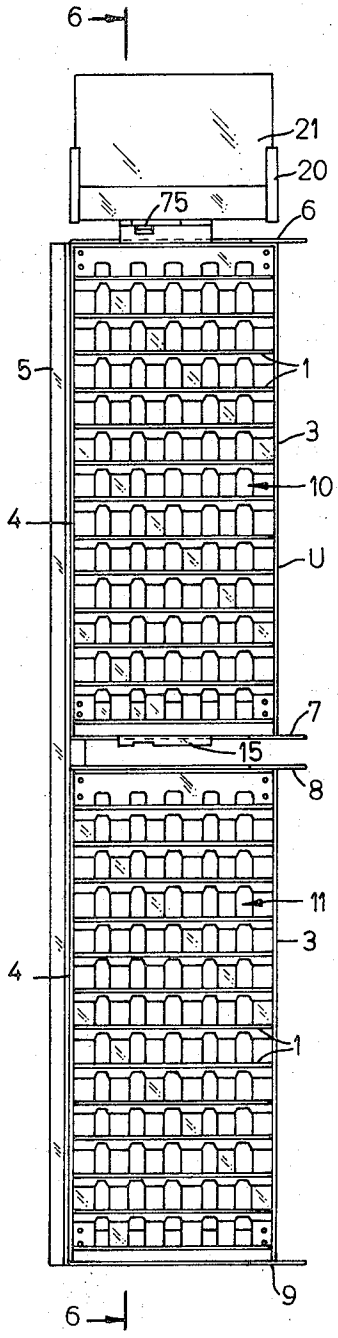


FIG. 5

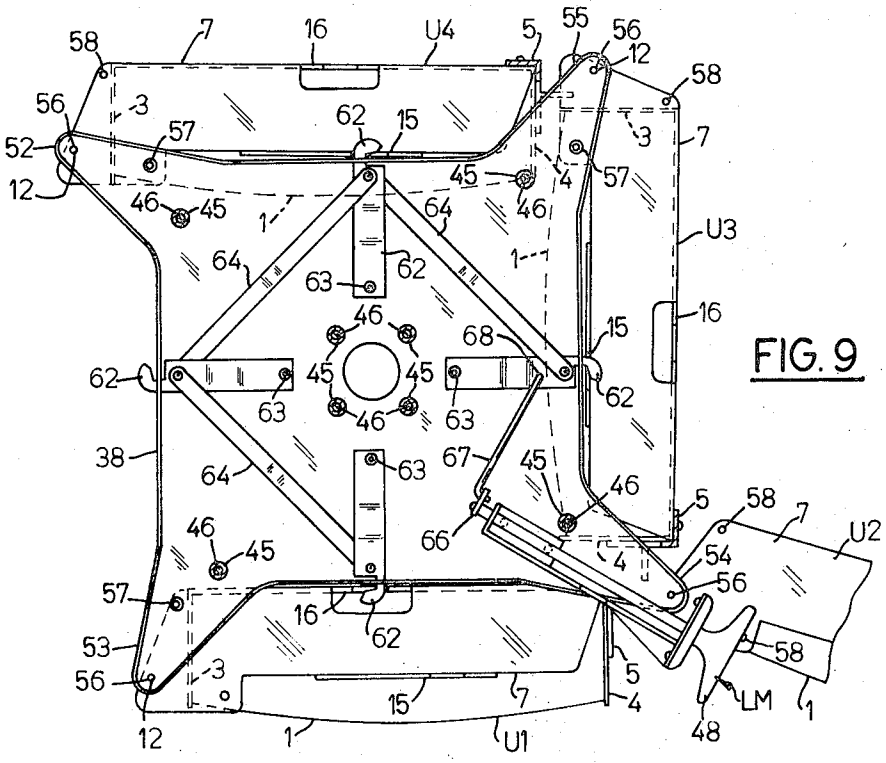


FIG. 9

