Feb. 2, 1965 R. J. EVANS 3,168,365

CABINET STRUCTURE WITH SHELF ATTACHING AND SUPPORTING MEANS

Filed July 12, 1963 2 Sheets-Sheet 1

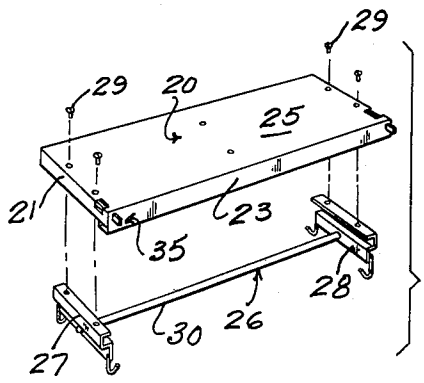


FIG. 1

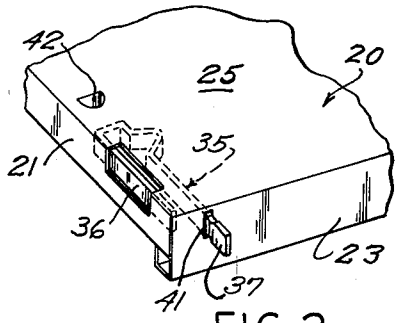


FIG. 2

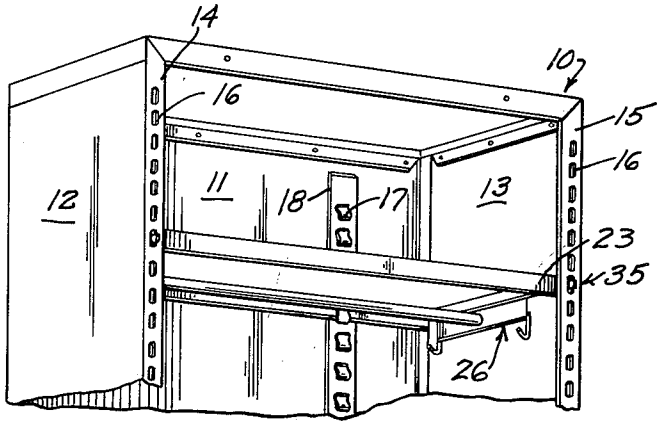


FIG. 3

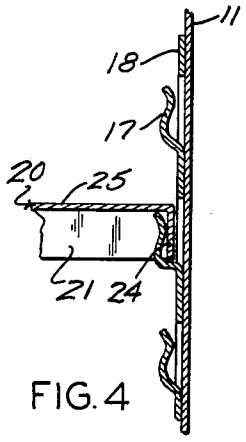


FIG. 4

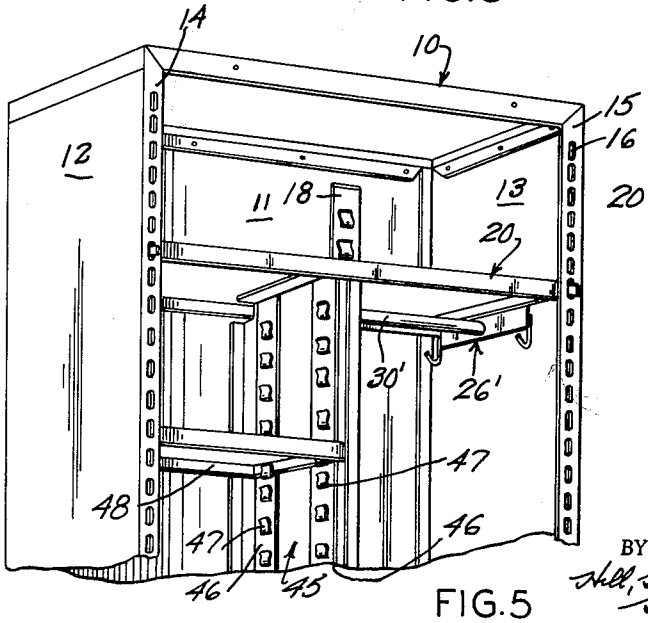


FIG. 5

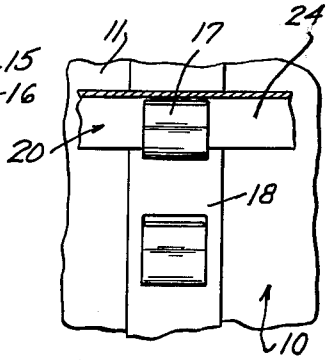


FIG. 6

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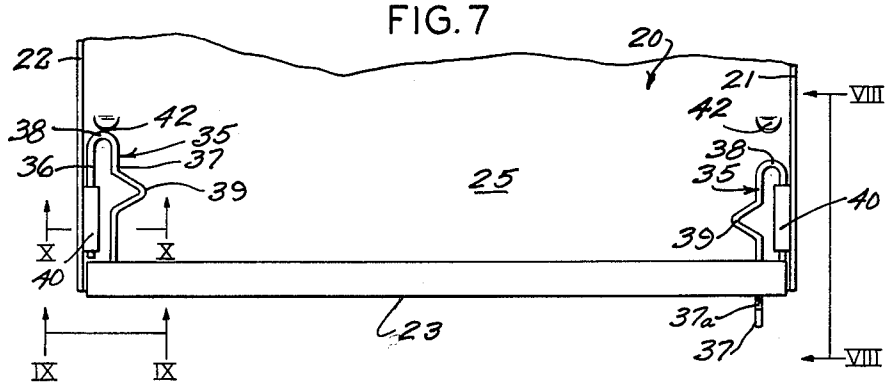
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ATTORNEYS

CABINET STRUCTURE WITH SHELF ATTACHING AND SUPPORTING MEANS

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FIG. 7



