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PIVOT CONSTRUCTION FOR CORNER SHELF HARDWARE

Filed Sept. 2, 1964

Fig. 1

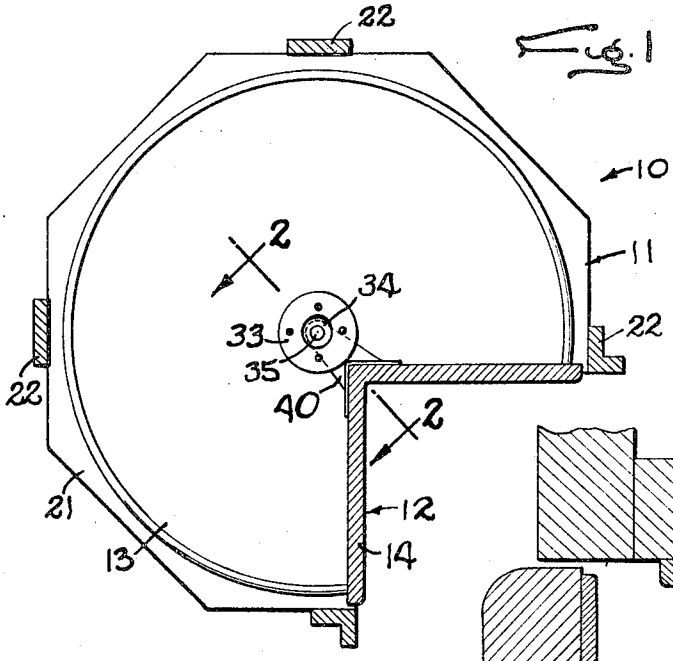



Fig. 2

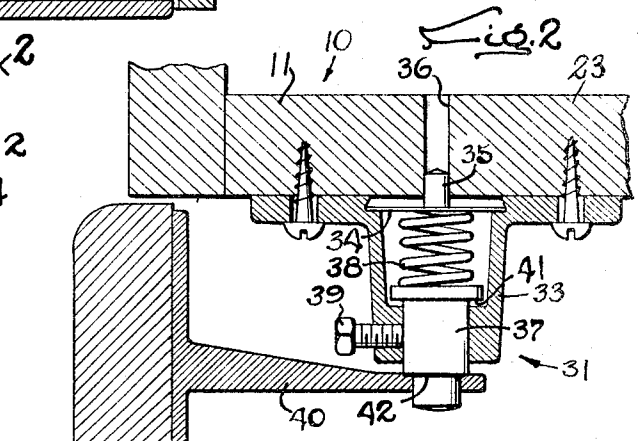
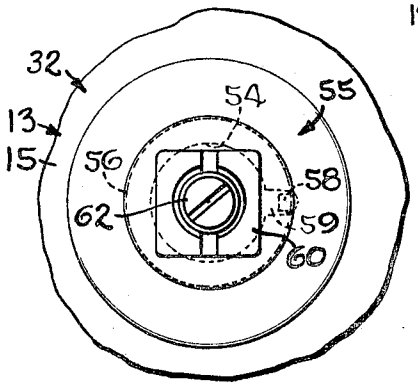
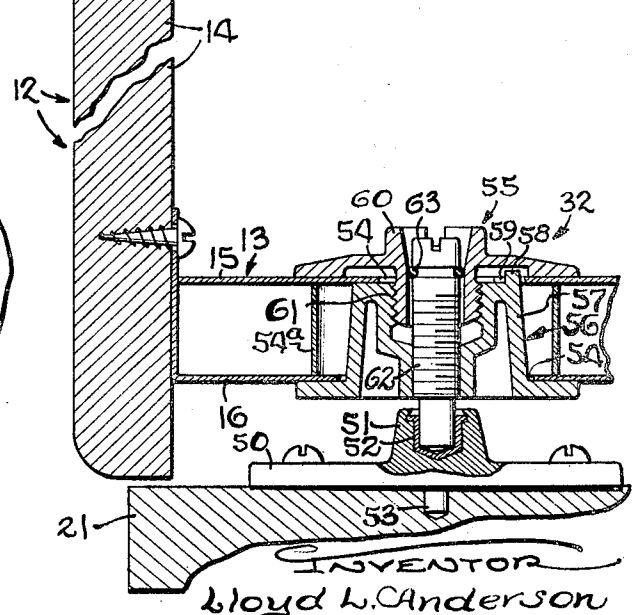



