

Dec. 6, 1966

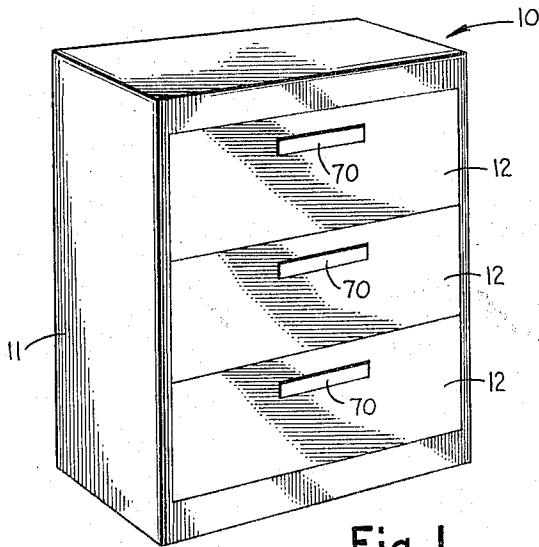
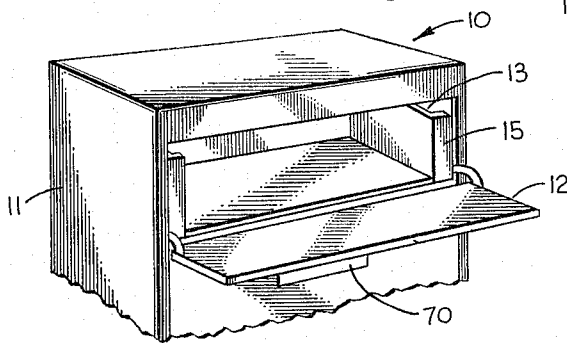
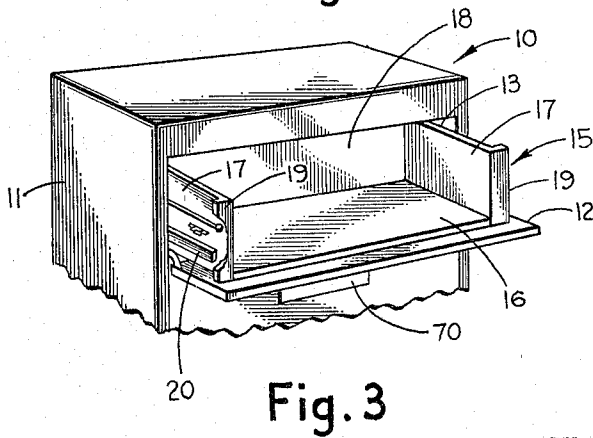
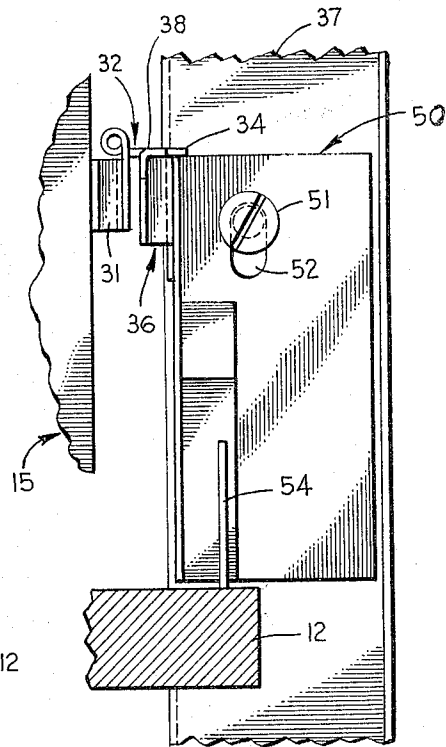
D. D. WILSON ET AL

