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LOCKING DEVICE FOR CABINET WITH TWO OR MORE DRAWERS

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2 Claims. (Cl. 312-221)

The present invention relates to a locking device for use with a file cabinet or the like, wherein the extension of one drawer prevents the subsequent opening of any other drawer in the cabinet until the extended drawer is returned into the cabinet.

The most common form of file cabinet presently in use includes a stacked array of slidable drawers in which the files are held parallel to the front and rear walls of the cabinet. Because of this arrangement, such files are normally deep to increase the number of files which they are capable of holding. Because of the depth of the cabinet, the drawers must be pulled out a considerable distance to gain access to files in the rear, but the increased depth has an advantage in that the cabinet itself is less likely to tip over when more than one drawer is extended.

Recently it has been proposed to reduce the space required between adjacent rows of file cabinets, by building file cabinets in which the files are stacked parallel to the side walls of the cabinet. In this case, the long dimension is the width of the cabinet, and the depth of the cabinet need be no greater than the width of the widest file it is desired to store. Notwithstanding the fact that such files have achieved significant commercial acceptance, they have the serious drawback of tending to topple over when more than one drawer is extended because of the reduced depth of the cabinet. Moreover, the obvious remedy, namely bolting the cabinets to the floor, is not usually feasible from a practical point of view.

Accordingly, the main object of the present invention is to avoid the above-mentioned possible instability of the cabinets.

A more specific object of the present invention is to provide a locking device for a file cabinet or the like wherein only one drawer may be extended at a time.

The manner in which the above objects are accomplished is fully described below with reference to the attached drawings wherein:

FIGURE 1 is a side view, partially in section, of a two drawer file cabinet illustrating the locking mechanism of the invention with all the drawers closed;

FIGURE 2 is a detailed side view of the file cabinet of FIGURE 1 illustrating the operation of the locking mechanism as a cabinet is extended;

FIGURE 3 is a top sectional view along the line 3-3 of FIGURE 2; and

FIGURE 4 is a top sectional view of another embodiment of the invention.

Referring to FIGURES 1 to 3, the exterior of the cabinet is indicated generally at 10. Cabinet 10 contains a plurality of file drawers, of which the top and bottom drawers are illustrated at 12a and 12b. Preferably, as discussed above, the files (not shown) are stored parallel to the sides of the cabinet. The basic construction of cabinet 10 and drawers 12a and 12b, including the sliding arrangement for the drawers, is well known, and for this reason the specific structural details are not shown in the drawings. Furthermore, for purposes of explanation, only two drawers are shown, although the cabinet will contain more than two drawers. Since the construction of the drawers is similar, the same numeral is used to identify corresponding parts of the drawers, with the letters "a" and "b" being used to indicate that the specified part is associated with the upper or lower drawer, respectively.

The drawer 12a includes a rear panel 14a, a bottom plate 16a, side walls (not numbered), and a double wall front panel 18a secured together in a conventional fashion. A handle 20a is connected to front panel 18a by a screw 21a to enable the user to manually extend the drawer when it is desired to remove the contents thereof.

At one side of the junction of rear panel 14a and bottom plate 16a, a rearwardly extending lock member 22a is secured by rivets or the like. Lock member 22a includes a downwardly extending lip 24a for purposes described more fully below. Immediately beneath lock member 22a and secured to the corresponding corner of drawer 12b, a vertically arrayed cam plate 26b is riveted. Cam plate 26b includes a V-shaped bottom portion shaped to form a cam surface 28b. Both of the drawers 12a and 12b include a lock member 22a and 22b, respectively, and a cam plate 26a and 26b, respectively, with the lock member of one drawer being vertically aligned with the cam plate of the other drawer. In the preferred embodiment, the lock member and cam plate are secured to the respective drawers at the bottom of the rear panels 14.

The locking mechanism further includes two slide bars 29 and 30 which are supported so that they can slide vertically within the cabinet. The slide bars 29 and 30 are centrally supported in rectangular slots 31 (FIG. 3) of a channeled guide 32 which may be riveted to the interior rear wall of cabinet 10. The lower ends of bars 29 and 30 are slidably received in similar apertures 34 within a base plate 35 fastened to the bottom rear of cabinet 10.