Fig. 3




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# PIVOT CONSTRUCTION FOR CORNER SHELF HARDWARE

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This invention relates to cabinet hardware and particularly concerns pivot defining assemblies for mounting swingable corner shelf cabinets.

It is the primary aim of the invention to provide economical, easy to install, pivot hardware that facilitates proper mounting of swingable corner cabinets. More specifically, it is an object to provide hardware of this kind that readily permits minor adjustments of the cabinet structure both axially and radially of the pivot axis to obtain proper alinement of the cabinet with respect to adjacent units.

Another object is to provide hardware of the above character that readily allows removal of the cabinet, without disturbing the adjusted positions of the hardware.

Moreover, it is an object to provide hardware as described above in which the "working" parts are well protected for long, trouble-free operation.

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings, in which:

FIGURE 1 is a plan of a cabinet assembly utilizing hardware embodying the present invention;

FIG. 2 is an enlarged fragmentary section taken along the line 2—2 in FIG. 1; and

FIG. 3 is a fragmentary plan of the lower hardware assembly shown in FIG. 2.

While the invention will be described in connection with a preferred embodiment, it will be understood that I do not intend to limit the invention to that embodiment. On the contrary, I intend to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

Turning to the drawings, there is shown a corner cabinet assembly **10** including a frame **11** and a cabinet **12** pivoted in the frame for swinging movement about a vertical axis. The cabinet **12** includes a shelf panel **13** and an L-shaped front panel **14**. In the preferred embodiment, the shelf panel **13** is formed of metal in two layers **15** and **16**.

The frame **11** includes a base **21** rigidly supporting a plurality of vertical members **22** which, in turn, rigidly mount a top member **23**. The cabinet assembly **10** is intended for installation in a corner with the front cabinet panel **14** fitted flush with adjacent units.

In accordance with the invention, the cabinet **12** is pivoted in the frame **11** by upper and lower hardware pivot assemblies **31** and **32** which permit easy cabinet installation and ready adjustability. The upper assembly **31** includes a hollow bracket defined by a casting **33** and a cover disc **34** that supports a locator pin **35**. The bracket casting **33** is securely fastened to the top member **23** of the frame **11** with the locator pin **35** being received in a hole **36** formed in the member **23** in alinement with the desired pivot axis for the cabinet **12**.



A pivot pin **37** is slidably fitted in the bracket casting **33** in axial alinement with the locator pin **35** and is biased outwardly by a compressed spring **38** that is seated on the disc **34** within the bracket casting **33**. Preferably, a set screw **39**, threadably mounted in the casting **33**, is provided to axially lock the pin **37** in place.

The pin **37** projects from the bracket casting **33** and rotatably engages a bearing member **40** mounted rigidly on the back or inner side of the cabinet panel **14**. The pin is formed with a first shoulder **41** which prevents the spring **38** from urging the pin outwardly of the bracket casting **33** and a second shoulder **42** which engages the bearing member **40** and thus inhibits axial movement of the bearing member with respect to the pivot pin.

It can be readily seen that the locator pin **35** establishes the desired axis for the bearing member **40**, and hence the cabinet **12**, about the pivot pin **37** and within the frame **11**. The pivot pin **37** is proportioned so as to be retractable within the bracket casting **33** against the bias of the spring **38** sufficiently far to clear and free the bearing member **40** and permit the cabinet to be readily separated from the frame. If desired, the set screw **39** can be tightened to locate the pin **37** in a desired axial position. Once the assemblies **31**, **32** are adjusted and the screw **39** tightened, the cabinet assembly **11** is secure and can be handled and shipped without danger of inadvertent separation and damage.

