Jan. 20, 1970 V. REED ET AL 3,490,600

DISPLAY DEVICE

Filed May 31, 1967 2 Sheets-Sheet 1

Fig. 1.

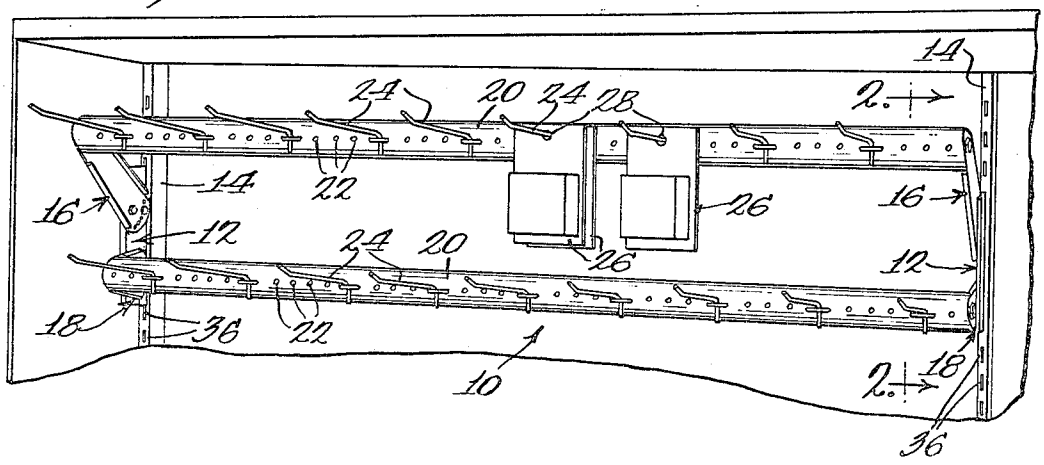

Fig. 2.

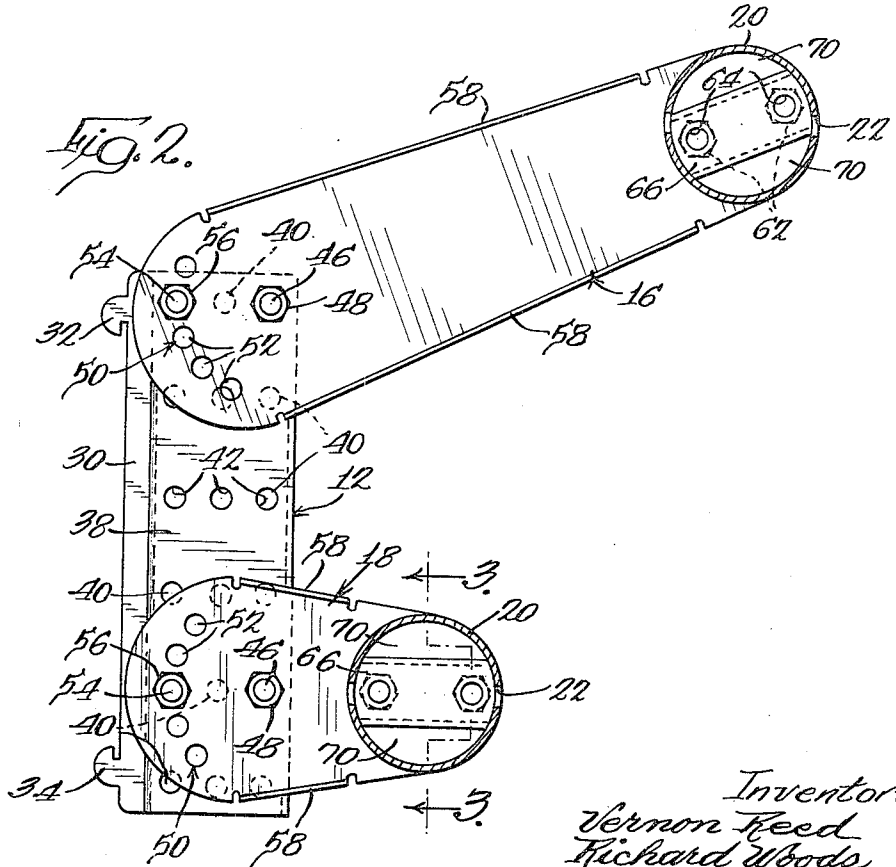

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Fig. 3.

