April 13, 1965 G. L. BRIDWELL 3,178,248

DRAWER STRUCTURE

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FIG. 1.

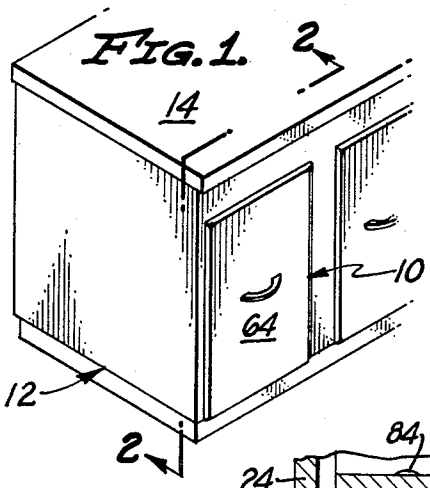


FIG. 3.

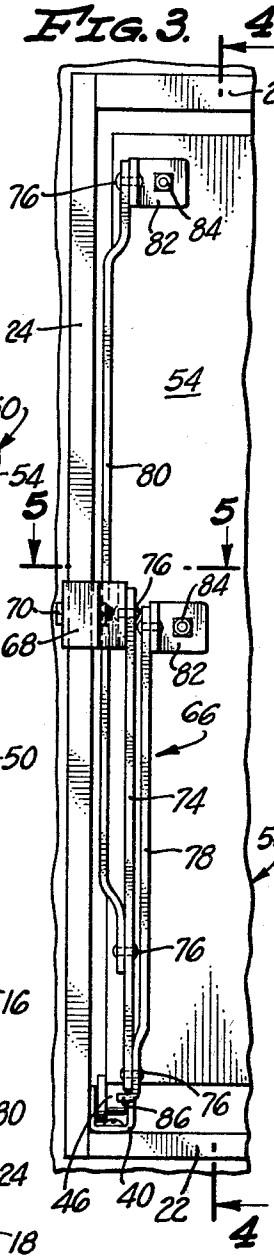


FIG. 4.

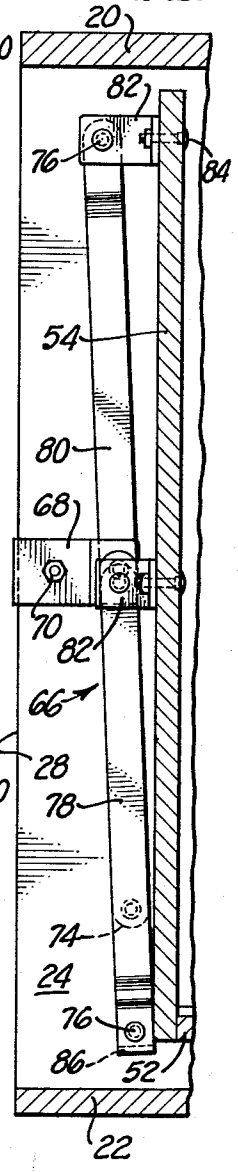


FIG. 5.

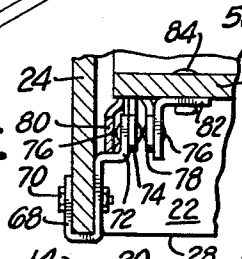
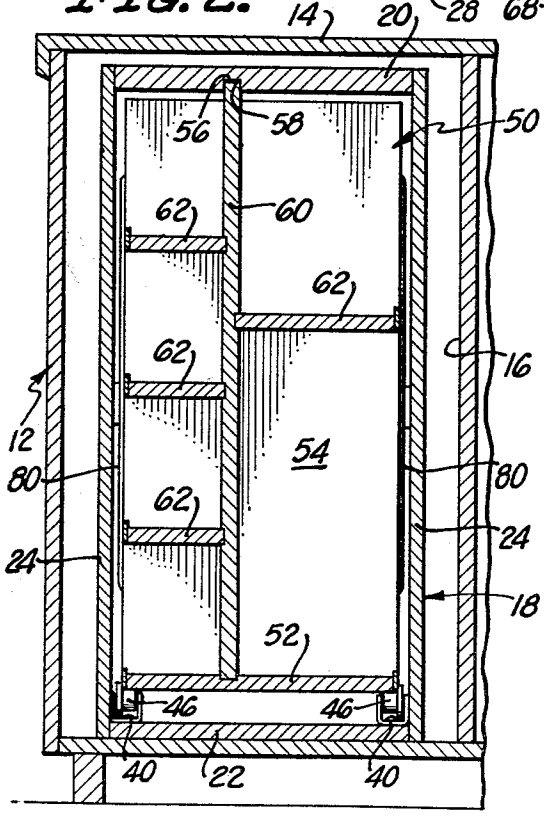


FIG. 2.