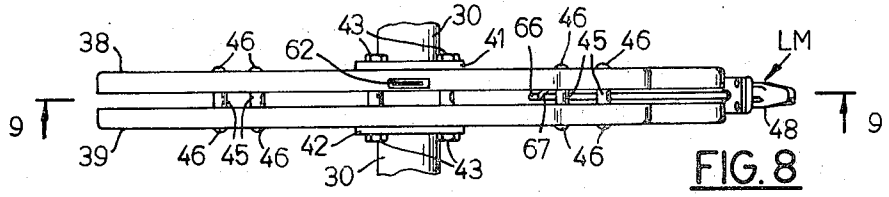


FIG. 8

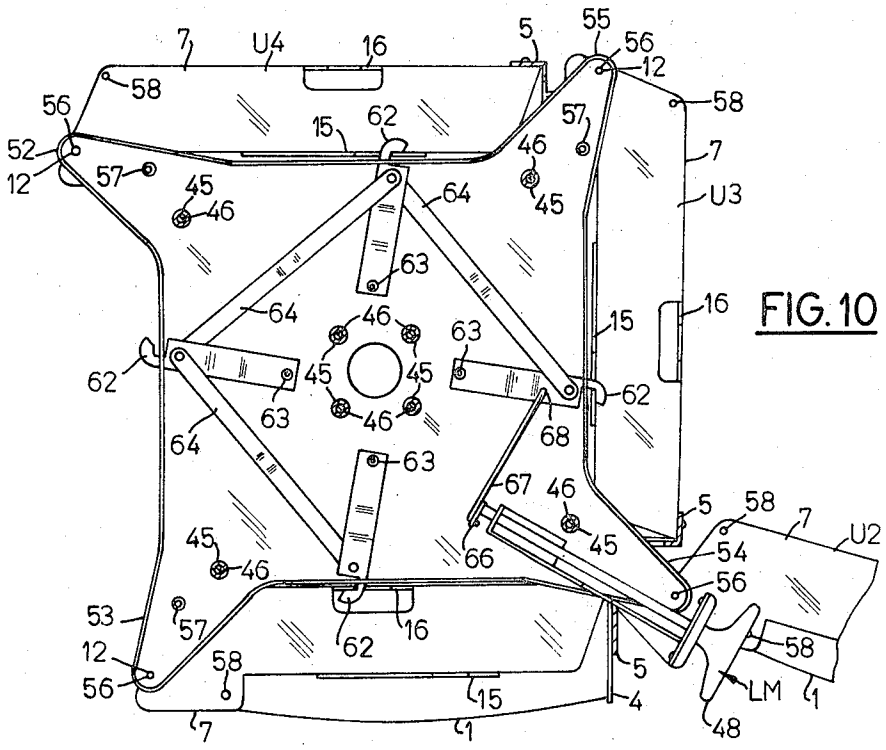