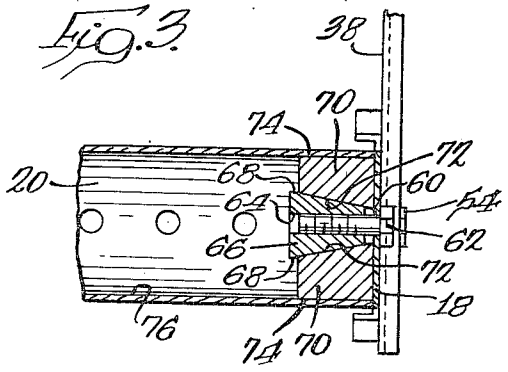
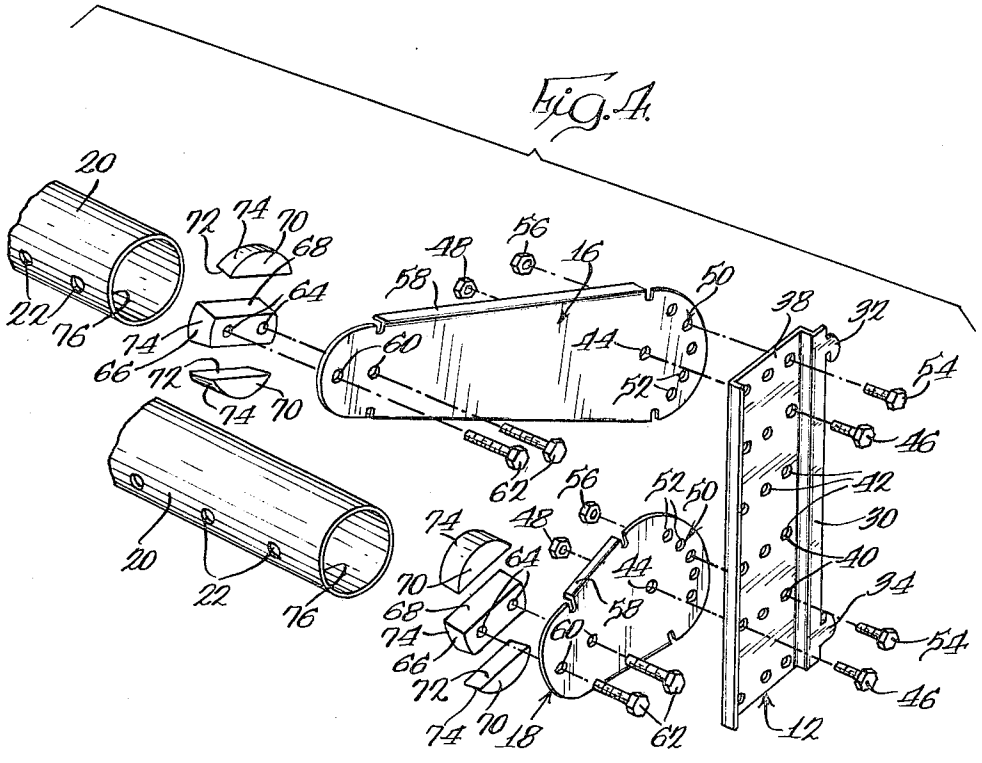


Fig. 4.