3,290,106

FILE CABINET

Filed Oct. 21, 1965

4 Sheets-Sheet 1



INVENTORS

Thomas Walhout
Durward D. Wilson

BY

Price & Heneveld
ATTORNEYS

Dec. 6, 1966

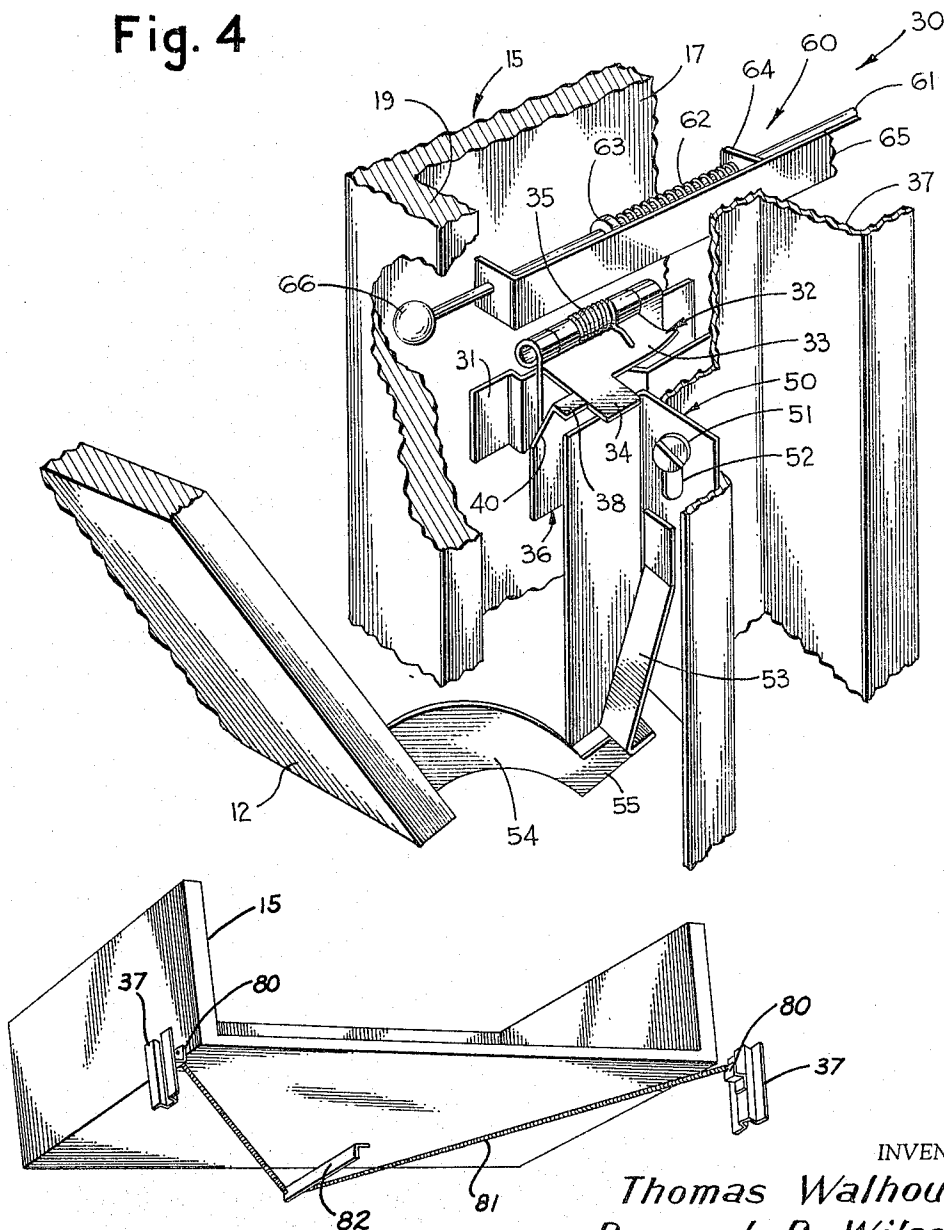
D. D. WILSON ETAL
FILE CABINET

3,290,106

Filed Oct. 21, 1965

4 Sheets-Sheet 2

Fig. 4



INVENTORS

Thomas Walhout
Durward D. Wilson

BY

Price & Henneveld

ATTORNEYS

Dec. 6, 1966

D. D. WILSON ET AL

3,290,106

FILE CABINET

Filed Oct. 21, 1965

4 Sheets-Sheet 3

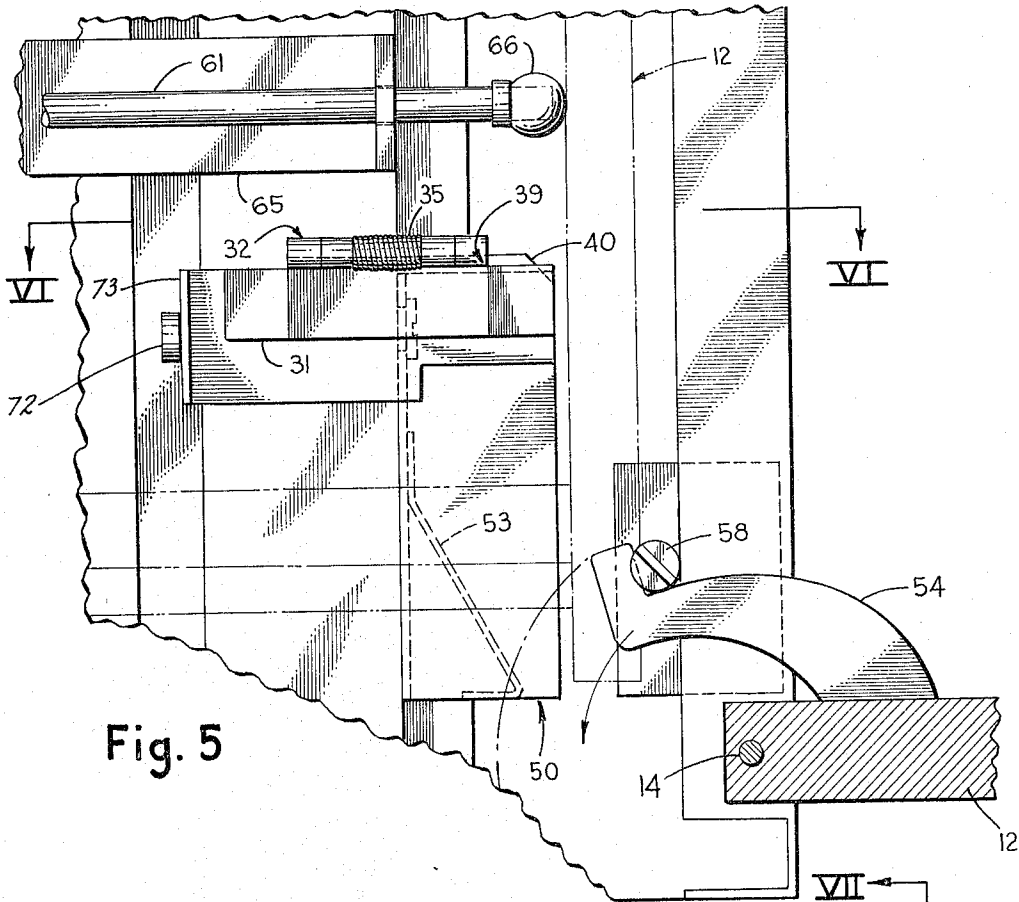


Fig. 5

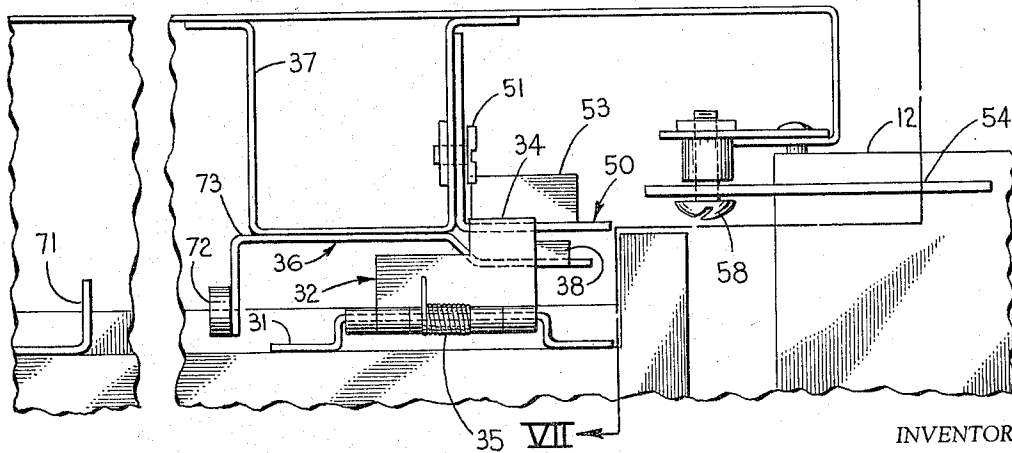


Fig. 6

INVENTORS

Thomas Walkout

Durward D. Wilson

By *Grice & Heneveld*

ATTORNEYS

1

3,290,106

FILE CABINET

Durward D. Wilson and Tom Walhout, Muskegon, Mich.,
assignors to Browne-Morse Company, Muskegon,
Mich., a corporation of Michigan
Filed Oct. 21, 1965, Ser. No. 506,433
8 Claims. (Cl. 312-222)

This application is a continuation-in-part of application No. 332,001, filed December 20, 1963, now abandoned.

This invention relates to filing cabinets, and more particularly to a filing cabinet having a forwardly sliding drawer which automatically shifts out of the cabinet when the cabinet is opened.

The conventional file cabinet consists of a case and one or more drawers which may be opened forwardly by withdrawing them lengthwise from the case. These drawers are long and relatively narrow, and the material in them is accessible only from the top of the drawer. When accessible from a position other than the top, the access is from the side which is also inconvenient. In such cabinets, the stored material is arranged crosswise of the cabinet or drawer.