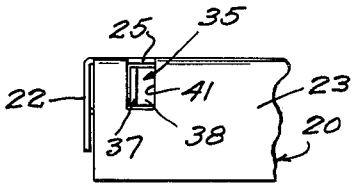


FIG. 9

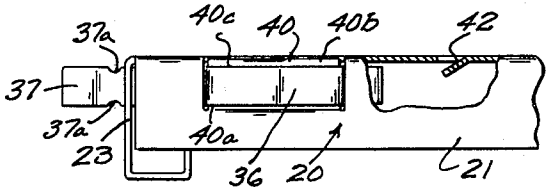


FIG. 8

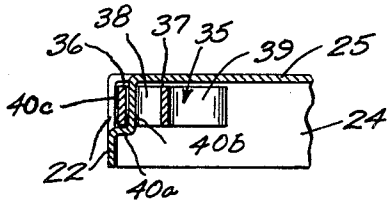


FIG. 10

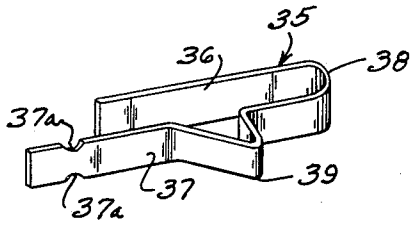


FIG. 11

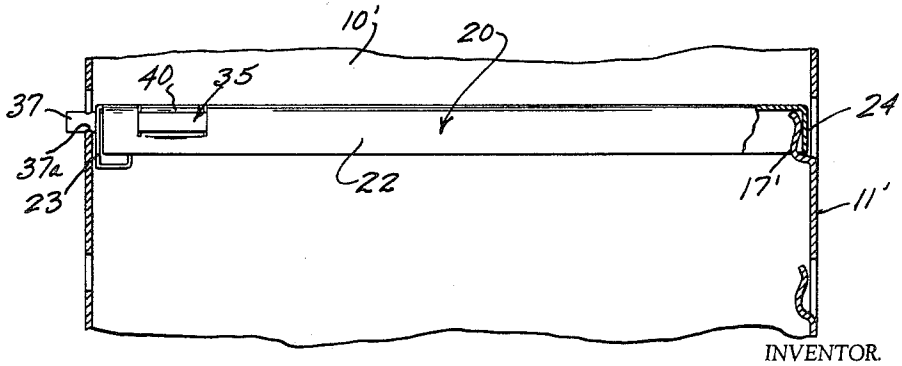


FIG. 12

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CABINET STRUCTURE WITH SHELF ATTACHING AND SUPPORTING MEANS

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12 Claims. (Cl. 312—351)

The present invention relates generally to a cabinet structure which is capable of being used as a wardrobe or as a storage container, as desired. The present invention more particularly concerns a new and improved manner of securing shelving within the wardrobe or storage cabinet.