United States Patent Office 3,490,600
Patented Jan. 20, 1970

3,490,600

DISPLAY DEVICE

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Filed May 31, 1967, Ser. No. 642,447
Int. Cl. A47f 7/00
U.S. Cl. 211—59 10 Claims

ABSTRACT OF THE DISCLOSURE

A display unit including a pair of spaced brackets to be mounted on a vertical support, at least two arms pivotally mounted for rotation about spaced axes on each of the brackets, means for securing each arm against pivotal movement relative to the bracket on which it is mounted, two elongated display supports each extending between one of the arms on one of the brackets and the corresponding arm on the other of the brackets, means pivotally connecting each of the display supports to the arms between which it extends and means for fixing position of rotatable adjustment of each display support relative to the arms on which it is mounted.

Background of the invention

In recent years, merchants have recognized the desirability of displaying products to be sold on a type of display unit generically characterized as a "perforated board display unit." Typically, such display units include one or more members having a plurality of apertures therein which are adapted to receive hooks which, in turn, support the packaged product.

In most cases, the perforated board display units have been an extremely efficient device for displaying merchandise to be sold. However, in some instances, as when the size of the package to be suspended from the hooks of the perforated board display unit is changed as when the nature of the product displayed is changed, the job of relocating the various hooks to accommodate the changed product is relatively tedious and time consuming in that each hook must be relocated.

Summary of the invention

It is the principal object of the invention to provide a new and improved perforated board display unit.

More specifically, it is an object of the invention to provide a perforated board display unit wherein the distance between adjacent rows of hooks may be easily changed to accommodate new products of differing sizes to be displayed thereon.

Another object is the provision of the perforated board display unit such as that set forth in the preceding paragraph having at least two members each including a plurality of apertures for mounting a row of product supporting hooks, means mounting the members for relative movement to adjust the space between rows of hooks retained in the apertures, and means for securing the members in any of a plurality of spacially adjusted positions.

A further object is the provision of a display unit comprising a pair of spaced brackets adapted to be mounted on a generally vertical support, at least two arms pivotally mounted for rotation about spaced axes on each of the brackets, means for securing the arms against pivotal movement relative to the brackets on which they are supported, at least two elongated display supports, each extending between respective ones of said arms on said pair of brackets, means pivotally connecting each of the display supports to the arms between which it extends, and

means for securing the display supports against rotation relative to the arms.

A still further object is the provision of a display unit such as that set forth in the preceding paragraph wherein the display supports are tubes and the last-named securing means includes wedge means within the ends of the tubes for frictionally binding the tubes to the arms, the wedge means further including an outer cylindrical surface which serves as the pivotal mounting for the tubes.

Yet another object is the provision of a display unit such as that set forth above including means whereby the spacing between the arms on each bracket and the angular position of each arm relative to the bracket may be selectively and independently varied.

Other objects and advantages will become apparent from the following specification taken in conjunction with the accompanying drawings.

Description of the drawings

FIG. 1 is a perspective view of a display unit made according to the invention in the environment of one intended use;

FIG. 2 is a vertical section taken approximately along the line 2—2 of FIG. 1 showing the display unit apart from the environmental surroundings;

FIG. 3 is a fragmentary vertical section taken approximately along the line 3—3 of FIG. 2; and

FIG. 4 is a fragmentary exploded view of a portion of a display unit made according to the invention.

Detailed description

An exemplary embodiment of a display unit made according to the invention is shown in the environment of one intended use in FIG. 1. Specifically, the display unit, generally designated **10**, is supported in a refrigerated display case generally designated **12** although it could be mounted apart from a display case as on a wall or a suitable pedestal.

The exemplary embodiment of the display unit **10** includes adapter brackets generally designated **12** which are mounted on vertical supports **14** within the display case **12**. Each bracket **12** supports an upper arm generally designated **16** and a lower arm generally designated **18**, although if desired additional arms could be provided.

Each of the arms **16** and **18** is pivotally mounted to the respective adapter brackets **12** in a manner to be described in greater detail hereinafter and means are provided for maintaining each arm **16**, **18** in a desired angular relation with respect to the adapter brackets **12**.

