United States Patent [19]

Lyman, Jr.

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[54] **PORTABLE CABINET**

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[73] Assignee: **Granite Mill & Fixture Co.**, Salt Lake City, Utah

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[52] **U.S. Cl.** **312/250**

[51] **Int. Cl.** **B62b 3/02**

[58] **Field of Search**..... 312/250, 257 SK, 111, 108, 312/140

[56] **References Cited**

UNITED STATES PATENTS

2,990,229	1/1961	Engelbrecht	312/257 SK
3,222,117	12/1965	Schwartz	312/250 X
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3,736,035	5/1973	Brown et al	312/257 SK

FOREIGN PATENTS OR APPLICATIONS

581,810	9/1958	Italy	312/257

Primary Examiner—Paul R. Gilliam

[57] **ABSTRACT**

A roller mounted box shaped cabinet having a rigid exterior framework made up of corner members having center post and sleeve guides projecting therefrom to receive tubular frame members telescoped thereover. The ends of the telescoped tubular frame members are maintained over the center post and sleeve guides by appropriate fastening means forming the rigid cabinet framework. An arrangement of dowels and detents that are mounted to the vertical edges of cabinet walls are fitted into appropriate holes formed in the upstanding frame members to provide an invisible mounting of the cabinet side and back walls to the frame. The edges of cabinet top and bottom panels rest on flanges that project inwardly from the top and bottom tubular frame members.

