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 and of the radially of the pivot axis to obtain proper alignment 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;

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

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 cabinet assembly 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 alignment with the desired pivot axis for the cabinet 12.

A pivot pin 37 is slidably fitted in the bracket casting 33 in axial alignment 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 retracted 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 aligned with the hole 36 along the desired axis for the cabinet 12. Apertures 54 are formed in the panel 13 in general alignment with the seat 51 and, preferably, a cylindrical spacer 54a 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 59 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,
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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 11. 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 49 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 alignment 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 locator pin on said bracket in axial alignment 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 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.

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 alignment 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 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.

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 aligned 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 one of said panel parts 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 aligned 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 parts, said panel parts being fitted with 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 radially engaging the opposite layer of the opposite layer of the same panel parts, 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 aligned 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, and a pivot pin threadably fitted in said hub and extended into said seat to provide an axially adjustable pivot for said cabinet.

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 aligned 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 aligned 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, 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 aligned with said seat, 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.

9. 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 aligned 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, 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 interfit 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.