The lower hardware pivot assembly **32** includes a bearing plate **50** rigidly secured to the base **21** and formed with a shaft end seat **51** which carries a bearing cup **52**. A locator pin **53** is mounted on the plate **50** and adapted to be fitted in a hole in the base **21** that is alined with the hole **36** along the desired axis for the cabinet **12**. Apertures **54** are formed in the panel **13** in general alinement with the seat **51** and, preferably, a cylindrical spacer **54***a* is interposed between the layers **15** and **16** concentrically with the apertures so as to stiffen the panel **13** in this region. A two part hub **55** and **56** is fitted in the apertures and mounts the panel **13** on the bearing plate **50**. The lower part of the hub is formed with a peripheral skirt portion **57** defining surfaces which abut both layers **15**, **16** of the panel **13**, and with a key portion **58** slidably fitted in a slot **59** formed in the panel layer **15**. The upper hub part **55** peripherally engages the panel **13** on the side opposite that engaged by the lower part **56** and is also formed with a tool receiving head **60** which is both square in shape, for receiving a wrench, and slotted to accept a blade type driver. The parts **55**, **56** have portions threadably interfitted at **61** which are disposed, with radial clearance, within the apertures **54**.

A pivot pin **62** is threadably fitted in the hub part **56** and extended into the bearing cup **52** so as to provide a pivotal interconnection between the cabinet **12** and the frame **11**. Preferably, the pivot pin **62** passes freely through the hub part **55** and an O-ring **63** provides both frictional resistance and a seal between the pin **62** and the part **55** that serves to protect the interior portions of the hub. The frictional resistance of the O-ring retains the pin **62** in its threadably adjusted position.

It can be readily seen that the key **58** rotatably locks the hub part **56** to the panel **13** and, by rotating the hub part **55** so as to loosen the threadable engagement at **61**,

the panel 13, and hence the cabinet 12, can be shifted radially with respect to the pivot pin 62 within the limits defined by the clearance of the apertures 54 about the hub. This radial shifting permits exact adjustment of the cabinet 12 within the frame 11. Once the cabinet is properly positioned radially, the hub part 55 is tightened against the panel 13 so as to firmly hold the cabinet in adjusted position.

Threadably adjusting the pivot pin 62 shifts the entire cabinet axially so as to provide proper fine adjustment in this direction. Axial adjustment of the cabinet 12 within the frame 11 is permitted by the slidable mounting of the pivot pin 37 in the upper assembly 31.

Those skilled in this art will appreciate that the assemblies 31, 32 are economical to manufacture and are particularly easy to install and adjust. It can also be seen that the pin 37 can be lifted from engagement with the bearing member 40 and the cabinet 12 removed from the frame 11 without disturbing the adjusted position of the parts making up the lower assembly 32. It can also be seen that the parts of the lower assembly 32 which move relative to one another have their interengaging or working surfaces well protected against inadvertent damage.

I claim as my invention:

1. In a swingable cabinet assembly, the combination comprising, a frame having a hole lying on a desired cabinet axis, a hollow bracket fixed to said frame, a pivot pin slidably mounted in said bracket and extending therefrom to define an axis, a locator pin on said bracket in axial alinement with said pivot pin and received in said hole, a cabinet having a bearing member rotatably fitted on said pivot pin, and a spring in said bracket for urging said pivot pin outwardly of said bracket, said pivot pin having one shoulder disposed in said bracket to prevent the pin from leaving the bracket and a second shoulder outside of said bracket resiliently engaging said cabinet bearing member, said pivot pin being sized to permit retraction within said bracket against the bias of said spring so as to clear and free said cabinet bearing member.