This invention provides a cabinet which is wide but relatively shallow. The stored material is arranged in a fore and aft direction in a drawer which is relatively shallow but wide. The drawer extends the entire width of the cabinet. The drawer is movable from a retracted or storage position within the cabinet to an extended or working position where it has shifted forwardly out of the cabinet. In this position, the stored material is accessible both from the front and from the top. In this invention, the closed drawer is concealed by a door pivoted along its lower edge to swing down exposing the drawer. The invention incorporates a mechanism for automatically shifting the drawer to its forward or extended position as the door is opened.

This invention provides a storage cabinet having significantly greater storage capacity per square foot of floor space. The material in it is more accessible. The operator can work on the material without standing in front of an adjacent cabinet.

By reason of the automatic opening or shifting of the drawer, operation time is saved since the operator does not have to perform this function. Further, the operator can readily open the cabinet and have the storage door shift into accessible position without the necessity of the operator having to put down the materials he may be holding in his hand. The forward shifting of the drawer to an extended position makes the material available from both the front or the top. This has many advantages in accessibility and visibility of the material, thus reducing the time necessary to either find materials stored in the cabinet, or to locate the proper place in which to store materials to be placed in the cabinet.

By so designing the cabinet that the drawer is automatically opened, the speed at which the drawer opens is automatically regulated, eliminating the wear and damage which frequently is encountered in storage cabinets due to operators pulling the drawers open with such force that they slam against the stops at the outer limit of their travel. Such manipulation of a drawer is not only damaging to the cabinet, it is dangerous in some cases because the shift in position of the weight stored within the drawer, combined with the forward momentum of the drawer as it is stopped, sometimes creates a tendency on the part of the cabinets to tip forwardly on the operator. This invention eliminates this problem.

The invention provides a mechanism which is simple and durable. As such, it will sustain long usage, providing a cabinet giving desirable and satisfactory perform-

2

ance over many years. The invention provides a mechanism which is entirely concealed when the cabinet is closed, and which is largely concealed when the cabinet is opened.

These and other objects and purposes of this invention will be immediately understood by those acquainted with the design and manufacture of filing cabinets upon reading the following specification and the accompanying drawings.

In the drawings:

FIG. 1 is an oblique view of a file incorporating this invention with the doors of the file closed;

FIG. 2 is a fragmentary oblique view of the file with one of the doors open, but the drawer in retracted or storage position;

FIG. 3 is a fragmentary oblique view of the file with one of the doors open, and the drawer in forward or extended position;

FIG. 4 is an enlarged, fragmentary oblique view of the operator mechanism for the drawer;

FIG. 5 is an enlarged fragmentary sectional elevation view of the operator mechanism for the drawer showing the drawer in closed position (the drawer being shown in phantom to facilitate illustration of the parts which would otherwise be hidden).

FIG. 6 is an enlarged, fragmentary sectional view taken along the plane VI—VI of FIG. 5;

FIG. 7 is an enlarged fragmentary sectional elevation view taken along the plane VII—VII of FIG. 6;

FIG. 8 is a fragmentary oblique view of a modified spring structure for the drawer;

FIG. 9 is a plan view of another embodiment of the operator mechanism for the drawer showing the drawer in its closed position;

FIG. 10 is a side elevational view of the other embodiment of the operator mechanism; and

FIG. 11 is a perspective view of the other embodiment of the operator mechanism.

In constructing a cabinet in accordance with the teachings of this invention, the drawer, as it is closed, pushes against a spring biased plunger. This compresses the plunger spring and loads it. As the drawer reaches its closed position, a latch mechanism on the side of the drawer engages a keeper on the cabinet of the file. The engagement of the latch mechanism locks the drawer in retracted or storage position. When the drawer is in retracted position, it is effectively concealed by a pivoted door. The door has a trip mechanism which, as the door is opened, releases the latch permitting the drawer to shift to extended or forward position under the bias of the spring loaded plungers. In its extended or forward position, the drawer shifts out of the cabinet where its contents are exposed from both the front and the top since the use of the door eliminates the necessity for a front panel on the drawer.

Referring to the drawings and specifically to FIG. 1, the numeral 10 indicates a cabinet having a case 11 and one or more storage compartments each concealed behind a door 12. The number of storage compartments is immaterial inasmuch as the invention is duplicated for each storage compartment. The storage compartments are indicated in FIGS. 2 and 3 by the numeral 13. Each of the doors 12 is pivotally mounted at its lower end by any suitable means such as the hinge pin 14 (FIG. 6). By means of this mounting, the door pivots about its lower end to open forwardly and downwardly to a horizontal attitude exposing the drawer 15 which is otherwise concealed behind the door within the compartment 13.

