

Dec. 23, 1952

C. C. WHITE

2,622,956

DRAWER

Filed April 30, 1946

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Fig. 1.

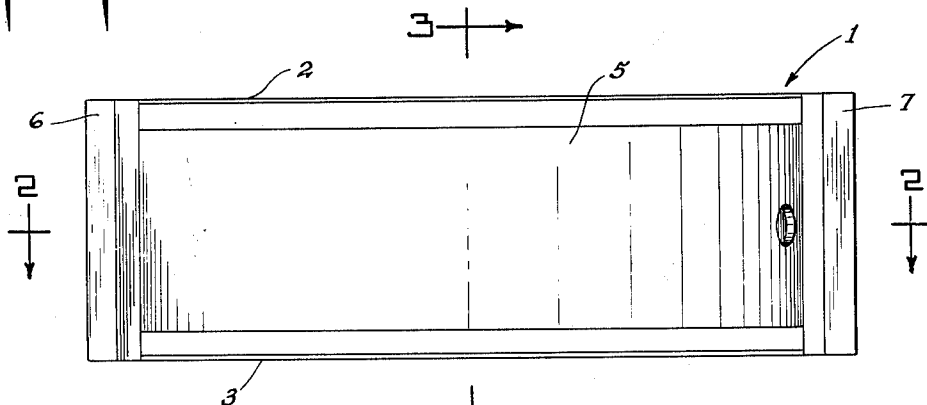
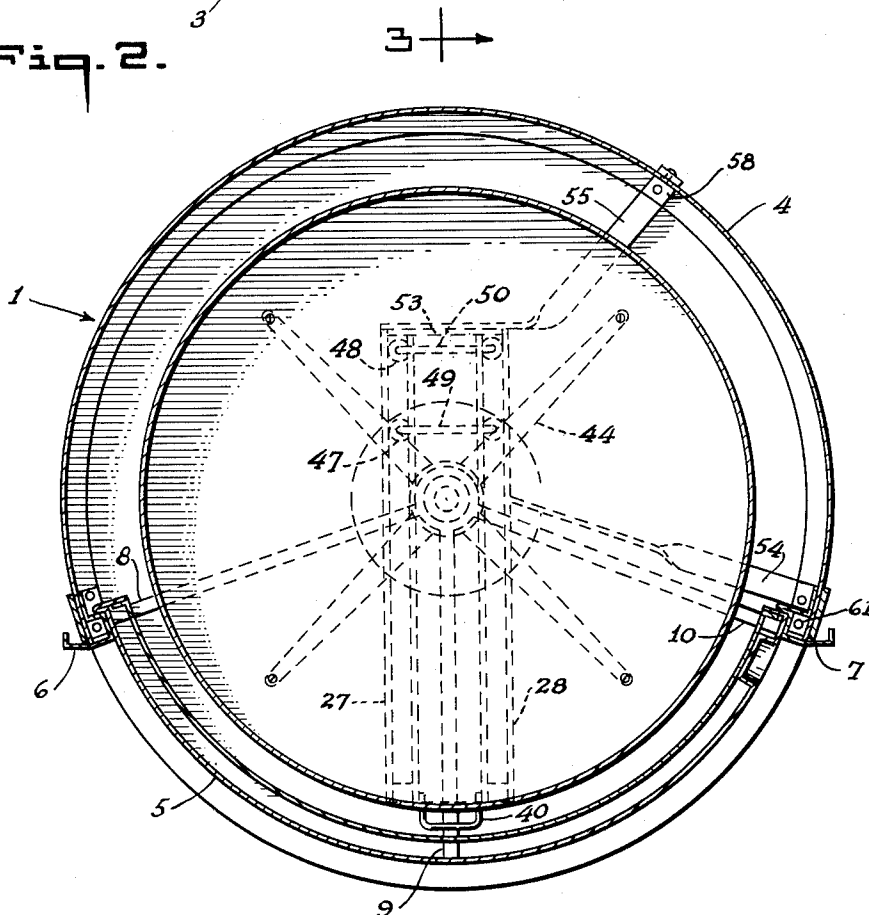


Fig. 2.



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Fig. 3.