2. In a swingable cabinet assembly, the combination comprising, a frame, a hollow bracket fixed to said frame, a pivot pin slidably mounted in said bracket and extending therefrom to define an axis, a cabinet having a bearing member rotatably fitted on said pin, and a spring in said bracket for urging said pin outwardly of said bracket, said pin having one shoulder disposed in said bracket to prevent the pin from leaving the bracket and a second shoulder outside of said bracket resiliently engaging said cabinet bearing member.

3. In a swingable cabinet assembly, the combination comprising, a frame, a hollow bracket fixed to said frame, a pivot pin slidably mounted in said bracket and extending therefrom to define an axis, a locator pin on said bracket in axial alinement with said pivot pin, a cabinet having a bearing member rotatably fitted on said pivot pin, and a spring in said bracket for urging said pivot pin outwardly of said bracket, said pin being sized to permit retraction within said bracket against the bias of said spring so as to clear and free said cabinet bearing member.

4. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to said frame and defining a shaft end seat, a cabinet having a panel with an aperture generally alined with said seat, a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said aperture, said portions being fitted with clearance within said aperture, one part of said hub being keyed to said panel and the other part being formed to receive a turning tool so that the parts can be threadably loosened, adjusted radially with respect to the aperture and tightened against opposite sides of said panel, and a pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet.

5. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to said frame and defining a shaft end seat, a cabinet having a two layer panel with apertures in both layers generally alined with said seat, a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said apertures, said portions being fitted with clearance within said apertures, one part of said hub being keyed to one of said panel layers and the other part being formed to receive a turning tool so that the parts can be threadably loosened, adjusted radially with respect to the apertures and tightened against opposite sides of said panel, said keyed part of said hub also having a skirt portion flatly engaging the opposite layer of said panel, and a pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet.

6. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to said frame and defining a shaft end seat, a cabinet having a panel with an aperture generally alined with said seat, and a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said aperture, said portions being fitted with clearance within said aperture, one part of said hub being keyed to said panel and the other part being formed to receive a turning tool so that the parts can be threadably loosened, adjusted radially with respect to the aperture and tightened against opposite sides of said panel.

7. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to said frame and defining a shaft end seat, a cabinet having a panel with an aperture generally alined with said seat, a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said aperture and being tightened against opposite sides of said panel, and a pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet.

8. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to one end of said frame and defining a shaft end seat, a cabinet having a panel with an aperture generally alined with said seat, a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said aperture, said portions being fitted with clearance within said aperture, one part of said hub being keyed to said panel and the other part being formed to receive a turning tool so that the parts can be threadably loosened, adjusted radially with respect to the aperture and tightened against opposite sides of said panel, a first pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet, a hollow bracket fixed to the other end of said frame, a second pivot pin slidably mounted in said bracket and extending therefrom to define an axis alined with said seat, said cabinet having a bearing member rotatably fitted on said second pin, and a spring in said bracket for urging said second pin outwardly of said bracket, said second pin being sized to permit the retraction within said bracket against the bias of said spring so as to clear and free said cabinet bearing member when the first pin is lifted from said seat.

9. In a swingable cabinet assembly, the combination comprising, a frame, a hollow bracket fixed to said frame, a pivot pin slidably mounted in said bracket and extending therefrom to define an axis, a locator pin on said bracket in axial alinement with said pivot pin, a cabinet having a bearing member rotatably fitted on said pivot pin, a spring in said bracket for urging said pivot pin outwardly of said bracket, and means for locking said pin against axial movement so as to fix said cabinet in place.

10. In a swingable cabinet assembly, the combination comprising, a frame, a bearing plate fixed to said frame and defining a shaft end seat, a cabinet having a two layer panel with apertures generally alined with said seat, a cylindrical spacer sandwiched between said layers about

said apertures so as to stiffen said panel, a two part hub having parts on opposite sides of said panel with portions threadably interfitted within said apertures, said portions being fitted with clearance within said apertures, one part of said hub being keyed to said panel and the other part being formed to receive a turning tool so that the parts can be threadably loosened, adjusted radially with respect to the apertures and tightened against opposite sides of said panel, and a pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet.



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