An important object of this invention is to provide new and improved means for securing shelves and clothes-hanger racks interiorly of cabinets or other suitable structures.

Yet another object of this invention is to provide new and improved means for enabling cabinet shelves to be quickly and effectively assembled with a cabinet.

According to important features of my invention, I have provided a shelf which shelf has means for attachment to a cabinet comprising a U-shaped slidable clip mounted on the underside of the shelf. The clip has one leg that is longer than an adjacent leg. The shelf has an inwardly turned retaining flange portion adjacent at least one of its side walls and which portion is cooperable with the side wall in defining a channel-shaped guide with the shorter leg of the clip being slidably retained in assembly with the shelf by the channel-shaped guide. The shelf has another side wall disposed adjacent the aforesaid side wall that is provided with a slot and an end of the longer leg is extendible through the slot for locking the shelf to the cabinet. If desired, clips can be provided at all four corners of the shelf or clips can only be provided at the front corners of the shelf and hooks can be employed to secure rear corners of the shelf to a rear-cabinet wall.

According to other features of this invention, the longer leg of the clip has a locking groove adjacent its outer end for locked engagement with a wall surface of a cabinet.

Other features of the present invention relate to the shelf being provided with stops for limiting forward and rearward movement of the clip to prevent accidental detachment of the clip from the shelf.

Other objects and features of the present invention will more fully become apparent in view of the following detailed description taken in conjunction with the accompanying drawings illustrating several embodiments and in which:

FIGURE 1 is an exploded perspective view of a shelf;

FIGURE 2 is an enlarged fragmentary perspective view of a corner of the shelf;

FIGURE 3 is an enlarged fragmentary perspective view of a cabinet having the shelf mounted therein;

FIGURE 4 is an enlarged fragmentary vertical section illustrating the manner by which a rear edge of the shelf is attached with a rear-cabinet wall;

FIGURE 5 is an enlarged fragmentary perspective view similar to FIGURE 3 only illustrating a modified cabinet;

FIGURE 6 is an enlarged fragmentary view showing the manner of attachment of the rear margin of the shelf illustrated in FIGURE 5 to the cabinet;

FIGURE 7 is an enlarged fragmentary bottom view of the shelf;

FIGURE 8 is an enlarged fragmentary view with parts broken away to show internal structures as viewed on the line VIII—VIII looking in the direction indicated by the arrows as seen in FIGURE 7 only with the shelf being in an inverted position;

FIGURE 9 is an enlarged fragmentary view as seen on the line IX—IX looking in the direction indicated by the arrows as shown in FIGURE 7 only with the shelf being in an inverted position;

FIGURE 10 is a cross-sectional view taken substantially on the line X—X looking in the direction indicated by the arrows as seen in FIGURE 7;

FIGURE 11 is a perspective view of a clip for securing a shelf to a cabinet; and

FIGURE 12 is a fragmentary cross-sectional view of a modified type of cabinet having a shelf mounted therein.

As shown on the drawings:

The reference numeral **10** indicates generally a storage cabinet which may be comprised of any suitable material such as steel and the like. The cabinet **10** has a rear cabinet wall **11**, side cabinet walls **12** and **13** and forward margins **14** and **15**. These walls can be secured together in any suitable length. The forward margins are provided with slots **16** and the rear cabinet wall **11** is provided with shelf hooks **17**. The slot **16** and the shelf hooks **17**, provide means for enabling a shelf to be mounted within the cabinet. The hooks **17** are mounted on metal strips **18** which strips are welded or otherwise suitably attached to the rear cabinet wall **11**.

A cabinet shelf **20** is provided for attachment with the cabinet. The shelf **20** is preferably formed from sheet metal such as steel and the like and includes opposing shelf side walls **21** and **22** as well as front and rear side walls **23** and **24**. These side walls are joined to a main shelf panel **25** disposed centrally of the side walls.

A hanger rack assembly **26** is mounted on an underside of the shelf and includes a pair of brackets **27** and **28** which are joined by bolts and nuts **29** to the shelf **20**. A hanger rack **30** is mounted on the hanger rack brackets **27** and **28**.