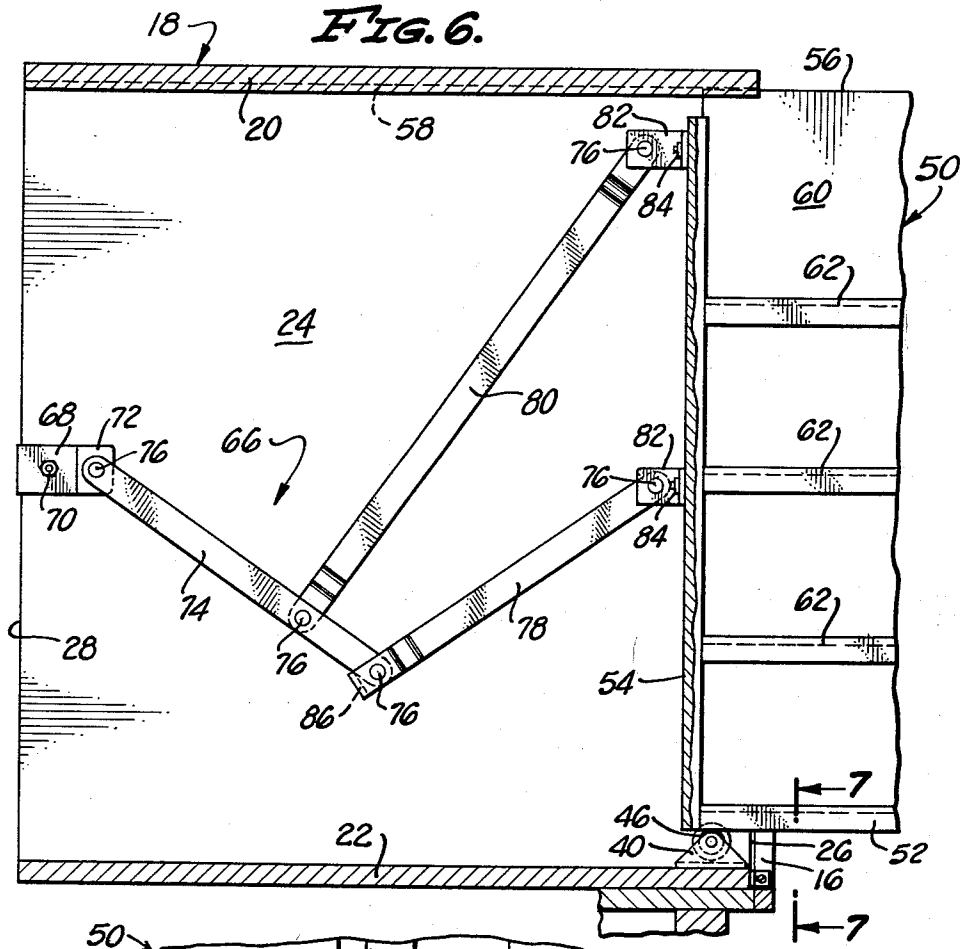
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DRAWER STRUCTURE

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FIG. 6.



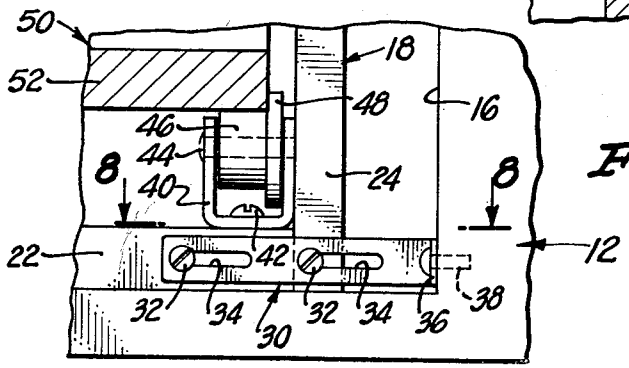
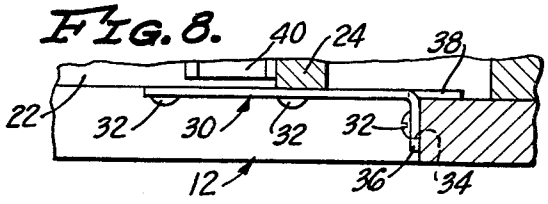


FIG. 7.