Extending between corresponding arms on the two adapter brackets **12** are elongated display supports **20**. The display supports are connected by means of a pivotal connection to the arms between which they extend and means are provided for securing the display supports **20** against rotation relative to the arms **16**, **18** by which they are supported.

Each display support **20** includes a plurality of apertures **22** which are adapted to receive product supporting hooks **24**. The arrangement is such that a sufficient number of the apertures **22** are provided so that each display support **20** may support a plurality of the hooks **24** at desired spaced locations.

Each display hook **24**, in turn, may support a plurality of card packages **26**. Typically, each card package **26** is provided with an aperture **28** near one edge thereof through which the hook **24** may project.

Turning now to FIG. 2, it will be seen that the display supports **20** are formed of tubes having a circular cross section and are mounted on the ends of the respective arms **16**, **18** remote from the adapter bracket **12**.

Each adapter bracket **12** includes a flange **30** having a downwardly opening hook **32** at the upper and thereof

and an upwardly opening hook **34** at the lower end thereof. Returning to FIG. 1, it will be seen that the vertical supports **14** are provided with a plurality of slots **36** in which the hooks **32** and **34** may be received. Typically, the vertical support **14** is in the form of a channel-like member.

The purpose of providing both an upwardly opening hook and a downwardly opening hook on the adapter bracket **12** is to permit the latter to be supported either in the position shown in FIG. 2 or in a totally inverted position. In this respect, it will be noted that as illustrated, the upper arms **16** of the display unit **10** are of a somewhat greater length than the lowermost arms **18**. In the event it is desired to have the shortest arms uppermost rather than as shown, it is not necessary to disassemble the entire unit to make the change, but rather, the unit **10** may be bodily lifted from a display case so as to disengage the hooks **32** from the slots **36**, rotated through 180° and then replaced in the display case **12** with the hooks **34** now providing the support for the adapter brackets **12**.

As best seen in FIG. 4, the flange **30** of each adapter bracket **12** is secured to one leg of a U-shaped channel member **38** which forms a majority of each adapter bracket **12**. The arrangement is such that the flange **30** is generally parallel to the bight of the U-shaped member **38**. As will be apparent, the non-planar configuration of the adapter bracket **12** provides a significantly stronger construction than would be the case if the brackets were planar.

Returning to FIG. 2, it will be seen that the adapter bracket **12** is provided with a plurality of horizontal rows **40** of apertures **42**. Each row **40** includes three of the apertures **42** with the endmost apertures **42** in each row **40** having their centers spaced a distance equal to the distance between adjacent ones of the rows **40**. The significance of this relationship will become apparent hereinafter.

The rightmost aperture **42** in each row as viewed in FIG. 2 serves to define a pivotal axis for each of the arms **16, 18**. Specifically, each arm **16, 18** is provided with an aperture **44** (see FIG. 4) which is adapted to be aligned with the rightmost aperture **42** of one of the rows **40** to receive a bolt **46** having a nut **48**. The bolt **46** provides a pivotal connection while the nut **48** holds the bolt **46** in place.

In order to provide angular adjustment of each arm **16, 18** relative to the adapter bracket **12**, arcuately arranged slot means, generally designated **50**, are provided at the end of each arm **16, 18** opposite the point of support of the display supports **20**. In the exemplary embodiment, the arcuate slot means **50** are formed by a plurality of apertures **52** arranged arcuately about the aperture **44** to have a radius equal to the distance between the center of the leftmost aperture **42** in a row and the center of the rightmost aperture **42** in the row **40**. Of course, if desired, the apertures **52** may be replaced by a single arcuate slot having the same radius.

A bolt **54** is projected through the leftmost aperture **42** in a row **40** and through a selected one of the apertures **52** in an arm **16, 18** to hold the arm **16, 18** in a desired angular relationship with respect to the adapter bracket **12**. By changing the aperture **52** through which the bolt **54** projects, the angular attitude of each arm **16, 18** may be varied. Additionally, there is provided a nut **56** for retaining the bolt **54**.

