Aug. 22, 1944. E. C. BULLOCK 2,356,650

DRAWER CONSTRUCTION

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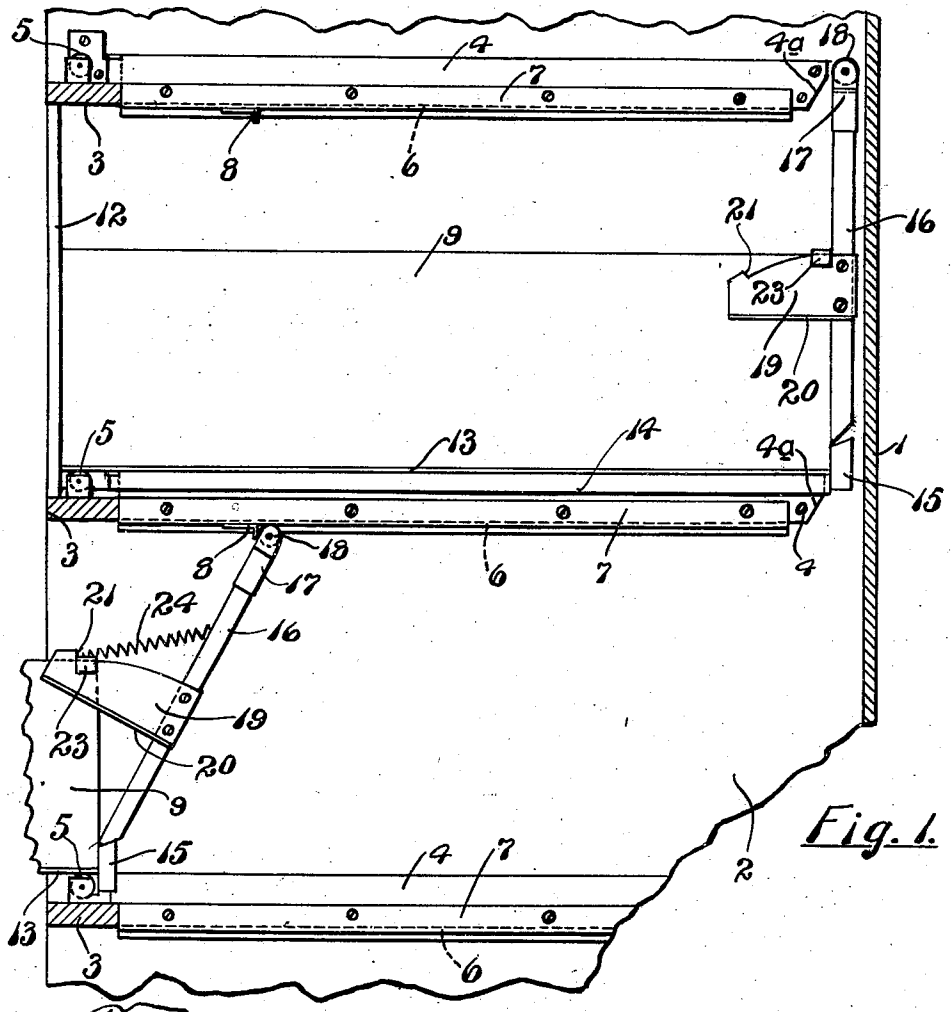


Fig. 1.

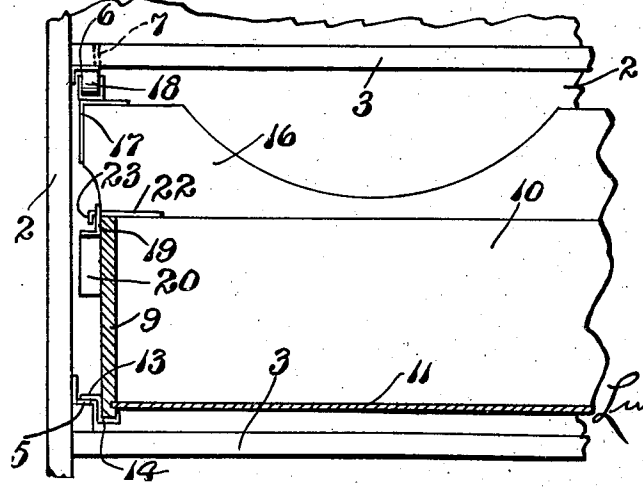


Fig. 2.