A locking bracket 36a, which includes a upwardly extending lip 37a adapted to hook downwardly extending lip 24a is riveted to slide bar 29. A cam follower plate 38b is riveted to the lower end of slide bar 29 and includes a slanted surface 39b which is adapted to engage the surface 28b of cam member 26b.

In a similar fashion, a cam follower plate 38a is riveted to the upper extremity of slide bar 30, and a locking bracket 36b riveted to the lower extremity of bar 30. Cam follower 38a cooperates with cam member 26a while locking bracket 36b cooperates with the lock plate 22b.

Slide bars 29 and 30 each include an integral tab 40 (only one of which is shown) bent from the respective bar and in engagement with one end of a tensioned coil spring 44 (only one shown). The upper ends of coil springs 44 are hooked around a suitable supporting plate 48, whereby the springs 44 bias the slide bars 29 and 30 in an upward direction.

When both of the drawers 12a and 12b are in their closed positions, the cam surfaces 28b and 28a push against the follower surfaces 39b and 39a, respectively, pushing bars 29 and 30 downwardly so that the locking lips 37 and 24 are not in an abutting relationship as shown in FIGURE 1. In this position either of the drawers 12a or 12b may be extended to remove the contents thereof.

As soon as one of the drawers is extended, the locking mechanism above described operates to lock the other drawer in its closed position so that it cannot be opened until the former drawer has been returned to the cabinet. For example, if the lower drawer 12b is extended (see FIG. 2), as soon as cam surface 28b moves out of engagement with the follower surface 39b, the appropriate coil spring 44 pulls slide bar 29 upwardly whereby the movable lip 37a is pushed into an interlocking relationship with locking lip 24a. Hence, if a user attempts to remove the drawer 12a from the cabinet 10, he is prevented from doing so by the engagement of lips 24a and 37a until drawer 12b is pushed back into the file cabinet, and cam surface 28b, in cooperation with the follower surface 39b, returns the slide bar 29 to the position illustrated in FIGURE 1. Obviously, the interaction of cam surface 28b and follower surface 39b must be such as to lower

slide bar 29 before abutment of lips 24b and 37b during return of drawer 12b into the cabinet.

In the identical fashion, when drawer 12a is extended, the appropriate tension spring 44 pulls slide bar 30 upwardly, whereby the lip 37b is moved into a hooked relationship with lip 24b to prevent the removal of drawer 12b.

The invention has utility with any number of drawers. As to the illustrated embodiment, it is merely necessary that there be included a separate slide bar or the like associated with each of the drawers, and that each of the slide bars include a camming arrangement in combination with its associated drawer, and operative in response to removal of that drawer, to lock each of the remaining drawers by a locking mechanism of the type described above.

Another embodiment of the invention is illustrated in FIGURE 4. In this embodiment, the latching and camming mechanisms are the same as that described in the embodiment of FIGURES 1 and 2. The essential difference comprises the shaping of the slide bars as tunneled members 70 and 72 having rims 74 and 76, respectively. In each case, a pair of J-shaped retainers 80 and 82 are welded to the rear of the cabinet 10 and adapted to slidably receive the edges 74 and 76, respectively. The embodiment of FIGURES 3 and 4 provides improved sliding action and rigidity of the respective slide bars.

Many other modifications of the invention will also be obvious to those skilled in the art, and the invention should not be limited except as defined in the following claims.

What is claimed is:

1. Apparatus for locking the drawers of a multidrawer cabinet in a closed position when one of the drawers is extended and wherein said drawers are vertically stacked, comprising locking means and cam means extending rear-

wardly from each of said drawers, said locking means and cam means being horizontally displaced relative to each other, a slide bar associated with each drawer and mounted for vertical reciprocating movement, said slide bars being aligned behind said drawers, each of said slide bars including cam follower means engaging the cam means of its associated drawer when said associated drawer is closed and lock engaging means for engaging the locking means of all of the other drawers when said associated drawer is extended, and coil spring means biasing said slide bars upwardly so that all of the lock engaging means of a given bar are forced into an interlocking relationship with their respective lock means when the drawer associated with a given bar is extended from the cabinet, the cam means of any one drawer contacting its associated cam follower means when said one drawer is closed to position the slide bar associated with said one drawer downwardly so that its lock engaging means are out of locking engagement with the locking means of the other drawers.

2. Apparatus according to claim 1, wherein each of said locking means comprises a downwardly extending hook and each of said lock engaging means comprises an upwardly extending hook.

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