1 Claim, 5 Drawing Figures

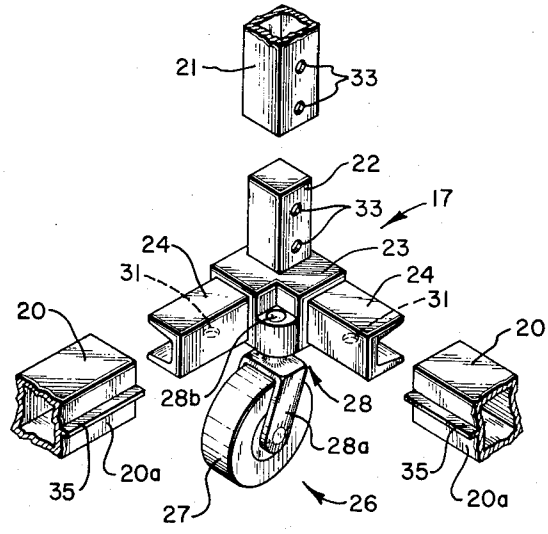


FIG 1

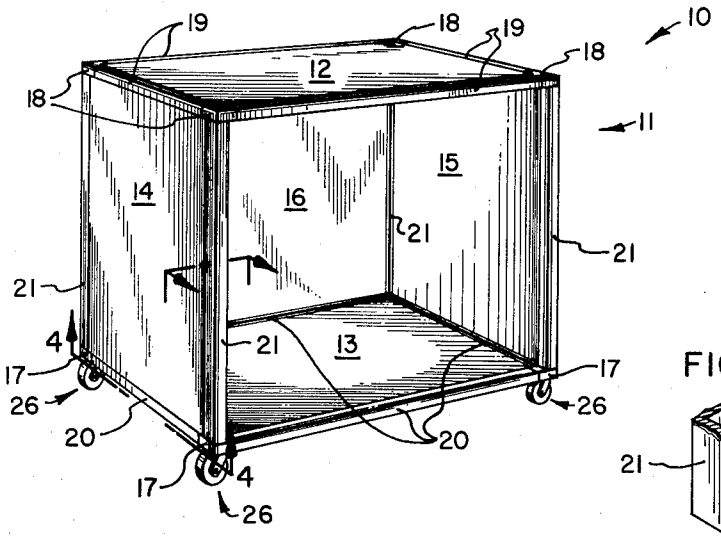


FIG 2

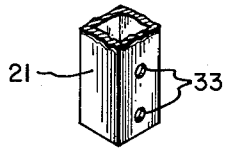
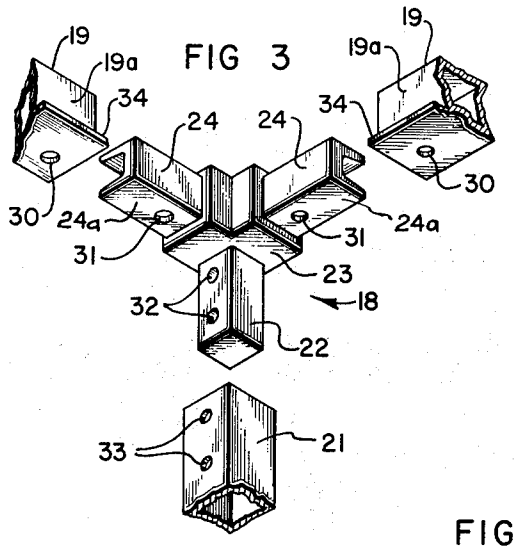


FIG 3



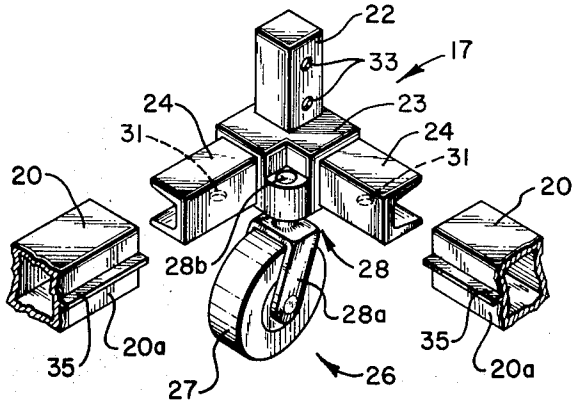


FIG 4

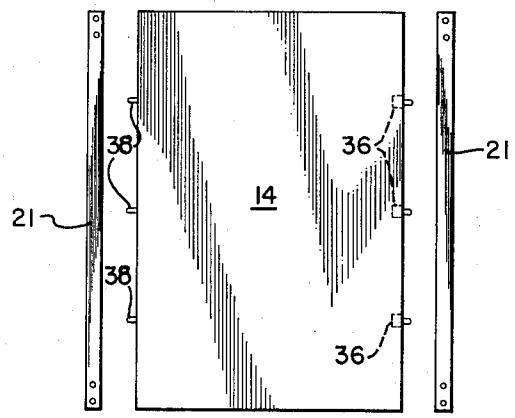
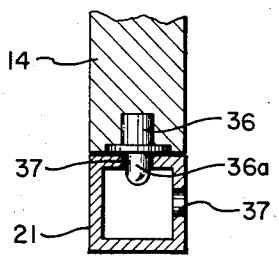


FIG 5



PORTABLE CABINET

BRIEF DESCRIPTION OF THE INVENTION

1. Field of the Invention

This invention relates to portable cabinets constructed of components that are easily separated and that can be assembled together to form a rigid frame structure to receive side, top and bottom walls.

2. Prior Art

In recent years a number of different cabinet designs have been introduced and commercially marketed. Many such cabinets have incorporated construction features which allow the cabinet to be shipped in a disassembled or separated state for assembly at its destination. The portable multiple-use cabinet disclosed in my U.S. Pat. No. 3,450,451 is one such cabinet, and was an improvement over the prior art in that it provided a cabinet formed from basically flat sections which were easily assembled. The frame sections of this cabinet, unlike my present invention, were essentially different from one another and were therefore not interchangeable. By providing as does the present invention, frame corner members and tubular frame members that are essentially alike, fewer machine or molding operations are required to produce a cabinet suitable for shipment in a disassembled state. Fewer operations, of course, result in a less expensive cabinet.

A corner member that is somewhat similar to the corner member of my present invention, is disclosed in U.S. Pat. No. 3,572,787. This corner member is, however, unlike the corner member of my present invention in that it incorporates a post and bracket arrangement as a tubular frame attachment means. Further, a cabinet constructed from the corner members and tubular frame members disclosed in the aforesaid patent lacks an invisible cabinet wall attachment means like that taught by the present invention.