FIG. 10

FIG. 11

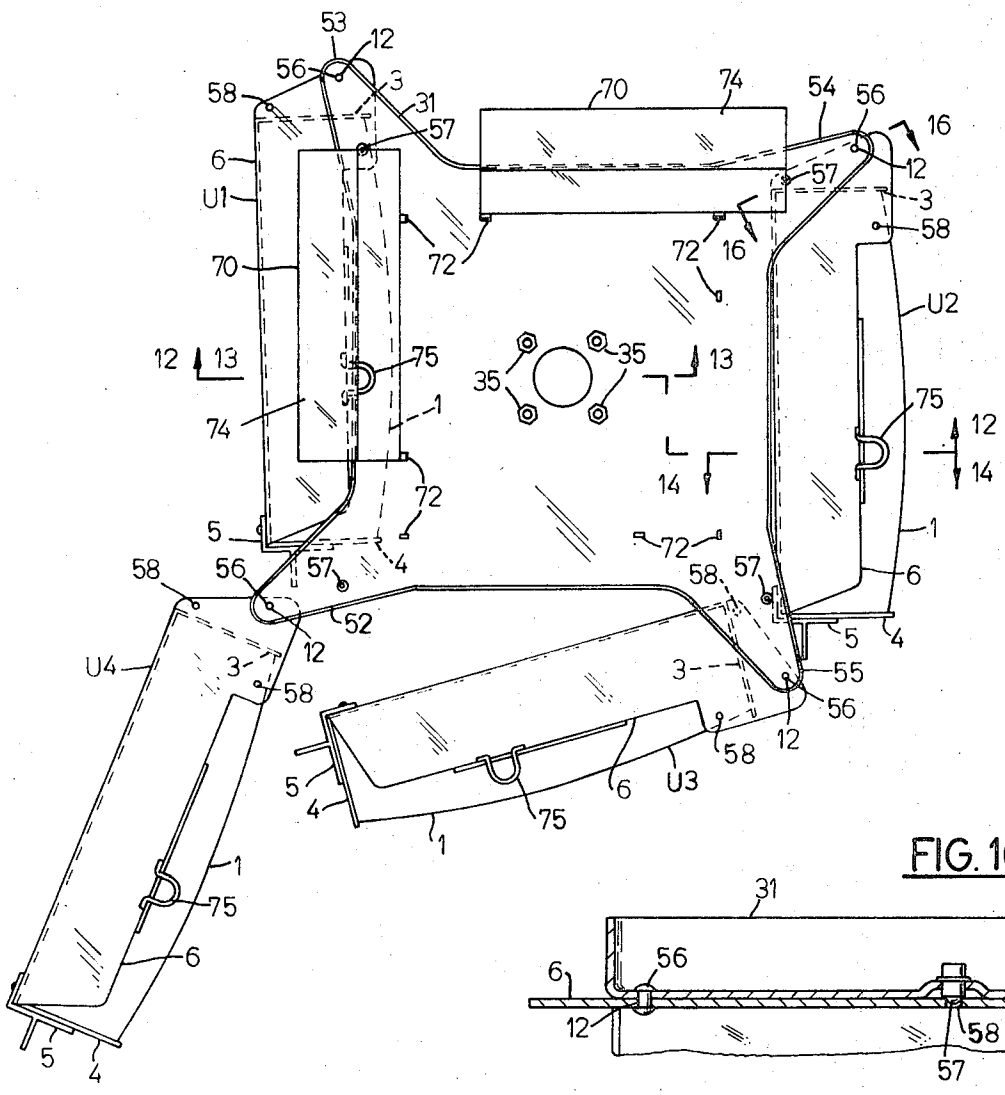
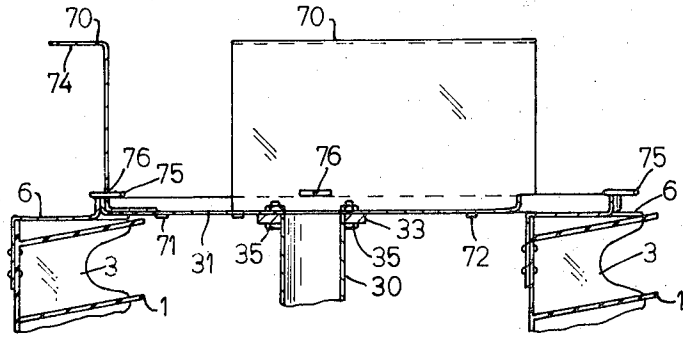


