July 5, 1966 F. A. DEUTSCH 3,259,447

DRAWER STOP

Filed April 1, 1964 2 Sheets-Sheet 1

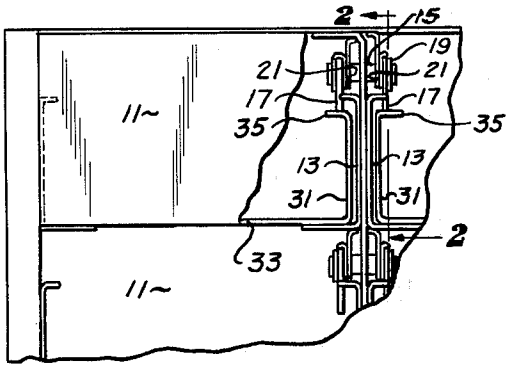


Fig. 1

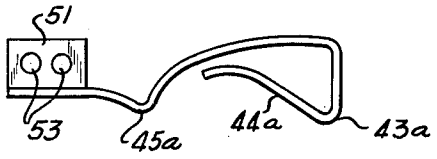


Fig. 4

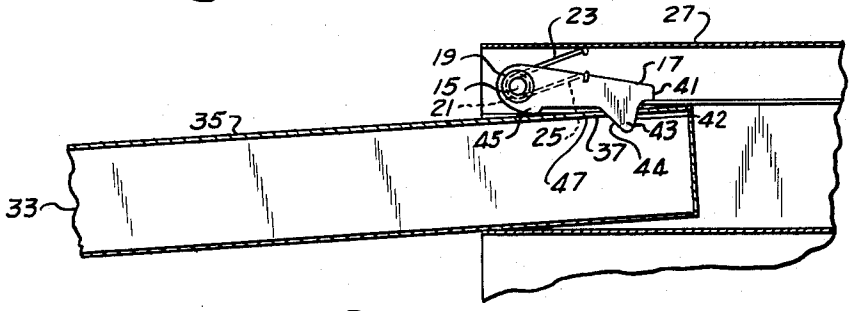


Fig. 2

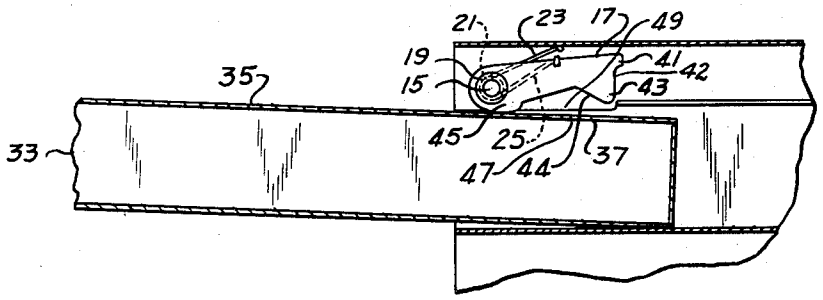


Fig. 3

INVENTOR.
FRITZ A. DEUTSCH
BY Russell L. Root
ATTORNEY.

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DRAWER STOP

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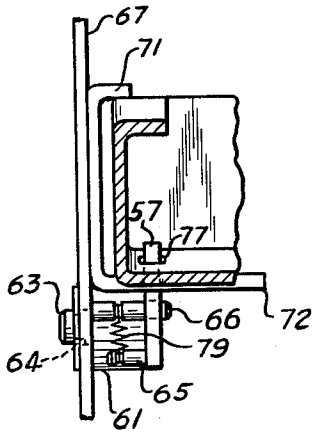


Fig. 6

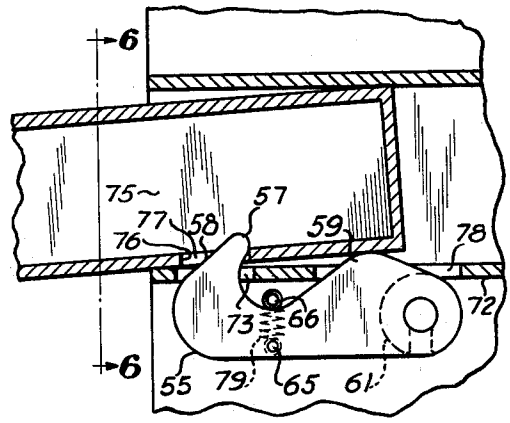


Fig. 5

INVENTOR.
FRITZ A. DEUTSCH
BY Russell L. Post
ATTORNEY.

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DRAWER STOP

Fritz A. Deutsch, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware

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This invention relates to a sliding drawer or shelf arrangement and more particularly to a stop device cooperative therewith to provide certain desirable results.