SUMMARY OF THE INVENTION

Cabinets that can be shipped in a disassembled or separated state for assembly at their destination are known and in common use. Such cabinets however, usually lack rigidity when assembled, are difficult and expensive to construct, and none to my knowledge employ side and back panel attachment means that achieve an invisible attachment of the panel to the frame. It is therefore a principal object of the present invention to produce a cabinet that can be transported in a disassembled state for erection at its destination, which cabinet is formed from essentially alike corner members and tubular frame members to which side and back panels are invisibly installed.

Another object is to provide a cabinet that is made portable by the inclusion of casters fitted into appropriate receptacles formed in the cabinet bottom corner members.

Another object is to provide a cabinet formed from a minimum number of component parts, which components are essentially alike, requiring fewer and less expensive machine operations in their construction.

Still another object is to provide a cabinet that is inexpensive to produce but will afford a maximum of usable interior storage area.

Principal features of the present invention include a cabinet incorporating a frame constructed from essentially alike corner members each having a vertical center post projecting therefrom with two sleeve guide extensions arranged perpendicular thereto. The two sleeve guide extensions are at right angles to one another and are both at right angles to the vertical center post forming thereby a three legged corner member. The ends of tubular frame members are telescoped over and secured by attachment means to each corner member center post and sleeve guide extensions forming a rigid box shaped frame. The top and bottom tubular frame members have flanges thereon that are intended to project inwardly to provide pier supports for maintaining the cabinet top and bottom panels thereon.

Side and back panels intended to be installed to the tubular frame members are each constructed having a number of dowels projecting outwardly from along one vertical edge and a number of detents projecting outwardly from along the other vertical edge. The panel sides are joined to the tubular frame members by fitting the dowels and detents into appropriate opposite holes formed in the upstanding tubular frame members. The detents, of course, are spring loaded to retract, riding along the tubular frame member side, until a hole therein is opposite to a detent end whereat the detent spring biases the detent end into the hole, locking the panel side or back to the frame until the detent is depressed against the spring biasing. This coupling arrangement, once the side panels are installed to the upstanding tubular frame members, is not visible from either outside or inside the formed cabinet, and is permanent until the detent ends along one edge are depressed and the panel moved out of engagement with the upstanding tubular frame member.

Mounts having threaded holes formed therein are formed between the sleeve guide extensions of the bottom corner members to accommodate the mounting stems of casters fitted therein.

Doors, shelves and other features that lend efficiency and utility to the cabinet can be included as needed on and within the formed cabinet.

The cabinet corner members are engineered to be preferably formed by casting methods each as one piece with the center post and sleeve guide extensions projecting therefrom having external dimensions that will closely accommodate the tubular frame members telescoped thereover. The ends of the telescoped frame members are each secured and held by a screw fastening means in a butting relationship against collars formed on the body of each corner member from which project the corner member sleeve guides and center post, that are telescoped into the tubular frame members.

Additional objects and features of the invention will become apparent from the following detailed description, taken together with the accompanying drawings.

THE DRAWINGS

FIG. 1 is a perspective view taken from the front and off to one side of the cabinet of the invention;

FIG. 2, an enlarged and exploded view of a cabinet bottom corner member showing tubular frame members aligned to be telescoped over the corner member sleeve guides and center post;

FIG. 3, an enlarged and exploded view of a cabinet top corner member showing tubular frame members

aligned to be telescoped over the corner member sleeve guides and center post;

FIG. 4, an exploded sectional view taken along the line 4—4 of FIG. 1 exposing the cabinet side or back panel that incorporates invisible attachment means that are aligned with appropriate holes formed in the cabinet tubular frame members; and

FIG. 5, a sectional view taken along the line 5—5 of FIG. 1 showing how the cabinet side panels are locked into an upright tubular frame member.