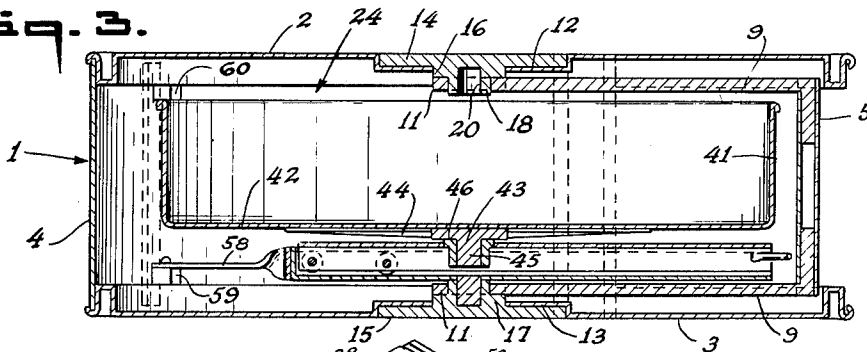


Fig. 4.

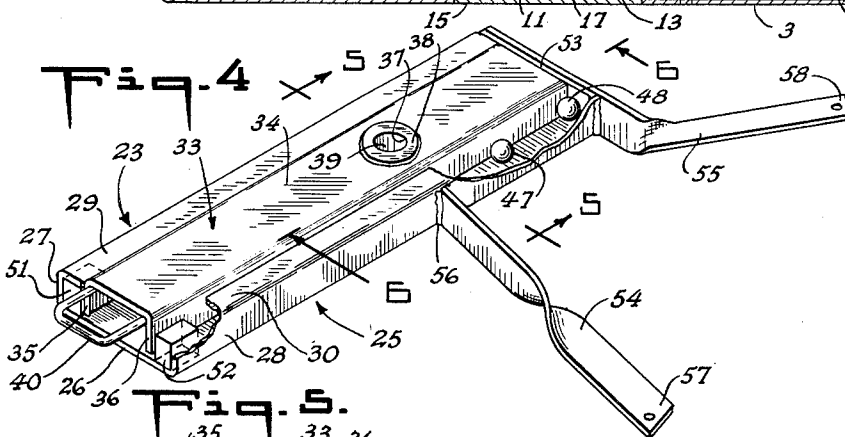


Fig. 5.

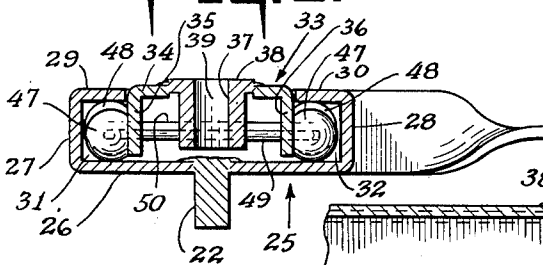


Fig. 6.

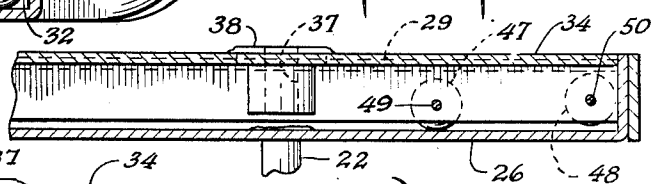
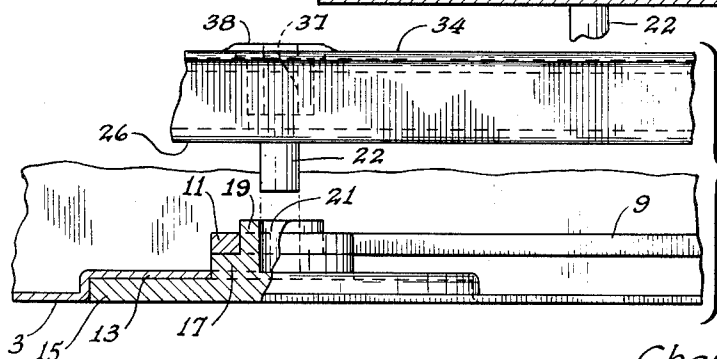


Fig. 7.



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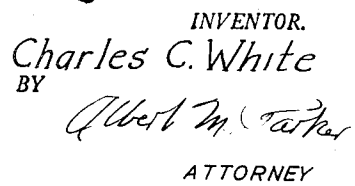
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2,622,956

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UNITED STATES PATENT OFFICE

2,622,956

DRAWER

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Application April 30, 1946, Serial No. 665,972

3 Claims. (Cl. 312-304)

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This invention relates to cabinets equipped with rotating drawers and is more particularly concerned with the mounting of such drawers in cabinets.

Ordinary rectangular sliding drawers, particularly when of substantial length from front to back, present a certain amount of waste space. In other words, whatever is placed in the back part of such drawers is relatively inaccessible so the tendency is either to leave that space vacant or to forget the things that are stored there. Furthermore, one is often hesitant to pull such drawers far enough out to get at things stored at the back of them as they generally tilt and give the impression that they will come all the way out and drop on to the floor.