FIG. 8.



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DRAWER STRUCTURE

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1 Claim. (Cl. 312—331)

This invention pertains to a new and improved drawer structure.

Drawer structures as such have been known for many years. The conventional drawer is nothing more or less than an open top box-like affair which is mounted within a support corresponding to its shape in such a manner that it can be pulled from the opening in order to provide access to the interior of the drawer. While this general type of drawer structure and many other drawer structures are very efficient and utilitarian for their intended purposes unfortunately they suffer from a disadvantage tending to limit their utilization in many locations.

This disadvantage relates to the problem of access to the rear portion of a drawer. A conventional drawer structure as outlined in the preceding paragraph is held in place by contact between the drawer with the framework holding it. This means that the drawer can only be pulled to access position to a limited extent or the drawer will fall out. In many locations this is not disadvantageous. However, when a drawer structure is utilized between a shelf and a floor, or at a comparatively elevated height this disadvantage becomes exceedingly important. It becomes important because of difficulties in obtaining access to the rear of such a drawer structure in either of such locations.

As a result of this factor a number of efforts have been made toward providing drawer and stabilizing constructions capable of being utilized in spaces normally occupied by shelves beneath a kitchen cabinet and in various other locations. These efforts are considered to have been more or less acceptable; however, in general the prior drawer constructions for use in areas such as these have been disadvantageous because of cost considerations, because of problem pertaining to their installations, their reliability and the amount of space consumed by the operative mechanisms employed with them. Thus, for example, certain prior drawer constructions for use beneath working shelves have required the modification of the structures within which they are disposed so as to allow for their installation. Such modifications obviously are time consuming and expensive.

An object of the present invention is to provide a new and improved drawer structure capable of being utilized within either areas below normal working height or in areas above normal working height which allow for access to virtually the entire interior of such a drawer structure. Another object of the present invention is to provide a drawer structure as indicated which may be manufactured at a comparatively nominal price, which may be easily installed by even an unskilled individual, which when installed does not require any significant amount of space or area for its operative mechanism, and which is extremely reliable in use.

These and various other advantages and objects of the present invention will be more fully apparent from a detailed consideration of the remainder of this specification, including the appended claim and the accompanying drawings in which:

FIG. 1 is a partial perspective view of a kitchen cabinet structure utilizing a drawer structure of the present invention;

FIG. 2 is a cross-sectional view taken at line 2—2 of FIG. 1;

FIG. 3 is a rear elevational view showing a part of the operative mechanism employed in this drawer structure;

FIG. 4 is a partial cross-sectional view taken at line 4—4 of FIG. 3;

FIG. 5 is a partial cross-sectional view taken at line 5—5 of FIG. 3;

FIG. 6 is a cross-sectional view corresponding to FIG. 4 but showing the drawer structure in extended position so as to allow access to virtually all parts of its interior;

FIG. 7 is a partial cross-sectional view taken at line 7—7 of FIG. 6; and

FIG. 8 is a partial cross-sectional view taken at line 8—8 of FIG. 7.

The accompanying drawings are primarily intended so as to clearly illustrate a presently preferred embodiment or form of the present invention. From a careful consideration of the drawings those skilled in the art of cabinet and drawer construction will realize that various modifications of a routine design or engineering category may be made in the precise structure shown without departing from the features or principles of this invention as defined or summarized in the appended claims.

As an aid to understanding this invention it can be stated in essentially summary form that it concerns a drawer structure having front and rear ends, roller means engaging the bottom of a drawer adjacent to its front end when it is in a closed position for supporting the drawer structure, stabilizing means for preventing lateral or sidewise shifting of the drawer structure and two mounting bracket structures located at the sides of the rear of the drawer structure for controlling its movement in a linear path and for preventing the drawer structure from being pulled off of the roller means when it is moved to an open position. Preferably each of these mounting bracket structures includes what may be termed a control link and what may be termed upper and lower stabilizer links. Preferably the entire drawer structure of the present invention is formed so as to include an external box-like structure serving as a frame, and this box-like structure is mounted around the drawer utilized and supports the roller means, part of the stabilizing means and the control links in the mounting brackets so as to hold the drawer employed in the complete drawer structure.