Existing arrangements of this nature utilize various latching and locking means to prevent accidental removal of the sliding drawer or shelf members from a cabinet or the like, and to provide retaining means for the sliding members when they are pulled out from a normally closed or retracted position. Some of these arrangements are such that the latching or locking means can be actuated to release the retaining means and permit complete removal of the sliding member from the storage or filing cabinet. However, since the actuation of the retaining means usually requires hand release of the latching means to remove the sliding member from the cabinet, it is somewhat inconvenient and difficult to support the drawer with one hand while using the other hand to trip the latch. This condition, of course, is aggravated in those instances where latching means are provided on both sides of the sliding drawer or the like, since such an arrangement requires the use of both hands to release the drawer from its latched position. It will be appreciated, if the drawer is filled or contains heavy objects, it is awkward to remove the drawer from storage without the possibility of dropping it to the floor.

Although in many instances frequent removal of the drawer from the cabinet is not a requirement, in an addressing application wherein printing plates are filed in drawers and a complete drawer of plates is placed into the plate feed magazine of an addressing machine, it is essential that the drawers be easily removable from the cabinet with no danger of pulling the drawer completely out by accident and dropping the plates to the floor. Accordingly, while the device of the present invention is suitable for use with a wide combination of drawers and cabinets, it is particularly useful in connection with addressing or imprinting applications.

Additionally, when considering that most printing plates are made of metal, and the large number of plates contained in a single drawer, it will be appreciated that a drawer of plates represents considerable weight. The weight of the drawers, plus the lack of a positive drawer stop in present day plate file cabinets, sometimes results in dropping the drawer and the plates.

It is an object of the present invention to provide a stop device for a drawer or the like, to prevent accidental removal of the drawer from the cabinet while at the same time providing for easily removing the drawer when desired.

It is a further object of this invention to provide a positive retaining means for the drawer when it is moved to its extended or open position.

Another object of the invention is to provide release means which do not require hand actuation and, therefore, permit the use of both hands to support the drawer when it is being removed from the cabinet.

It is a further object of this invention to provide stop means for a drawer and the like where it may be desirable to limit the extent to which the drawer may be pulled out from a normally closed or retracted position.

Another object of the invention is to provide a drawer stop which is simple in construction, economical to produce and easily attached to existing storage cabinets.

A feature of the invention is the provision of an arrangement which normally prevents unintentional removal of the drawer, but which makes intentional removal very convenient by arranging for the means stopping the drawer to be released merely by tilting the drawer slightly in a direction contrary to the position normally assumed on extension.

These and other objects and advantages of the invention will become more apparent from the following description and drawings wherein:

FIG. 1 is a partial front elevation of a storage cabinet with parts broken away showing the mounting arrangement of the drawer stop of the present invention,

FIG. 2 is a section on line 2—2 of FIG. 1, but showing the drawer withdrawn from the cabinet to open position,

FIG. 3 is a section similar to FIG. 2, but showing the drawer being removed from the cabinet,

FIG. 4 is a detail elevation of a modified version of a drawer stop device,

FIG. 5 is a section similar to FIG. 2, but showing an alternate arrangement of the drawer stop, and

FIG. 6 is a section on line 6—6 of FIG. 5.

The novel drawer stop of the present invention may be used with a wide variety of storage cabinets, and the cabinet disclosed herein is merely representative. As shown in FIG. 1, the cabinet contains a number of openings 11 each of which is adapted to receive a drawer. The side walls of the openings are provided with channel members 13 which guide the drawers as they are moved into and out of the cabinet. In cabinets having drawers in side-by-side position, it is convenient to utilize a pin 15 for mounting two drawer stops 17, each drawer stop coacting with a separate drawer. The pin 15, for example, may be knurled at its center and pressed into a hole in the side wall or partition of the cabinet so the pin extends outwardly from both sides of the wall.

The drawer stop 17 is pivotally mounted on the pin 15 and is retained on the pin by means of a C washer 19. A torsion spring 21 is also placed on the pin 15 with one arm 23 of the spring held under stress by engagement with the underside of the top 27 of the cabinet, and the other arm 25 hooked over the top edge of the drawer stop 17.

The drawers are designated by reference character 33 and are provided with side walls 31 which at their top edges comprise inwardly turned flanges 35, the flange 35 which is aligned to coact with the drawer stop 17 being provided with an opening 37 therethrough for the purpose to be explained hereinafter.