FIG. 16

FIG. 12



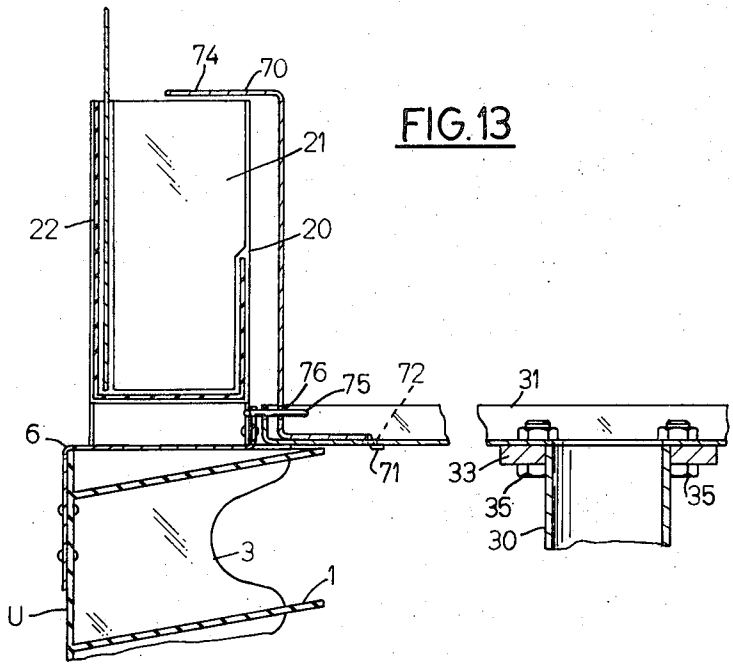


FIG. 13

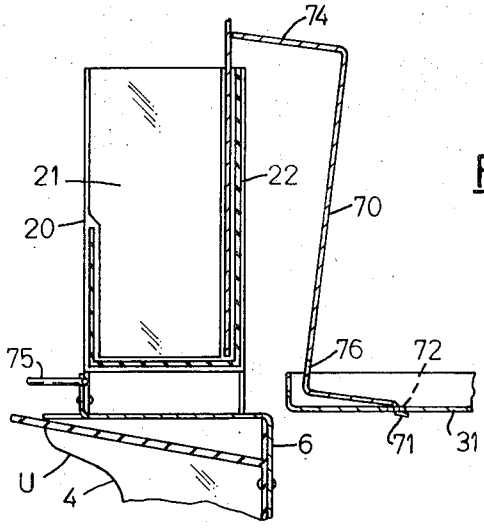


FIG. 14

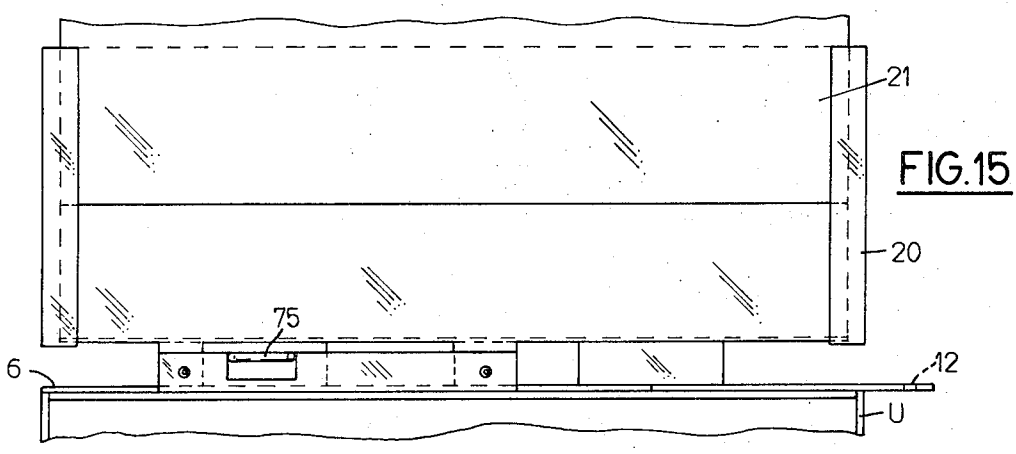


FIG. 15

THEFT PROOF DISPLAY DEVICE

BACKGROUND

The invention pertains to theft proof merchandise display devices of the type having shelves that can be moved from a display position to a locked position. Display devices of this character have been proposed and have utilized various means for making it impossible to remove the merchandise when the display is in the locked position. One disadvantage of such prior art devices is that a considerable amount of time is required to render each of the sometimes large supporting shelves pilfer proof. Other prior art devices would not provide for full exposure of the merchandise and ready accessibility thereto when the display assembly was in the display position.

SUMMARY

The present invention provides a theft proof merchandise device having a plurality of vertical shelf units, each of which is pivotally mounted so each can be swung from an open, display position where the merchandise can be readily viewed and removed, and a closed, locked position wherein the merchandise is inaccessible and securely locked against pilferage.

Another aspect of the invention relates to means for locking each of the pivotable shelf units when they are in the closed, non-display position, such locking being accomplished by means of a simple shifting movement of a single handle.

Still another aspect of the invention relates to a supplementary display shelf located on each of the shelf units and from which merchandise can also be displayed and removed. These supplementary shelves can also be locked by inter-engaging cover means when the shelf units are swung to the closed position.

These and other objects and advantages of the invention will appear hereinafter as this description progresses.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** is a side elevational view of a display assembly made in accordance with the present invention;

FIG. **2** is a side elevational view of a portion of the assembly shown in FIG. **1**, and showing the center support structure including the wheeled frame, the central column support means and the outwardly and generally horizontally extending pans of the support structure;

FIG. **3** is a perspective view of the wheeled support means shown in FIG. **2**;

FIG. **4** is an enlarged, fragmentary, sectional view of the lower portion of the support means shown in FIG. **2** and showing the connection between the center column and the wheeled support means;

FIG. **5** is an elevational view of one of the shelf units and taken from the open or display side thereof;

FIG. **6** is a view taken generally along the line **6—6** in FIG. **5**, the view being generally in cross section;