Various attempts have been made to overcome these difficulties, but for one reason or another, the expedients devised have not met with the public favor. Most of the attempts were too complicated, too awkward, or took too much space to be practicable. Thus the ordinary home cabinet shelves continued until the present without any material improvements.

The construction of this invention not only eliminates the prior art drawbacks in a relatively simple though thoroughly reliable manner, but introduces material improvements as well. The ideal drawer is one which is cylindrical, pivots about its center, and has that center mounted for movement to the mouth of the cabinet containing the drawer. Since half of the drawer can thus be extended out of its cabinet, or housing, all of its contents can be made fully and easily accessible.

When a cylindrical housing is employed, more than half of the drawer can extend outside of its housing, though its pivot point remains within the confines of the same. The drawer of my invention not only meets the conditions which I consider as ideal, however, but the mounting thereof overcomes the real difficulties of providing for a frictionless sliding of the drawer in and out though eliminating any tendency of the drawer to tilt even when in fully extended position. This frictionless sliding and resistance to tilting will remain, though the drawer be used to a great extent for a long period of time.

It is accordingly an object of the present invention to provide an effective support for rotating drawers.

It is another object of the invention to provide such a support which permits the drawer to be drawn well out of its housing for easy access to the contents of the drawer.

Another object of the invention is to provide such a support which permits free and easy movement of the drawer to and from the housing while preventing any tilting of the drawer even in the outermost position.

A still further object of the invention is to provide a simple and effective combination of

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such a support with a cylindrical housing to receive the drawer. Other objects will in part be obvious and will in part be pointed out more in detail hereinafter.

The invention accordingly consists in the features in construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application which will be indicated in the appended claims.

In the accompanying drawing:

Figure 1 is a front elevation of a drawer housing unit in accordance with the invention, showing the door to the housing in closed position.

Figure 2 is a section taken on lines 2-2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a section taken on lines 3-3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a perspective view of the drawer support per se with portions thereof broken away in order to show details of the construction.

Figure 5 is a vertical section taken on lines 5-5 of Figure 4 looking in the direction of the arrows.

Figure 6 is vertical section taken on lines 6-6 of Figure 4 looking in the direction of the arrows.

Figure 7 is a fragmentary, enlarged, exploded view, partly in section, showing the manner in which the drawer support, of Figure 4, is located in its housing unit.

Figure 8 is a horizontal, sectional view, partly broken away, of a drawer housing unit and drawer in accordance with the invention, showing the drawer pulled in fully extended position.

Figure 9 is an enlarged fragmentary horizontal sectional view of the left hand end of the opening of my housing unit, as it appears when the door of the unit is in closed position.

Figure 10 is a similar view of the right hand end of the opening.

The housing, or cabinet, unit portrayed herein is possessed of generally the same structural characteristics as disclosed in my co-pending application Serial #583,370, filed March 17, 1945. The drawer support of my invention is shown as being adapted for mounting in such a cabinet unit. Obviously, however, this particular adaptation is subject to modification should it be desired to employ my drawer support in some other type of cabinet.

The cabinet housing, or unit, generally shown at 1 in Figures 1, 2, 3, and 8, has identical top and bottom members 2 and 3, a substantially cylindrical side wall member 4, and a door 5 for closing the opening between the spaced apart vertical ends of said side wall. Said ends are finished off by end pieces 6 and 7 which perform a plurality of functions as will more fully appear hereinafter.

Each door member 5 is formed as a section of a cylinder of sufficient length and on the proper

diameter to close the opening in the cabinet unit between the end members 6 and 7. Furthermore, the door member 5 is coaxially mounted with respect to the side wall 4 by means of upper and lower sets of radially extending arms 8, 9, and 10 which terminate in mounting rings 11. The top 2 and bottom 3 are centrally perforated and embossed, as shown at 12 and 13 to receive mounting plates 14 and 15 having bosses 16 and 17 extending therefrom and through said perforations. The bosses 16 and 17 carry axially aligned mounting hubs 18 and 19 which serve to pivotally receive the mounting rings 11. In addition, however, the hubs 18 and 19 are centrally bored at 20 and 21, so that whichever one is down can be used to receive the mounting stud of the drawer support.

In the particular instance shown end member 3 (Figure 7) is at the bottom, so that the bore 21 receives the mounting and locating stud 22. This stud 22 is the principal mounting and locating element for the drawer support generally shown at 23. This support, in turn, carries the rotatable drawer generally shown at 24.