In order to rigidify the arms **16, 18**, a pair of flanges **58** are disposed on opposite sides of each arm **16, 18** and are transverse to the bodies thereof.

With reference now to FIGS. 3 and 4, the manner in which the display supports **20** are pivotally mounted on the arms **16, 18** together with the means for securing the same in a desired position of rotative adjustment will be described. As will have been apparent from the foregoing description of the arms **16, 18**, the two are identical with the exception of their length. As a result, the means by which the display supports **20** are pivotally mounted to each arm **16, 18** and the construction of the means for precluding movement of each display support relative to the arm on which it is mounted are identically made and only one will be described. As viewed in FIG. 4, the end of the arm **16** remote from the point of connection of the latter to the adapter bracket **12** is provided with a pair of apertures **60** which have their centers spaced a distance equal to the spacing betwen the centers of the apertures **42** at the ends of each row **40**. A pair of bolts **62** are adapted to be passed through respective ones of the apertures **60** to be received in threaded bores **64** in a wedge plug **66**.

As best seen in FIG. 3, the wedge plug **66** includes a pair of diagonally extending surfaces **68** which slope outwardly from the bores **64** in the direction going away from the point of attachment of the plug **66** to the arm **16**. A pair of segments **70** include complementary, diagonal surfaces **72** which, as viewed in FIG. 3, slope inwardly toward the bore **64** in the direction going toward the arm **18**.

The wedge plug **66** and the segments **70** are constructed with cylindrical outer surfaces **74** which will be in contact with an inner surface **76** of a corresponding one of the display supports **20**. As a result, when the bolts **62** are backed off with the bores **64** in the wedge plug **66**, an open end of the display support **20** may be slipped over the assemblage including the wedge plug **66** and the two segments **74** such that the latter three elements are within the confines of the tube from which the display support **20** is formed. By threading the bolt **62** deeply into the bores **64** in the wedge plug **66**, it will be seen that the latter will be drawn toward the arm on which it is mounted (to the right as seen in FIG. 3) thereby forcing the segments **70** outwardly to frictionally bind against the inner surface **76** of the display support **20**. As a result, the latter cannot rotate relative to the segment **70**, the plug **66** and thus the arm to which the plug **66** is secured.

However, when the bolts **62** are backed off sufficiently, the tube **20** may be freely rotated about the cylindrical surfaces **74** of the segments **70** and wedge plug **66** and thus, about an axis parallel to its elongated dimension.

As a result of the foregoing, it will be appreciated that the distance between adjacent ones of the display supports **20** may be selectively adjusted by changing the angular relation of each arm **16, 18** with respect to the adapter brackets **12**. Alternatively, the spacing of the pivotal axis of the arms **16** and the pivotal axis of the arms **18** may be changed by relocating the bolts **46** and **54** in a different row **40** of the apertures **42**.

When angular adjustment of the arms **16, 18** is made, in order to maintain the body of the hooks **24** in a substantially horizontal plane or, for that matter, any desired non-horizontal plane, the bolts **62** may be backed off and the display supports **20** rotated until the apertures **22** therein are located so as to dispose the hooks **24** in the desired plane.

In some instances, it may be desirable to omit certain of the arms while retaining the associated one of the display supports **20**. For example, for some reason it may be desirable to omit the arms **18**. It will be recalled that spacing between the apertures **60** is identical to the spacing between the endmost apertures **42** in each row **40** as well as spacing between corresponding apertures **42** in adjacent rows **40**. Thus, the arms **18** may be removed and the bolts **62** may be used to secure the wedge plug **66** directly to the adapter bracket **12**. Because of the just mentioned spacing arrangement, it will be appreciated that the wedge plug **66** may be oriented either vertically or horizontally on the adapter brackets **12** by locating the bolts **62** and corresponding ones of the apertures **42** in adjacent rows **40** or by locating the bolts **62**, in the endmost apertures **42** of a single row **40**, respectively.