FIG. **7** is a view of the shelf unit shown in FIG. **6** and taken generally along the line **7—7** in FIG. **6**, the view showing the unit from the closed or non-display side, that is, from the side of the unit when the latter is in the locked or pilfer proof position;

FIG. **8** is a fragmentary, elevational view of the center portion of the display assembly shown in FIG. **2**, but on an enlarged scale;

FIG. **9** is a sectional view taken generally along the line **9—9** in FIG. **8**, showing the locking means in the non-locking position, and furthermore showing two of the shelves in the closed, non-display position, one of the shelves in the open, display position and the fourth shelf in the intermediate position where it is located between the open and closed position;

FIG. **10** is a view similar to FIG. **9** but showing the locking means when shifted to the locking position;

FIG. **11** is a plan view of the mechanism shown in FIG. **1**, but on an enlarged scale, showing the shelf units moved to different positions, and certain parts being removed for the sake of clarity;

FIG. **12** is a fragmentary, sectional view taken along the line **12—12** in FIG. **11**;

FIG. **13** is a sectional view, on an enlarged scale, taken generally along the line **13—13** in FIG. **11**, and showing the supplementary shelf at the top of the shelf unit and when in the closed position;

FIG. **14** is a view similar to FIG. **13** but showing the supplementary shelf when its shelf unit is in the open position;

FIG. **15** is an elevational view taken generally along the line **15—15** in FIG. **6**, but on an enlarged scale, and

FIG. **16** is a sectional view taken along the line **16—16** of FIG. **11**, but on an enlarged scale.

DESCRIPTION OF A PREFERRED EMBODIMENT

The display device has four shelf units U1, U2, U3 and U4, although other numbers of shelf units may be employed in accordance with the present invention. One shelf unit is shown in FIGS. **5**, **6** and **7** and as the shelf units are similar to one another, only one will be described in detail. The unit includes a series of horizontal shelves **1** formed with integral vertical back strips **2**, opposite walls **3** and **4** all of which are formed of plastic as an integral module. Such a display module is of itself old and may by of the type shown in the U.S. Pat. No. D. 223,733, issued May 30, 1972 and assigned to an assignee common with the present application. The unit also includes a vertically arranged metal frame member **5**, which may take the form of an aluminum extrusion and which is located along one vertical side of the unit. Four generally horizontal brackets **6**, **7**, **8** and **9** are secured at one of their ends to said frame member **5** as by riveting or the like; brackets **6** and **7** embrace the upper and lower ends of the upper plastic module **10**, while brackets **8** and **9** embrace the lower plastic module **11**. The other ends of brackets **6**, **7**, **8** and **9** have holes **12** therethrough, which holes are in vertical alignment with one another. It is by means of these holes, as will appear, that the units are pivotally mounted along one of their sides and upon a vertical axis, to the central support structure, to be described. The side of the unit as shown in FIG. **5** is the open or display side in which the shelves are accessible for display of the merchandise thereon and for removal of the merchandise from the unit.

It will be noted that slotted latch engaging means **15** are located on brackets **6**, **7**, **8** and **9** and intermediate the height of the unit. The side of the unit shown in FIG. **7** is the closed side from which the material cannot be removed due to the vertical strips **2** which extend across the shelves and slotted latch engaging means **16** are located on this side of the unit.

At the top of the unit shown in FIGS. **5, 6** and **7,** a supplementary shelf **20** is located and presents an open or accessible side **21** as shown in FIGS. **5** and **6** and a closed side **22** as shown in FIGS. **6** and **7.**

As shown in FIGS. **2, 3** and **4,** a vertically extending central support structure S is provided for swingably mounting the shelf units, and this stucture includes a central tubular member **30** having an upper and lower generally horizontally disposed plates **31** and **32** rigidly fixed to the tubular member **30.** More specifically, flange members **33** and **34** are welded or otherwise fixed to the tubular member **30** and four bolts **35,** secure plates **31** and **32** to the tubular member **30.** The support structure also includes a pair of generally horizontally exposed plates **38** and **39** located adjacent to one another but forming a space **40** therebetween. These plates are similarly secured to the tubular member **30** by the flange members **41** and **42** and bolt means **43.** Internally threaded tubular spacers **45** have bolt means **46** threaded therein and rigidly hold the plates **38** and **39** together. Locking means LM are located between the plates **38** and **39** and an operating handle **48** extends from the support structure for easy accessibility by the operator. Wheeled carriage **50** receives the lower end of the tubular member **30** on a structural pipe **51,** or the like, extending upwardly from the wheeled carriage **50** and over which the tubular member **30** is inserted. Anti-friction washers **52** are located between the lower pan **32** and the tapered socket **53** of the carriage **50.**