The actual details of the present invention are best more fully explained by referring directly to the accompanying drawings. Here there is shown a drawer structure 10 mounted within a conventional kitchen or similar cabinet 12 below the normal working surface or top 14 of the cabinet 12. This drawer structure 10 is built so as to be inserted within the opening 16 normally provided in the cabinet 12 so as to gain access to conventional shelves or the like (not shown) such as are commonly used in various conventional cabinets. The exterior part of the complete drawer structure 10 comprises a box-like structure 18 having a top 20, a bottom 22, side walls 24 and an open front 26 and an open rear 28. This box-like structure 18 is designed so as to fit closely within the interior of the opening 16 in the cabinet 12.

Preferably it is secured in place to the cabinet 12 through the use of positioning brackets 30 as shown in FIGS. 7 and 8. These brackets 30 are located at the extremities of the bottom 22 adjacent to the side walls 24 and are secured in place to the box-like structure 18 by means of screws 32 or similar fasteners fitting within slots 34 in the brackets 30. Each of the brackets 30 also includes a bent-over end tab 36 extending at a right angle from it. Each tab 36 is provided with another slot 34 holding another screw 32 which projects into the cabinet 12 adjacent to the opening 16 in order to hold the brackets 30 and of course the box-like structure 18 in place. It will be noted that the bracket 30 is of a flat configuration

and that a portion 38 of each bracket 30 extends past the tab 36 so as to engage the interior of the cabinet 12 in such a manner as to position the box-like structure 18 within the interior of the cabinet 12 slightly in back of the front of the opening 16.

Generally U-shaped supports 40 are secured to the bottom 22 of the box-like structure 18 adjacent to each of the side walls 24 through the use of other screws 42 which project through the center portions of these supports 40. The extremities of each of the supports 40 are held together by means of a rivet or similar member 44 which in turn supports a roller 46 in each of these supports 40. Each of the rollers 46 is of a cylindrical character and is provided with end flange 48. These end flanges 48 are located on the ends of the rollers 46 closest adjacent to the side walls 24.

In the complete drawer structure 10 the rollers 46 are used to support a drawer 50. This drawer 50 must include a bottom wall 52 and a back wall 54 and a wall having an upper edge 56 which extends parallel to the bottom wall 52 so as to fit within a slot 58 formed in the top wall 20. In the particular drawer 50 this upper edge 56 is formed on an extending wall 60 which in turn supports other shelf-like walls 62. This drawer 50 must also include a front wall 64. In the complete drawer structure 10 this front wall 64 is joined to the vertical wall 60 and the bottom wall 52 and is of such dimension as to extend beyond the confines of the opening 16 so as to fit up against the cabinet 12 when the drawer 50 is in a closed position. If desired, the front wall 64 can be formed as two separate parts, an unfinished front wall (not separately shown) formed on this drawer 50 in a factory and a finished front wall which is attached to this unfinished wall during the installation of the complete drawer structure 10. In this latter case the finished front wall 64 may be a conventional cabinet drawer taken off of the cabinet 12 during the installation of the drawer structure 10.

From an analysis of the foregoing it will be realized that the bottom wall 52 of the drawer 50 rests upon the rollers 46 and that the end flanges 48 engage the edges of the bottom wall 52 so as to prevent lateral shifting of the drawer 50 with respect to the box-like structure 18. From an analysis of the foregoing it will also be realized that a wide variety of differently shaped, sized, etc., shelf-like walls 62 may be installed in the drawer 50 depending upon the intended utilization of this drawer. Thus, for example, if the entire drawer structure 10 is to be used in storing canned goods or the like, it may be shaped differently than if it is to be used entirely in storing pots and pans or other similar household utensils.

In the complete drawer structure 10 there are utilized two complete mounting structures 66. Each of these mounting structures is located adjacent to a side wall 24 of the box-like structure 18. Each of these mounting structures includes a generally U-shaped holding bracket 68 which is attached to the rear edge of a side wall 24 approximately half-way between the top 20 and the bottom 24 by means of a bolt 70. Each of the brackets 68 is provided with an offset end 72 located within the box-like structure 18, and each of these ends 72 is attached to an end of a straight control link 74 by means of a rivet or similar fastener 76 serving as a pivot connection. The ends of the links 74 remote from the brackets 68 in the mounting structure 66 are connected by means of other rivets 76 to ends of lower stabilizing links 78. Other rivets 76 located intermediate the ends of the control links 74 are used to connect these control links 74 to ends of upper stabilizing links 80 in the mounting structures 66. The extremities or ends of the upper and lower stabilizer links 78 and 80 remote from the control links are attached to other L-shaped holding brackets 82 by means of other rivets 76. These holding brackets 82 are secured to the back wall 54 of the drawer 50 adjacent to sides of the back wall 54 by means of bolts or similar fasteners 84.