The drawer support 23 consists of an elongated track member 25 and a carriage member slidable therewithin. The track member 25 has a base 26 to the underside of which the stud 22 is attached, and has side walls 27 and 28 extending upwardly therefrom along the length thereof. Finally, each side wall is turned inward as shown at 29 and 30, thus providing opposed inwardly directed channels 31 and 32 down each side of the supporting member 25.

The space between channels 31 and 32 is occupied by the elongated carriage member generally shown at 33. This carriage member is of inverted U shape in transverse section, has a top portion 34 extending slightly above the portions 29 and 30, and has downwardly directed side portions 35 and 36 which extend down close to the bottom 26 of the track member 25. Furthermore, top portion 34 carries a pivotal mounting member 37 for the reception of the mounting stud of a rotatable drawer to be described hereinafter. The mounting member 37 is in the form of a bushing which has a bearing surface 38 at its upper end to take a downward thrust and a bore 39 throughout its height to furnish a pivotal mounting. The member 37 is secured to the top 33 in some suitable manner, being in the present instance, let into a perforation in the same where it is secured in place by welding.

Of particular importance is the location of the member 37 longitudinally of the carriage 33. From the showing in Figures 3 and 4 it is clearly apparent that the member 37 is located well back of the longitudinal center of the carriage member 33, being so positioned that in retracted position it lies directly over the principal mounting stud 22. As will also be seen from Figures 2, 3, and 8, the extent of the member 33 from the bearing 37 to its front end is the same as a radius of the rotatable drawer to be mounted on the carriage. The relationship is not essential but does assure that the finger loop 40, secured in place within and at the front end of the carriage member 33, will extend out just far enough beyond the carriage member and drawer to permit it to be readily grasped.

The drawer, generally shown at 24, has a cylindrical side wall 41, and a flat bottom 42. The latter is centrally mounted on a bearing stud 43 forming the hub of the supporting spider 44, which is secured to the bottom 42 and serves to

strengthen the same. The stud 43 provides a shank 45 which forms a pivotal fit with the bore 39 and a laterally extending shoulder 46, to lie upon the thrust bearing surface 38. Thus, the drawer 24 can be firmly yet rotatably carried by the carriage 33.

The size and shape of the drawer 24 is such that it can accommodate a substantial weight of commodities. Hence, special means must be provided to prevent tilting of the drawer, or of the carriage supporting it, on their being drawn out of the cabinet. At the same time, such means must not impede the free running action of the carriage. These factors are taken care of in accordance with my invention by the positioning and action of the pairs of spherical roller members 47-47 and 48-48 mounted at either side of the carriage 33 adjacent the rear thereof. The rollers 47 are rotatably mounted on the ends of a shaft 49, which passes through the side members 35 and 36. The size and position of the rollers 47 is such that they are received and run freely in the channels 31 and 32. Of particular note, however, is the fact that the shaft 49 is passed through the members 35 and 36 at such a vertical position that the balls 47-47 ride on the bottom of the channels 31 and 32, Figure 5, or in other words, on the upper surface of the base 26. The pair of roller members 48 is rotatably mounted on the ends of a shaft 50 in the same manner as the pair 47 is carried on the ends of the shaft 49. The shaft 50, however, passes through the side members 35 and 36 at a higher level than does the shaft 49. This level is so selected, as can be seen in Figures 5 and 6, that the ball members 48 will ride on the upper surfaces of the channels 31 and 32, or in other words, against the underfaces of the portions 29 and 30.

From Figures 4 and 5, it is apparent that the carriage 33 is limited against movement by the proximity of the end of members 29 and 30 to the side members 35 and 36 of the carriage. Furthermore, it is believed that the manner in which the ball members 47-47 and 48-48 serve as frictionless wheels to enhance the free running of the carriage will be readily apparent. The other and more unusual function performed by the pairs of ball members 47-47, 48-48 is their positive prevention against downward tilting of the carriage, even when the same is in the fully extended position as shown in dotted lines in Figure 8. There is not even any tilting occasioned by taking up slack, for the respective pairs of ball members are located to be always in engagement respectively with the upper and lower faces of the channels in which they ride. Thus with the drawer filled and the carriage fully extended so that the pivotal mounting 38 is drawn out beyond the end of the channel member 25, there still can be no tilting of the carriage 33 nor of the drawer 24 mounted upon it.