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DRAWER CONSTRUCTION

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2 Claims. (Cl. 45—7)

This invention is concerned with a novel construction of drawer of the type used in filing cabinets or similar devices, in which it is desirable that the drawer be fully extended from the cabinet or case so that its contents may be readily accessible, or for filing papers therein. The extension of drawers in filing cases or cabinets has been largely accomplished by means of extension slides whereby the drawer may be extended outward its full length without appreciable downward or tilting movement at its outer end when withdrawn. Such extension slides are usually of metal, a pair of them are required for each drawer adding to the expense of manufacture and requiring considerable amounts of metal which at present are hard to obtain.

My invention is directed to a novel attachment at the rear end of a drawer which occupies little space when the drawer is at its retracted position, but which is automatically moved to a position which insures against downward tilting of the drawer at its outermost position, is relatively inexpensive to build and install and in which the simplest of supporting side rails or runners on which the drawer is slidably mounted may be used. An understanding of the invention may be had from the following description taken in connection with the accompanying drawing, in which,

Fig. 1 is a fragmentary vertical section from front to rear through a file cabinet or case equipped with my invention, a drawer being shown housed within the case and another indicated at its outermost position, and

Fig. 2 is a fragmentary front elevation with the drawer in transverse section.

Like reference characters refer to like parts in the figures of the drawing.

The outside or enclosing case of the filing cabinet has the usual back 1, side panels 2 and of course in practice will have a top and base. Such case is open at the front where it is divided into drawer receiving compartments by spaced apart cross bars 3.

In the disclosure made, side rails or runners 4 are provided, secured directly opposite each other at the inner sides of the panels 2 back of the end portions of the bars 3. These rails or runners terminate short of the back 1 and at their lower rear corners are preferably cut downwardly and forwardly as at 4a. In line with the front ends of the runners 4 and mounted on and directly above the bars 3 are rollers 5 which in practice may have their uppermost portions located slightly below the upper surfaces of the runners 4.

The runners 4 at their inner sides are equipped with elongated metallic members of substantially Z-bar form with a horizontal web 6 located against the under side of a runner, an upwardly extending flange 7 located against the inner side of the runner 4, to which it is attached by means of screws or equivalent connections, and a downwardly extending flange lying against the inner side of the adjacent panel 2. At a properly selected distance back of the front end of such metallic track member a stop 8 is welded or otherwise securely connected, having a downwardly extending stop flange as shown. There will be two of these stops for each of the drawers, one adjacent each side of the filing case or cabinet.

The drawer has spaced apart sides 9, a back 10, a bottom 11 and front 12. The front is of a size to fill one of the drawer receiving spaces between the side panels 2 and two adjacent cross bars 3. The back 10 of the drawer is of less height than the front as conventional in drawer structures of this kind.

Metallic slide members having outwardly extending horizontal flanges 13 and thence bent downwardly and then inwardly on the lower edge of the side 9 (Fig. 2) as at 14, are provided at each side of the drawer, the flanges 13 extending over the runners 4 and adapted to ride over the rollers 5 when the drawer is pulled outwardly.

The attachment which is applied to the drawer is at its rear end. A block or bar 15 in the specific structure shown is connected at the lower rear portion of the drawer at the rear of the back 10 above which an auxiliary back 16 is located. As shown the upper edge of the block or bar 15 inclines upwardly and to the rear and the lower edge of the auxiliary back 16 is similarly inclined but at a sharper angle, permitting a pivotal movement of the auxiliary back from a vertical position as shown in the upper part of Fig. 1 to a rearwardly and upwardly inclined position as shown in the lower part thereof. This hinging or pivotal movement can be accomplished in numerous ways, for example, by hinges instead of using the hingeless structure shown and described for obtaining pivotal movement.

The auxiliary back has a body portion 16 which extends the full width of the drawer and slightly to each side thereof at its upper part and at each upper corner a bracket 17 is permanently secured at the upper side of which a roller 18 is mounted. The brackets 17 and rollers 18 mounted thereon together with the body portion 16

on which they are permanently mounted form an auxiliary back which is swingably mounted with reference to the back 10 of the drawer.

At each side of the auxiliary back 16 a plate 19 of sheet metal is permanently secured and extends forwardly therefrom, one substantially against the outer side of each of the sides 9 of the drawer, preferably being reinforced at its lower edge by an outturned flange 20. The upper edge of the plate 19 is of curved form and is supplied with a stop shoulder at 21. The back 10 of the drawer adjacent each end is equipped with a short metal bar 22 permanently attached which is extended outwardly beyond the adjacent side 9 and turned downwardly to provide a lip 23 outside of the adjacent plate 19. When the auxiliary back is tilted to the rear upon reaching its extreme position it is stopped by the engagement of the stop shoulder at 21 with the front edge of the bar 22 as shown in the lower part of Fig. 1. Preferably in practice, though it is not essential, a relatively light coiled spring 24 is connected at its ends respectively to the back 10 and to the auxiliary back.