It will be noted that the upper stabilizer links 80 are thus secured to the drawer 50 immediately adjacent to the top of the back wall 54, and that the lower stabilizer links 78 are secured to this drawer 50 approximately along the midpoints of the side edges of the back wall 54. It will be further noted that the control links 74 and the upper and lower stabilizer links 78 and 80 are proportioned so that when the drawer 50 is in a closed position that the various links in each of the mounting structures 66 all extend along side one another in a substantially vertical position as indicated in FIGS. 3 and 4 of the drawings in which they appear more or less nested together. It will also be noted in this position the extremity of each control link 74 remote from the corresponding holding bracket 68 is spaced a comparatively short distance from the bottom 22 of the box-like structure 18. This permits what is considered to be a maximum amount of space to be utilized in the complete drawer structure 10 by the drawer 50.

The ends of the lower stabilizer links 78 attached to the control links 74 are provided with small bent flanges 86 which are adapted to engage the control links 74 as illustrated in FIG. 6 of the drawings so as to limit rotation of the lower stabilizer links 78 with respect to the control links 74 by engagement with these control links 74 so as to serve to limit the amount the drawer 50 can be pulled from the box-like structure 18. As shown in FIG. 6 of the drawings this "limit" corresponds to a position of the drawer 50 in which the portion of the bottom wall 52 adjacent to the back wall 54 rests upon the rollers 46 and in which a portion of the upper edge 56 immediately adjacent to the back wall 54 fits within the front extremity of the slot 58. Thus, with this drawer structure 10 there is no danger of the complete drawer 50 being pulled sufficiently far out so as to become inoperative. In this position, however, virtually the entire interior of the drawer 50 is available for utilization.

From a detailed consideration of the preceding those skilled in the art to which this invention pertains will realize that many changes and modifications may be made in the precise drawer structure 10 shown without departing from the essential features of this drawer structure as herein explained. They will further realize that the precise drawer structure 10 set forth in this specification and illustrated in the drawing achieves the various objects and advantages of the invention set forth in the initial portions of this specification. Because of the nature of this invention it is to be considered as being limited solely by the appended claim forming a part of this disclosure.

I claim:

A cabinet structure which includes:

a cabinet having a front opening;

a box structure having a top, a bottom, sides, a rear and a front opening, said box being positioned within the interior of said cabinet, adjustable means for immovably mounting said box within the interior of said cabinet;

roller means for supporting a drawer located on the bottom of said box structure adjacent to said front opening;

a drawer having a bottom and a back located within said box structure so as to be supported on said roller means, said back of said drawer being located adjacent to said rear of said box structure in a closed position of said drawer;

cooperating stabilizing means comprising first and second interlocking means, said first interlocking means being formed on the top of said box structure adjacent to said drawer, and said second interlocking means being formed on said drawer, said first and second interlocking means preventing substantial sidewise tipping of said drawer during movement of said drawer;

first and second mounting structure means for prevent-

ing slipping of said drawer upon said rollers and permitting said drawer to be moved from said closed position to an open position in which said drawer extends from said box structure, each of said first and second mounting means being connected to the back of said drawer and to the side of said box structure at the rear thereof, said first mounting structure being connected to one side and said second mounting structure being connected to the other side, each of said first and second mounting structures being connected to their respective sides of said box structure substantially midway between the top and the bottom thereof;

said first and second separate mounting structure means each including a control link pivotally attached to said box structure, said control link having an extremity at its end opposite its pivot hole mounting, the distance between said pivot hole mounting to said extremity being less than the distance from said pivot hole mounting to the bottom of said box structure;

upper and lower stabilizing links pivotally attached to said control link and to the back of said drawer, said

lower stabilizing link being pivotally attached to the extremity of said control link remote from the portion of said control link attached to said side of said box structure and to the back of said drawer substantially midway between the top and bottom of said drawer, said lower stabilizing link being pivotally attached to the back of said drawer in said position as to be below the pivot where said control link is pivotally attached to the sides of said box structure when said drawer is in a closed position, said upper stabilizing link being pivotally connected to said control link between the ends thereof and to the back of said drawer adjacent to the top of said drawer.

References Cited in the file of this patent

UNITED STATES PATENTS

583,228	Hamilton	May 25, 1897
856,113	Tobey	June 4, 1907
917,747	Brown	Apr. 13, 1909
2,774,644	Patterson	Dec. 18, 1956
2,918,113	Lorenz	Dec. 22, 1959