The drawer stop 17 can be made of metal, plastic or the like, and is provided with a nose portion 41, a locking projection 43 having a stop surface 42 and a release projection 45. The drawer stop 17 is biased in a counterclockwise direction as viewed in FIG. 2, when the drawer 33 is in its closed position in the cabinet, and the projection 43 rests on flange 35. As the drawer is pulled out of the cabinet, the stop 17 rides along flange 35 until the projection 43 drops into the opening 37 and nose 41 rests on a margin of the horizontal portion of member 13 to limit the downward travel of the stop. In this position the drawer is held fast by the stop and accidental removal of the drawer from the cabinet is prevented.

The forward edge of projection 43 has a cam surface 44 so arranged that when it is desired to restore the drawer into the cabinet, inward movement of the drawer causes the back end of the drawer to engage surface 44 thereby pivoting the drawer stop upwardly into a position such that projection 43 rides on flange 35 until projection 43 enters opening 37. Further forward movement of the drawer causes an edge 47 of opening 37 to engage the cam surface 44, thereby again camming the stop upwardly and withdrawing projection 43 from opening 37 as the drawer is restored to its closed position. Channel

13 is provided with a clearance opening 49 to permit pivotal movement of the drawer stop 17.

The drawer stop 17, adjacent its pivot point, and at the same side thereof as projection 43, includes the downwardly extending release projection 45, previously noted. Projection 45 is short enough to normally avoid interference with the flange 35, but long enough to be engaged by the same under special circumstances.

To remove the drawer from the cabinet, all that is required is to withdraw the drawer to its fully extended position shown in FIG. 2, and to lift the front end of the drawer to the position shown in FIG. 3. This lifting movement is effective to engage flange 35 with the release projection 45 of the drawer stop, thereby pivoting stop 17 upwardly against spring 21 and withdrawing locking projection 43 from opening 37. With the drawer stop in this position the drawer is free to be completely removed from the cabinet.

When a drawer is removed from the cabinet, spring 21 returns drawer stop 17 to a position such that its nose 41 engages channel member 13. In this way, projection 43 is held against excessive downward movement and remains at a position to coact properly with the drawer when it is again placed into the cabinet.

It will be noted that projection 45 is faired into the outline of the drawer stop 17 on the side towards the exterior of the cabinet to prevent any possibility of interference with the end of flange 35 when the drawer is inserted in the cabinet. The cam surface 44 also functions in a similar manner.

From the foregoing description of the operation of the drawer stop of this invention, it will be seen that section 35 of the drawer may be provided with an opening 37 at any position thereon, thereby limiting or controlling the extent to which the drawer may be pulled out from the cabinet. On the other hand, the section 35 may be provided with a plurality of spaced apart openings 37 to permit the drawer to be pulled out and held in place at various extended positions.

To effect the foregoing, all that is necessary is to lift the front of the drawer to disengage the stop from the opening and to pull the drawer outwardly a slight distance so the projection on the drawer stop is clear of the opening 37. At this point the drawer can be lowered to its normal position and further outward movement of the drawer will cause the stop to enter the next opening provided in section 35. In this way, the drawer may be provided with any number of positive stop positions.

The modified drawer stop shown in FIG. 4 operates in substantially the same manner as the stop device disclosed above. However, the modified stop is made of spring steel and is flexed into and out of engagement with opening 37. Since the stop is not pivoted, it is provided with an ear 51 having a pair of holes 53 therein to permit mounting the stop to the cabinet wall as by riveting or the like.

It will be seen the modified stop has all of the required features contained in the stop described above, i.e., a projection 43*a* to enter opening 37, a cam surface 44*a* to engage with edge 47 of the opening 37 and/or the end of flange 35, and a release projection 45*a* for flexing the drawer stop upwardly when the drawer is being removed from the cabinet. It will be appreciated, since the modified drawer stop is made of spring steel, there is no need for the nose 41 which is used in the earlier described arrangement to limit the downward travel of the drawer stop. Also, of course, the modified stop eliminates the spring 21 since, as mentioned above, the modified drawer stop is flexed, rather than pivoted, into its operative and inoperative positions. In all other respects, the modified drawer stop of FIG. 4 operates in the same manner as the first described device, to retain the drawer in open position and to permit removal of the drawer from the cabinet merely by lifting up the front end of the drawer.

FIGS. 5 and 6 in the drawings illustrate an alternate arrangement of the drawer stop in which the stop member is positioned below the drawer, rather than above the drawer as described above.

The drawer stop of the alternate arrangement is shown at 55 in FIG. 5 and is provided with a locking projection 57, a camming surface 58 and a release projection 59. One side of the stop 55 has a hub 61 and a pin 65 affixed thereto. The hub is also provided with a turned down end 63.