When the drawer is moved to innermost position, as in the upper part of Fig. 1, the auxiliary back 16 coming against the back 1 of the case, and also pulled in a forward direction by the spring 24 when such spring is used, is turned to a vertical position with the rollers 18 and the upper portion of the auxiliary back 16 located at the rear ends of the runner bars 4. On pulling the drawer outward the rear ends of the runner bars 4 are engaged by the rollers 18 which follow the inclined end portions 4a and come to and ride against the webs 6 of the sheet metal members attached at the under side of the runners. The drawer may be pulled outwardly until stopped when the rollers 18 engage against the stops 8 with the stop shoulders 21 engaging against the front edges of the bars 22, as in the lower part of Fig. 1.

In this position the weight of the drawer and its contents tend to turn downwardly about the rollers 5 as a fulcrum. Such downward turning movement is resisted by the rollers 18 bearing against the under side of the webs 6 and the stops 8. Analyzed in the terms of a lever of the first class, the turning moment of the drawer is the weight of the drawer and its contents multiplied by an arm which extends from the center of gravity of said drawer and contents to the axis of the rollers 5. This turning moment is resisted by an upward pressure of rollers 18 against the web 6 which multiplied by a lever arm equal to the horizontal distance between the vertical planes of the axis of the rollers 5 and 18 balances the turning moment of the drawer and contents weight. A relatively long arm for the resistance force thereby reduces the amount of resistance which the rollers 18 have to bear.

The operation of this drawer structure is automatic with the inward and outward movements of the drawer. The auxiliary back 16 moves to vertical position shown in the upper part of Fig. 1 when the drawer is retracted, and automatically moves to the operative position shown in the lower part of Fig. 1, when the drawer is pulled outward. The drawer may be moved substantially to full length outside of the cabinet and will not tilt or drop down appreciably at its front end. The spring 24 previously mentioned as desirable though not absolutely essential aids in eliminating noise of operation, but the auxiliary back is operative and moves to its two positions automatically whether or not the spring is used. The specific runners and the manner in which the drawer is mounted on the runners for inward and outward sliding movement is not essential to the invention. Any of a great variety of sliding supports for the drawer may be used with the tilting or hinged auxiliary back, stops for such back and bearing rails for the rollers at the upper end of said auxiliary back to bear against. The construction is very economical, uses little metal, and is practical to use as has been proven by building and test.

It is to be understood that the auxiliary back 16 may take a variety of forms and serve its purposes and functions without restricting the invention to a specific form shown. For example, bars with rollers similar to rollers 18 at their upper ends may be substituted for the back, said bars at their lower ends having a pivotal or hinge connection at the rear of the drawer. Other equivalents of the specific form of back may be readily devised for serving the same purpose in accordance with the same operative principles. The invention as defined in the appended claims is to include in connection with the term "auxiliary back" the substantial equivalents in structure and operation thereof in accordance with the same principle.

I claim:

1. A filing case having for slidably mounting a drawer, a drawer slidably mounted thereon, an auxiliary back at the rear end of the drawer swingably mounted thereon at its lower edge and adjacent the lower side of the drawer and extending a distance above the drawer, tracks carried by the cabinet above the drawer terminating a short distance ahead of the back of the cabinet between the rear ends of which and the back of the cabinet the upper portion of said auxiliary back is located when the drawer is at innermost position, said auxiliary back tilting rearwardly on outward movement of the drawer to bear at its upper ends against said tracks, stops on said tracks a distance back of the front of the cabinet against which said auxiliary back engages when the drawer is moved outwardly to outermost position, and interengaging stop means on the drawer at its upper edges and the auxiliary back between the upper and lower edges of said back preventing rearward pivotal movement of said auxiliary back beyond a predetermined position.

2. In a drawer for filing cases and the like having vertical sides, front and back and a bottom, a horizontal bar secured at the rear side of the back at its lower edge portion, an auxiliary back at the rear of the back of the drawer having its lower edge resting upon the upper edge of said bar and swingable thereon from a vertical position in which it is located against the back of the drawer to an upwardly and rearwardly inclined position, stops secured to the upper edges of the drawer at the back thereof extending laterally beyond the sides of the drawer and at the free ends turned downwardly, and plates secured one at each side edge of the auxiliary back and at their rear ends extending forwardly underneath said stops, with the upper edges of said plates being of arc-shaped form from their rear portions to points adjacent their front ends and at their front end portions each having an upwardly extending portion to engage with said stops upon tilting of said auxiliary back to its rearmost position.

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