Plates **31, 32, 38** and **39** are generally similar in size and shape and are fabricated as sheet metal stampings, having a vertical flange therearound to increase their rigidity. These plates also have outwardly extending corners **52, 53, 54** and **55** (FIGS. **9** and **10**). It is to these vertically aligned corners that the respective shelf units are pivotally attached by rivets **56** or the like so that the shelf units can be swung between an open position along one side of the support structure so that the merchandise can be displayed and removed from the shelves, and a closed position along an adjacent side of the support structure so that the closed side of the shelf unit faces outwardly from the support unit to thereby prevent the merchandise from being removed from the shelf unit. For example, as shown in FIGS. **9** and **10,** the shelf unit U**1** is shown in the open or display position where the shelves are exposed for access. Shelf units U**3** and U**4** are shown in the closed position where their closed side faces away from the central support structure so as to prevent merchandise from being removed from the shelves. The unit U**2** is shown in an intermediate position and located between the open and closed positions. By way of further example, in FIG. **11** the shelf unit U**1** has been swung from the FIG. **9** showing to a position along an adjacent side of the support structure so that it is now in the closed position.

Balls **57** and hole detents **58** are located, respectively, on the pans **31, 32, 38** and **39** and on brackets **5, 6, 7** and **8** (FIG. **16**). The balls and detents locate and hold the units in open and closed positions.

It will be noted that the point of pivotal connection of the shelf unit to the pans is located adjacent one of the side walls of the shelf units, which wall is opposite to the side wall of the unit that has the metal frame member **5** extending therealong. It will furthermore be noted that the pivot point of the shelf unit is located offset from a center line extending through the long side of the unit when viewed in plan. This offset relationship of pivot points of the shelf unit helps insure that the shelf unit can be readily swung snugly against the frame support structure in either the closed or open positions and against adjacent sides of the support structure.

The locking mechanism previously referred to is shown clearly in FIGS. **8, 9** and **10** and includes a latch **62** for each of the shelf units, said latches being pivoted at **63** to and between the pair of plates **38** and **39.** The latches are connected to one another by the links **64** which are pivotally connected between the latches **62.** The latches **62** extend into the slots of the latch, engaging means **15** and **16** of the shelf units. When the latches **63** are in the position shown in FIG. **9** they merely extend through the slot in the latch engaging means **15** and **16** and have not as yet locked the shelf unit. Slots **15** are for holding the units in closed position, while slots **16** on the opposite side of the unit are for holding the units in the open position. When the latches have been shifted by the handle **48** as shown in FIG. **10,** they then engage the latch engaging means **15** and **16** to hold the shelf unit firmly against the support structure. Shifting of the latches **62** is accomplished by rotating the handle **48** which consecutively also rotates the crank **66** at its inner end and to which is pivoted the rod **67.** Rod **67** is also pivotally mounted as at **68** (FIG. **9**) to one of the latches **62.** Thus, rotation of the single handle **48** results in simultaneous swinging of the latches **62.**

Referring again to the supplementary display shelf **20** at the top of the shelf units, means are provided for preventing removal of the merchandise from the shelf **20** when the units have been swung to the closed position. This means comprises cover means **70** which are swingably mounted on the top of the support structure by means of their lower projections **71** which extend through corresponding openings **72** in the top pan **31** (FIG. **14**). The cover means includes an overhanging top **74** which, when the unit U has been swung to the closed position as shown in FIG. **13,** overhangs the top of the shelf **20.** In order to prevent the cover **70** from being pushed inwardly as to expose the upper side of the shelf **20,** a bail member **75** is secured to the top bracket **6** and extends through a slot **76** in the cover means **70,** thereby preventing swinging of the cover means **70** inwardly away from the shelf **20.**

When the shelf unit U has been moved to the display or open position as shown in FIG. **14,** the shelf unit **20** abuts against the cover means **70** to push it inwardly so as to prevent its obstruction to the removal of merchandise from the shelf **20.** Thus, the cover means monted on top of the structure is cooperable with the supplementary display shelf to close the latter against access when the units are closed.