The cabinet of this arrangement is the same as described earlier and comprises a side wall 67 and a channel member 71. Side wall 67 is provided with a hole 64 and a pin 66, the pin projecting inwardly toward the drawer stop 55. The stop is pivotally mounted on wall 67 in any suitable manner, for example by positioning the turned down end 63 through the hole 64 and placing a retaining washer in a groove provided in the end 63.

Channel member 71 has a lower flange 72 for supporting the drawer which flange is provided with an opening 73 through which extends the locking projection 57 of the drawer stop. A spring 79 is connected to the pins 65 and 66 to bias the stop in a clockwise direction as viewed in FIG. 5. It will be observed that pin 66 also acts as a stop to limit the upward travel of the drawer stop. The drawer of this arrangement is designated 75 and is provided with an opening 77 adapted to receive the locking projection 57 when the drawer is in an open position. A notch 78 extending in from the longitudinal edge of the flange 72 is adapted to receive the release projection 59 of the stop 55 and/or the rear portion of the drawer 75 which operates the same.

The operation of this arrangement is substantially the same as the earlier described device. As the drawer 75 is pulled outwardly, projection 57 rides on the bottom surface of the drawer until it engages opening 77. In this position, spring 79 is effective to urge stop 55 upwardly and, thereby, retain projection 57 in locking engagement with a margin of the opening 77 in the drawer.

To remove the drawer from the cabinet, it is only necessary to tilt the front end of the drawer upwardly and withdraw it from the cabinet. The tilting of the drawer causes the bottom surface of the drawer to move release projection 59, thereby pivoting stop 55 in a counterclockwise direction as viewed in FIG. 5 and disengaging projection 57 from the opening 77. As the drawer is removed from the cabinet, drawer stop 55 is again urged upwardly by spring 79 and into engagement with stop pin 66.

Returning the drawer into the cabinet, the back end of the drawer engages surface 58 of the drawer stop and causes it to be pivoted downwardly into a position such that projection 57 rides on the bottom surface of the drawer until projection 57 enters opening 77. Further inward movement of the drawer causes an edge 76 of opening 77 to engage surface 58 of the stop, thereby again pivoting the stop downwardly and disengaging projection 57 from opening 77 as the drawer is restored to its closed position.

From the foregoing, it will be recognized that this invention provides a simple means to prevent accidental removal of a drawer from a cabinet. It further provides for easy removal of the drawer when desired, permitting the use of both hands to support the drawer while it is being withdrawn from the cabinet.

Thus, while I have illustrated and described the preferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

What is claimed is:

1. A drawer mechanism comprising a cabinet including a drawer guide means; a drawer slidable therein between open and closed positions; a stop member having a drawer arresting surface, said stop member being mov-

ably mounted on the cabinet to be shiftable between a drawer arresting position in which the drawer arresting surface stops the drawer in said open position, and a drawer releasing position; said stop member including an actuating portion arranged for coaction with a portion of the drawer when the latter is in arresting contact with the stop member in said open position, and so positioned that, by tilting the drawer in a predetermined direction while the drawer is in said open position, the actuating portion is acted upon by the drawer to shift the stop member to drawer releasing position in response solely to said tilting, whereby the drawer may then be withdrawn past the stop member.

2. A device as set forth in claim 1 in which the stop member also includes a camming surface engageable by the drawer as the same is returned to the cabinet for camming the stop member aside to allow the drawer to pass the same without interference.

3. A device as set forth in claim 1 in which the actuating portion of the stop member is arranged to be operated by the coacting portion of the drawer when the latter is tilted upward.

4. A device as set forth in claim 1 in which the stop member is pivoted upon the cabinet and has its drawer arresting surface at the same side of the pivot as the actuating portion.

5. A drawer mechanism comprising a cabinet including drawer guide means; a drawer slidable therein between open and closed positions; a stop member pivoted at one

end on the cabinet and having near its other end a drawer arresting surface, said stop member being swingable between a drawer arresting position in which said drawer arresting surface engages the drawer to stop the same in open position, and a position in which the drawer arresting surface is withdrawn from the path of the drawer to release the drawer for removal from the cabinet; means for urging said stop member towards drawer arresting position; and a release projection on said stop member between said arresting surface and said pivot arranged for contact with a portion of the drawer when the latter is in open position, said projection having an extent sufficient that when the drawer is raised slightly with respect to its in and out sliding path, the contacting portion of the drawer acts on the projection to retract the stop member in opposition to said urging means an amount such that the arresting surface clears the drawer and permits withdrawal thereof.

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CLAUDE A. LE ROY, *Primary Examiner.*

CHANCELLOR E. HARRIS, *Examiner.*

F. DOMOTOR, *Assistant Examiner.*