A series of U-shaped clips are provided for attaching the shelf **20** to the cabinet **10**. The clips may be made of any suitable material such as steel and the like. The clips may be mounted at the four corners of the shelf or at the front corners, as desired.

Each of the clips **35** includes a short leg **36** and a long leg **37**. The legs **36** and **37** are joined at the bottom of the U defined by the clip as indicated at **38**. The long leg **37** is provided with a locking groove **37*a*** for purposes which will be further discussed hereafter.

The longer leg **37** has an angled reinforcing portion **39** disposed between its opposite ends and engageable with an underside of the shelf panel **25**, when the clip is mounted on the shelf. The angled reinforcing portion not only reinforces the leg **37** but also provides means to enable the clip to be manually grasped and moved into and out of locking engagement with the cabinet ledges.

The shelf is further provided with an inwardly turned flange retaining portion **40** which is comprised of a channel leg **40*a*** that is turned essentially from shelf side wall **22** and a channel leg **40*b*** and is formed essentially from the material in the shelf side wall **22** and in the main panel **25**. The legs **40*a*** and **40*b*** operate with the side wall **22** and with the main panel **25** in defining a channel shaped guide **40*c*** which is generally of a rectangular cross-sectional configuration slightly larger than the exterior dimension of the short leg **36** that is secured therein. At the time the shelf **20** is fabricated, the blank of metal from which the shelf is formed is stamped to form the side walls and to form the guide **40*c***, the channel legs **40** and **40*b*** being struck from the material of the main panel **25** and the side wall **22**. The opposite or opposing side wall **21** is also provided with an inwardly turned flange retaining portion **40** defining a channel shaped guide **40*c*** identical to the one just described above. The front shelf side wall **23** has a pair of slots **41** (only one being shown) and the long clip leg **37** is adapted to be reciprocated in the slot **41** to enable the shelf **20** to be attached and detached from the cabinet. As the clip **35**

is reciprocated, rearward movement is limited by the tab 42 which is struck downwardly from the main panel 25. Forward movement of the clip 35 is limited by the front wall 23 as the outer end of the short leg 36 is engaged thereagainst. The tab 42 and the front wall 23 cooperate together to provide stops to limit forward and rearward movement of the clip 35.

In FIGURES 5 and 6 is illustrated a slightly modified form of my cabinet 10 in that a vertical divider section 45 is mounted interiorly of the cabinet beneath the shelf 20. Strips 46 bearing hooks 47 are secured wtih the divider section 45. Any suitable number of shelves 48 can be mounted on the hooks and supported from similar hooks (not shown) on the cabinet side wall 12. The upper end of the divider section 45 is adapted to engage against the underside of the shelf to support the shelf between its ends. Also, a modified hanger rock assembly 26′ is mounted beneath the shelf 20. The hanger rack assembly 26′ is identical to the hanger rack assembly 26 only hanger rack 30′ is shorter in length.

In FIGURE 12 is shown another modified form of my invention wherein primed reference numerals have been employed to identify a modified cabinet 10′. The shelf 20 is identical to the shelf previously described. In this form of my invention, the cabinet 10′ has a rear wall 11′ which is provided with hooks 17′ that are struck from the material of the rear wall of the cabinet. The shelf 20 is mounted on the cabinet in the same manner as in the previously described form of my invention except for this change.

In all forms of my invention, the clips are provided with the locking grooves 37*a* for engagement with edges of the slots in the cabinet margins 14 and 15 to secure the shelves to the cabinet or to an open sided shelving structure including four rectangularly arranged upright slotted posts.

Although minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon, all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with the shorter leg of said clip slidably retained in assembly with said channel-shaped guide, and
another side wall of said shelf being normal to said side wall and having a slot and with an end of said longer leg being extendible through said slot for locking the shelf to a cabinet.

2. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with the shorter leg of said clip slidably retained in assembly with said channel-shaped guide, and
another side wall of said shelf being normal to said side wall and having a slot and with an end of said longer leg being extendible through said slot for locking the shelf to a cabinet,
said longer leg having a locking groove adjacent its outer end for locked engagement with a wall surface of a cabinet.

3. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with the shorter leg of said clip slidably retained in assembly with said channel-shaped guide, and
another side wall of said shelf being normal to said side wall and having a slot and with an end of said longer leg being extendible through said slot for locking the shelf to a cabinet,
said longer leg having an angled reinforcing portion between its outer end and the bottom of the U slidingly engageable with an underside of said shelf.

4. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with the shorter leg of said clip slidably retained in assembly with said channel-shaped guide, and
another side wall of said shelf being normal to said side wall and having a slot and with an end of said longer leg being extendible through said slot for locking the shelf to a cabinet,
said clip comprising a length of strip stock with the length of each leg being greater than the width of the clip.

5. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with one of said legs of said clip slidably retained in assembly with said channel-shaped guide,
another side wall of said shelf being normal to said side wall and having a slot and with an end of said longer leg being extendible through said slot for locking said shelf to a cabinet, and
means defining stops limiting back and forth movement of said legs with respect to said channel-shaped guide.

6. A shelf,
means for securing the shelf to a cabinet comprising a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,
the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with one of said legs of said clip slidably retained in assembly with said channel-shaped guide, and
means defining stops limiting back and forth movement of said legs with respect to said channel-shaped guide,
said last mentioned means comprising another side wall defining one of said stops with an outer end of said shorter leg being engageable thereagainst limiting movement of said clip in one direction and with the other of said stops comprising a tab extending from said shelf and cooperable with a bottom of the U of said clip limiting movement of said clip in an opposite direction.

7. A parallel sided shelf, comprising
a top-shelf panel having side walls at its four sides,
means for securing the shelf to a cabinet comprising

a U-shaped slidable clip with one leg of the U being longer than an adjacent leg,

one of said side walls being cooperable with said top-shelf panel in defining an inwardly turned retaining flange portion and with said retaining flange portion being cooperable with said one of the side walls in defining a channel-shaped guide with one of said legs of said clip slidably retained in assembly with said channel-shaped guide, and

another of said side walls adjacent said one of said side walls having a slot and with an end of said longer leg being extendible through said slot for locking said shelf to a cabinet.

8. The shelf of claim 7 further characterized by being in combination with a cabinet having a rear-cabinet wall having shelf-support hooks with a rearmost of said side walls on said shelf being supported on said cabinet by said hooks.

9. In combination,

a storage cabinet and a parallel-sided shelf, the cabinet having a rear-cabinet panel having shelf-supporting hooks and forward margins having shelf-supporting ledges,

a pair of U-shaped slidable clips with each clip having one leg of the U being longer than an adjacent leg,

said shelf comprising a top-shelf panel having side walls at its four sides including front and rear side walls, and

the shelf having inwardly turned retaining flange portions adjacent an opposing pair of said side walls of the shelf and with said retaining flange portions being cooperable with the opposing side walls in defining channel-shaped guides with one of said legs of each of said clips slidably retained in assembly with said channel-shaped guides,

said rear side wall being supported on said rear-cabinet panel by said hooks,

said front side wall having transversely-spaced slots and with said clips having said longer leg extendible through said slots for supporting said shelf on said ledges of said cabinet.

10. The combination of claim 9 further characterzied by said supporting hooks being integral with and struck from material of said rear-cabinet panel.

11. A shelf,

means for securing the shelf to a supporting structure comprising a slidable clip,

the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with a portion of said clip slidably retained in assembly with said channel-shaped guide,

another side wall of said shelf having a slot and with an end of said clip being extendible through said slot for locking said shelf to a supporting structure, and means defining stops limiting back and forth movement of said clip with respect to said channel-shaped guide.

12. A shelf,

means for securing the shelf to a supporting structure comprising a slidable metal clip,

the shelf having an inwardly turned retaining flange portion adjacent a side wall of the shelf and cooperable with the side wall in defining a channel-shaped guide with said clip slidably retained in assembly with said channel-shaped guide,

another side wall of said shelf having a slot with an end of said longer leg being extendible through said slot for locking said shelf to a supporting structure,

means defining stops limiting back and forth movement of said legs with respect to said channel-shaped guide, and groove means on an outer end of said clip for locking the clip with a ledge on a supporting structure.

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