I claim:

1. A theft proof display device comprising, a vertically extending central support structure having a series of vertical sides adjacent one another and around the periphery of said structure, a plurality of vertically disposed merchandise supporting shelf units; said units having an open side for access to merchandise therein, a closed side opposite to said open side, and two opposite side walls joining said open and closed sides; each of said units being pivotally mounted along one of its side walls and on said structure and on a vertical axis located adjacent the juncture of adjacent vertical sides

of said structure, said units arranged around said structure and each unit swingable between (1) a display position in which its open side faces away from one of said vertical sides of said central structure and merchandise therein is accessible and (2) a closed position in which its said closed side faces away from an adjacent vertical side of said central structure to prevent removal of merchandise from said units, and locking means carried by said structure and having latch means for engaging said units and locking them in said closed position.

2. A device as set forth in claim **1** further characterized in that said support structure includes at least an upper and a lower generally horizontally disposed plate each having outwardly extending corners, and said units are pivotally mounted on vertically aligned corners of said plates for said swinging between said display position on one side of said structure and said closed position at an adjacent side of said structure.

3. A device as set forth in claim **1** further characterized in that said support structure includes a pair of generally horizontally disposed plates, and said locking means including a latch for each unit, an operating handle, and linkage means between said latches and said handle.

4. A device as set forth in claim **2** further characterized in that said support structure includes a pair of generally horizontally disposed plates, and said locking means is located between said pair of plates; said locking means including a latch for each unit, an operating handle, and linkage means between said latches and said handle.

5. The display device according to claim **1** further characterized in that said locking means includes latch means carried on said structure and engagable with said units when the latter are in either said display or closed positions, an operating handle, and linkage means connected between said latch means and said handle.

6. The display device according to claim **1** further characterized in that one of said side walls which is opposite to said side wall to which said pivot axis is adjacent, is comprised of a vertically disposed metal frame member which rigidifies said unit and encloses that side of said unit, said units also having upper and lower frame brackets rigidly secured at one end to said metal frame member.

7. The device as claimed in claim **1** including a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

8. The display device of claim **2** further characterized in that said locking means includes latch means carried on said structure and engagable with said units when the latter are in either said display or closed positions, an operating handle, and linkage means connected between said latch means and said handle.

9. The display device according to claim **2** further characterized in that one of said side walls which is opposite to said side wall to which said pivot axis is adjacent, is comprised of a vertically disposed metal frame member which rigidifies said unit and encloses that side of said unit, said units also having upper and lower frame brackets rigidly secured at one end to said metal frame member.

10. The device as claimed in claim **2** including a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

11. The device as claimed in claim **4** including a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

12. The device as claimed in claim **5** including a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

13. The device as claimed in claim **6** including a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

14. The display device according to claim **3** further characterized in said locking means includes latch means carried on said structure and engagable with said units when the latter are in either said display or closed positions, an operating handle, and linkage means connected between said latch means and said handle.

15. The display device according to claim **3** further characterized in that one of said side walls which is opposite to said side wall to which said pivot axis is adjacent, is comprised of a vertically disposed metal frame member which rigidifies said unit and encloses that side of said unit, said units also having upper and lower frame brackets rigidly secured at one end to said metal frame member.

16. A theft proof display device comprising, a vertically extending central support structure including at least an upper and a lower generally horizontally disposed plate each having outwardly extending corners, a plurality of vertically disposed merchandise supporting shelf units; said units having an open side for access to merchandise therein, a closed side opposite to said open side, and two opposite side walls joining said open and closed sides; said units being pivotally mounted on said corners of said plates and on a vertical axis located adjacent one of said side walls, the other of said side walls comprising a vertically disposed metal frame member which rigidifies said unit and encloses said other side of said unit, said units also having upper and lower frame brackets rigidly secured at one end to said metal frame member, said units arranged around said structure and each swingable between (1) a display position on a side of said structure in which its open side

faces away from said central structure and merchandise therein is accessible and (2) a closed position at an adjacent side of said structure in which its closed side faces away from said central structure to prevent removal of merchandise from said units, said support structure also including an intermediate pair of generally horizontally disposed plates; and locking means between said intermediate pair of plates and including a latch for each unit, an operating handle, and linkage means between said latches and said handle; and a supplementary display shelf on top of each of said units and having an open side for access to merchandise therein and an opposite closed side, and cover means mounted on top of said support structure and cooperable with said supplementary display shelf to close the latter against access when said units are moved to their closed position.

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