The segments **70** are then disposed adjacent the wedge plug **66** in the manner described previously and the end

of the display support **20** is fitted thereover. Upon tightening of the bolts **62**, the display support **20** will be secured directly to the adapter brackets **12**. Of course, the attitude of the hooks **24** supported by the display support **20** may be varied in the same manner as if the display support **20** were mounted on the arms **18**.

It will be recognized that the foregoing arrangement also provides a great deal of flexibility in the positioning of the display support **20**. For example, when the wedge plug **66** is oriented vertically, the resulting location of the display support **20** will be approximately midway between the two positions it would occupy if the wedge plug **66** were oriented horizontally with the bolts **62** passing through the apertures **42** in either of the rows **40** whose apertures **42** are used for vertically orienting the wedge plug **66**.

Having described a specific embodiment of our invention for exemplification purposes, we do not wish to be limited to the specific details set forth, but rather to have the invention construed broadly in accordance with the following claims.

We claim:

1. A display unit comprising: a pair of spaced brackets adapted to be mounted on a generally vertical support; at least two arms pivotally mounted for rotation about spaced first axes on each of said brackets; first securing means associated with said arms for securing the arms against pivotal movement relative to the bracket on which they are mounted in any of a plurality of angular positions; at least two elongated display supports each extending between one of said arms on one of said brackets and the corresponding arm on the other of said brackets, each of said display supports including a plurality of mounting means for a product support; means pivotally connecting each of said display supports to the arms between which it extends for rotation about second axes substantially parallel to the elongated dimension of the respective display support; and second securing means for securing each said display support against rotation relative to the arms on which it is mounted in any of a plurality of angular positions.

2. The display unit of claim **1** wherein said display supports are tubes and said second securing means includes wedge means within the ends of said tubes adjustable to frictionally bind said tubes to the arms supporting the same.

3. The display unit of claim **2** wherein said tubes are circular in cross section, said wedge means including a first element having a first diagonal surface and a second element having a second diagonal surface in contact with said first diagonal surface; said pivotal connecting means including a cylindrical surface formed on said first and second elements and in contact with the inner surface of a respective one of said tubes, and means connecting one of said elements to a respective one of said arms.

4. The display unit of claim **1** wherein said plurality of mounting means for a product support comprise a plurality of apertures in each of said display supports adapted to mount a product supporting hook.

5. The display unit of claim **1** wherein said first securing means comprises arcuately arranged slot means in one of said bracket and said arm, an aperture in the other of said bracket and said arm, and tightening means impaled through said slot means and said aperture.

6. The display unit of claim **5** wherein said arcuately arranged slot means comprises a plurality of arcuately arranged apertures.

7. The display unit of claim **5** wherein said aperture is on said bracket and a plurality of like apertures are provided on said bracket; and means for adjusting the distance between said first axes whereby the spacing between the arms on each bracket together with the angular position of each arm relative to the respective bracket may be varied.

8. The display unit of claim **1** wherein each of said brackets is vertically oriented and includes at least one downwardly open hook adapted to be received in a slot of a vertically oriented channel.

9. The display unit of claim **8** wherein each of said brackets further includes at least one upwardly open hook.

10. A perforated board type of display unit comprising: a plurality of elongated display supports each having a plurality of mounting apertures therein; a plurality of display hooks mounted in at least some of the apertures of each said display support; means mounting each of said display supports for movement relative to each other whereby the relative positions of each display support relative to another display support may be adjusted; means for locking each display support in a desired position of adjustment; said mounting means comprising a pair of spaced brackets; at least one pair of arms, each arm adapted to be associated with one of said brackets and mounting connecting means for supporting one of said display supports; each said bracket including means for alternatively supporting an arm and for supporting said connecting means whereby said display supports can be alternatively disposed on said arms and disposed directly on said brackets.

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U.S. Cl. X.R.

211—100, 171; 248—284