The forward ends of the channels 31 and 32 are closed by means of blocks 51 and 52 suitably secured in position. The rear ends are closed by some suitable means such as the turned up portion 53 extending from the rear end of the base 26.

In addition to the stud 22, the drawer support is provided with a pair of locating and securing arms 54 and 55. The arm 54 is secured in any suitable manner to the side portion 28 at approximately the mid-point thereof, as shown at 56 while the arm 55 is suitably secured against

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the rear end 53 of the member 25. Both of these arms extend from the side of the drawer support remote from the sector in which the door of the cabinet unit must operate in its opening and closing action.

The securing of the free ends 57 and 58 of the arms 54 and 55 in position is best shown by reference to Figures 2, 3, 8, and 10. Considering first the arm 55, it extends to the outside wall 4 of the cabinet. There its terminal end 58 is secured by some suitable means, such as a screw, to a lug 59 which extends through the wall 4 of the cabinet unit. The lug 59 is carried by a stiffener member lying on the outside of the cabinet which member, through its lower lug 59 and upper lug 60, assists in holding the side wall and ends of the cabinet together, as well as stiffening the same. For further showing of this stiffener construction, reference is made to my co-pending application Serial #583,370, filed March 17, 1945, for "Cabinet Structures," above referred to.

The arm 54 has its terminal end 57 secured by suitable means, such as the screw shown, to the lug 61 extending in through the wall 4 of the cabinet member from the vertical stiffener 62 lying against the outside of that wall at the right hand end of the door opening. In addition to providing an anchorage for the arm 54, the vertical stiffener 62 furnishes means for stiffening the cabinet member, holding its ends and side wall together, and, in addition, supports the member 7 which, besides providing a stop 63 for the end of the door 5, extends out from the cabinet for interengagement with a similar member on an adjacent cabinet. A comparable stiffener 64 provided at the other end of the door opening, carries lugs 65 and the member 6 which provides the stop 66 for the other end of the door. This construction has been gone into more fully in my previous application Serial #583,370, so need not be further dwelt upon here.

It is believed that the foregoing description adequately describes both the operation and construction of my novel drawer mounting and of the manner in which it is incorporated within the type of cylindrical cabinet unit shown. Furthermore, it is believed that by making such modifications as may be necessary in the locating and securing members of my drawer supporting member, the same could be incorporated in cabinets of other construction or shape from that shown. Finally, though I have merely shown one specific embodiment of my invention, it is of course to be understood that the range of equivalents of that structure on which I am entitled to protection should only be limited by limitations imposed by the prior art as the same may affect the following claims.

I claim:

1. In cabinet construction, a cylindrical housing, a doorway in said housing and a door for closing and opening said doorway, means mounting said door for pivotal movement from open to closed position in coaxial relation with respect to the wall of said housing, a unitary channel member within said housing, means for mounting said channel member on said pivotal door mounting means, and a carriage member carried by and partially within the channel of said channel member and slideably mounted with respect to the same to extend out beyond the wall of said housing through said doorway.

2. In cabinet construction, a cylindrical housing, a doorway in said housing and a door for

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closing and opening said doorway, said door being formed as a section of a cylinder on a radius only slightly less than that of said housing so that said door can be received within said housing closely adjacent the inner wall thereof, means mounting said door for pivotal movement from open to closed position in coaxial relation with respect to the wall of said housing, a unitary elongated channelled member within said housing, a carriage member carried partly by and within the channel of said channelled member, said carriage member being slidably mounted with respect to said channel member to extend out beyond the wall of said housing through said doorway, and laterally extending supports for said channelled member, said laterally extending supports being secured to said channelled member and extending away from one side thereof and engaging one side of said cylindrical housing whereby the other side of said cylindrical housing is unobstructed to enable said door to be swung into full opening position.

3. In cabinet construction, a cylindrical housing, a doorway in said housing and a door for closing and opening said doorway, said door being formed as a section of a cylinder on a radius only slightly less than that of said housing so that said door can be received within said housing closely adjacent the inner wall thereof, means mounting said door for pivotal movement from open to closed position in coaxial relation with respect to the wall of said housing, a unitary elongated channelled member within said housing, a carriage member carried partly by and within the channel of said channelled member, said carriage member being slidably mounted with respect to said channel member to extend out beyond the wall of said housing through said doorway, and laterally extending supports for said channelled member, said laterally extending supports departing from one side of said channelled member and engaging a side wall of said cylindrical housing in less than 180° along said cylindrical housing from one side of said doorway whereby said cylindrical housing inward of the other side of said doorway is unobstructed to allow opening movement of said door.

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