DETAILED DESCRIPTION

Referring now to the drawings:

The portable cabinet **10** is composed of a frame **11** on which rests a cabinet top panel **12** and a cabinet bottom panel **13**, and to which are mounted cabinet side panels **14** and **15** and a back panel **16**. Doors, internal shelving, and like features are not included but it should be understood that they can be installed on and within the cabinet **10**.

The cabinet frame **11**, FIG. **1**, is composed of interconnected bottom corner members **17**, top corner members **18**, top tubular frame members **19**, bottom tubular frame members **20**, and upright tubular frame members **21**. The corner members **17** and **18**, FIGS. **2** and **3**, are essentially alike with each consisting of a center post **22** that projects outwardly from a body **23** from which, at right angles to each other and at right angles to post **22** project also two sleeve guides **24**. Unlike the top corner member **18**, the bottom corner member **17** has additionally a caster mount **25** formed in the right angle junction of the sleeve guides **24** with the body **23**.

Cabinet portability is provided by the inclusion of casters **26** on the bottom corners of the cabinet, FIGS. **1** and **2**. Each caster **26**, FIG. **2**, consists of a wheel **27** which is axially mounted to rotate between the ends of the legs **28***a* of a horseshoe bracket **28**. A mounting stem **28***b*, FIG. **2**, is shown projecting upwardly from within a hole **29** formed in body **23**, which stem extends from the bracket web **28***c* and preferably is arranged with a collar, not shown, or the like such that the caster stem **28***b* is free to rotate in mount **25**.

The center post **22** of each of the corner members **17** and **18** is formed as a square bar projecting outwardly from the top of body **23**. Body **23** has a right angle shape with flat end faces **23***a* formed at right angles to one another out from which project sleeve guides **24** that are shaped as channels. A square configuration was selected for center post **22** to closely accommodate the square shape of box tubular preferred for use in forming the upright frame members **21** telescoped thereover. Should a differently shaped tubular member be used to form upright tubular frame member **21**, such as one that is round or rectangular, then the shape of center post **22** would have to be modified accordingly. Channel shapes, shown in FIGS. **2** and **3**, were selected as the shape for sleeve guides **24** to provide, using a minimum amount of materials in their construction, a shape that will closely fit within a section of rectangular shaped tubular material, which tubular material is preferred for forming the top and bottom tubular frame members **19** and **20**. The channel shape of sleeve guides provides a close fit within three inner surfaces of the frame members **19** and **20**, with the ends of the telescoped upright, top and bottom tubular frame members butting against flat end faces **23***a* and top of body **23**. The butting relationship of the ends of frame members **19**, **20** and **21** to the surfaces of corner member body **23** is maintained by fitting screws, not shown, through holes **30** formed near the ends of each frame member **19**, **20** and **21**, into holes **31**, arranged in the lower flange **24***a* of each sleeve guide, and into holes **33** arranged in center post **22**.

Flanges **34** and **35** are formed on the inner sides **19***a* and **20***a*of each of the top and bottom frame members **19** and **20**, and to project inwardly therefrom towards the center of the cabinet frame **11**. The cabinet top and bottom panels **12** and **13**, respectively, are laid onto and supported on flanges **34** and **35**. Flanges **34** are formed to extend from the lower edge of inner sides **19***a* of each of the top frame members **19** such that the top panel **12**, resting thereon, will be recessed below the top of the frame **11**. The top edges of frame members **19** arranged into frame **11** therefor provide an upstanding retaining lip above the cabinet top.

Flanges **35** are formed to extend outwardly from approximately the mid-points of sides **20***a* forming a supporting lip arranged such that the top surface of the bottom panel **13** resting thereon will be approximately level with the top surface of the bottom frame member **20** making up part of frame **11**.

The cabinet frame **11** not only provides mounting points for the cabinet walls, top and bottom, but it also constitutes the inner and outer cabinet edges. The usable space within the cabinet is therefor maximized as no internal bracing or separate walls are required. The cabinet side walls **14** and **15** and back **16** are arranged as a cabinet exterior wall on one face thereof and as the cabinet interior wall on their other. An invisible coupling of the cabinet sides and back to the cabinet frame is provided to create unmarred attractive inner and outer surfaces. FIG. **4** shows the invisible coupling preferably consisting of dowels **38** and detents **36**, respectively, fixed along the opposite vertical edges of each of the cabinet side and back walls fitted into appropriate holes **37** formed in the sides of upstanding frame members **21**.

To install each side wall and back panel to the cabinet frame **11** the row of dowels **38** are first inserted into holes **37** in the frame member **21** and the panel is pivoted around the inserted dowels bringing the opposite edge thereof into engagement with the edge of the opposite upstanding frame member **21**. Ball ends **36***a* of the row of detents mounted along the opposite side of the wall **14**, are depressed against springs therein, not shown, by moving the panel against the edge of frame member **21**. The edge of wall **14**, with the detent ball ends **36***a* depressed therein, slides over the frame member **21** until the detent ball ends **36***a* are aligned with holes **37** whereupon the detent springs push the detent ball ends **36***a* into holes **37**, securing the wall **14** between the frame members **21** of the cabinet frame **11**. Each side and back wall is similarly installed to the cabinet frame. Shelf hanging arrangements, such as hanger clips or the like, can be installed on and in the inner surfaces of the side and back panels to provide a means for suspending shelves thereon.

To release the side and back panel mounting arrangements shown in FIG. **5**, a narrow bladed tool, not shown, is inserted through each of the open holes **37** in the front frame member **21** depressing in turn each detent ball end **36***a*. The panel can then be rotated around dowels **38**, freeing it from the panel frame **11**. Shown

in FIG. **5**, each upright frame member **21** has rows of holes **37** formed in two of its sides to accommodate the respective dowels **38** and detents **36** therein. As only one panel side is attached to the frame members **21** opposite the front of the cabinet **10**, an open set of holes **37** is available therein. Therefor, removal of the cabinet side and back panels is commenced at the front of the cabinet with the removal of side panel **14**. As panel **14** is removed, a row of holes **37** are opened that are opposite to detents in back panel **16** through which the narrow bladed tool can be inserted, and so on around the cabinet.

While square and rectangular shaped posts, sleeve guides, and tubular members have been employed as the components making up the frame **11**, it should be obvious that other shaped components could also be used in practicing the invention herein disclosed, with such utilization, of course, necessitating appropriate modifications of the corner members and to the cabinet side and back walls.

Although a preferred form of my invention has been herein disclosed, it is to be understood that the present disclosure is made by way of example and that variations are possible without departing from the subject matter coming within the scope of the following claims, which subject matter I regard as my invention.

I claim:

1. A portable cabinet comprising

a plurality of corner members each including a body sleeve guides projecting from sides of the body, said sleeve guides being angularly spaced less than 180° from one another and a center post projecting from the body, said corner post being angularly spaced 90° from said sleeve guides and extending normal thereto;

tubular frame members having ends telescoped over each of said corner member sleeve guides and center post to form a cabinet frame with said corner members;

means for securing said tubular frame member ends in telescoped position over each said corner member sleeve guides and center post;

cabinet side and back panels;

connection means for connecting said cabinet side and back panels within the frame members and corner posts, said connection means extending between edges of the panels and the frame members and comprising

a plurality of dowels arranged to project outwardly from along one upstanding edge of each said panel in the plane thereof,

a plurality of detents having ball ends spring biased to project outwardly from along an opposite upstanding edge of said panel in the plane thereof,

a pair of rows of spaced, longitudinally aligned holes formed in the upstanding tubular frame members, arranged to align with and to receive therein said dowels and said ball ends of said detents, said rows being ninety degrees angularly spaced from one another;

cabinet top and bottom panels;

means for supporting said cabinet top and bottom panels to the horizontal frame members making up said cabinet frame, said means comprising

flange means extending inwardly from each of the horizontal tubular frame members, on which flange means the edges of said cabinet top and bottom panels are supported;

wheel means connected to said portable cabinet, said wheel means including

mounts formed as one piece with the corner members and castor wheels having stems projecting into said mounts.

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