Each of the drawers 15, is, in effect, a tray having a bottom 16, a pair of sides 17 and a back 18 (FIG. 3). Each of the sides 17 has a short, laterally extending

3

flange 19. The drawers travel on suitable supports 20 which may be of any desired construction such as a progressive suspension. Thus, they are not supported by the open door 12 when extended, their weight being transmitted directly to the frame of the cabinet 11 by the suspensions 20.

The operating mechanism 30 for the drawer is illustrated in FIG. 4 and in the following description it should be borne in mind that this mechanism is duplicated on each side of the drawer. Thus, the drawer is subject to the same influences on each side and does not have a tendency to twist or bind, either when it is shifting forwardly to extended position, or shifting inwardly to storage or retracted position.

Mounted on the side of the drawer is a latch bracket 31. Secured to the latch bracket 31 is a striker 32 which has a laterally extending leaf 33 equipped with a finger 34. The leaf 33 is biased downwardly by a spring 35. The construction of the strike 32 is such that the leaf 33 cannot shift significantly below a horizontal position as illustrated in FIG. 3. The purpose of this will appear subsequently.

The strike cooperates with a keeper plate 36. The keeper plate 36 is secured rigidly to one of the frame members 37 of the cabinet 11. The keeper has an ear 38 behind which is a notch 39 (FIG. 6). Forwardly of the ear 38, the keeper plate has an inclined ramp 40 designed to cam the leaf 33 up over the ear 38 as the drawer is moved to closed position. The leaf should not be allowed to pivot downwardly where it will not readily engage the ramp. The latch 32, together with the keeper 36, constitute the latch assembly.

Cooperating with the latch assembly is a release plate 50. The release plate 50 is secured to the frame member 37 by any suitable means such as the screw 51 which passes through the slotted opening 52. By virtue of the slotted opening 52, the released plate is permitted limited vertical travel. One leg of the release plate 50 is positioned beneath the finger 34 of the strike 32. When the release plate is in its normal or lowered position, it is disengaged from the finger 34 when the finger is resting in the notch 39. However, when the release plate is raised to its upper limit of travel, it engages the finger 34, pivoting the leaf 33 upwardly to clear the ear 38 of the keeper 36. Thus, it releases the strike 32 from the keeper 36.

The release plate 50 has a depressible trip spring 53, the lower end of which is inclined outwardly from the plate. Cooperating with the trip spring 53 is an arcuate trip arm 54 secured to the door 12. The trip arm 54 has a hook portion 55 at one end which, when the door 12 is closed, is beneath the trip spring 53. As the door pivots to open position, the hook 55 engages beneath the trip spring 53 pushing the trip spring and the release plate upwardly into latch disengaging or opening position. As the door 12 is moved to its fully open position, the hook 55 slides out from beneath the trip spring 53 permitting the release plate 50 to drop once more to its original position. The hook also serves as a limit stop holding the open door in horizontal position by reason of its engagement with the check screw 58 (FIG. 5). When the door is closed again, the hook 55 will engage the trip spring 53 depressing it toward the release plate 50 permitting the hook to pass it, and thus, get beneath the spring once more.

The drawer is biased outwardly by the plunger mechanism 60 which consists of a rod 61 and a spring 62. The spring 62 is coiled around the rod 61 and is trapped between a collar 63 secured to the plunger 61, and a fixed guide stop 64 secured to the guide member 65. The guide member 65 in turn is secured to the frame of the cabinet, and thus, is stationary. The forward end of the rod 61 has a rubber snubber or bumper 66 which bears against the flange 19 of the drawer 15. This is

4

used to assure quiet operation and prevent damage to the drawer's finish.

To operate the cabinet, the operator pivots the door open using one of the handles 70. The opening of the door automatically releases the latch mechanism 30 freeing the drawer. The bias of the plunger mechanisms 70 push the drawer open. The plunger mechanisms 60 follow the drawer only a portion of the drawer's travel, the rest of the opening movement of the drawer being by momentum. Thus, the drawer is opened quickly, but slowly enough that as the drawer reaches the outer limit of its travel, its forward motion can be gently halted by the engagement of the stop 71 mounted on the drawer with the bumper 72 on the stop bracket 73 secured to the cabinet of the file (FIG. 6). Thus, the single act of opening the door shifts the file drawer forward to its extended accessible position. To close the file, the operator pushes the drawer back until the leaf of the strike passes up the ramp of the keeper and snaps down into the notch 39, locking the drawer in storage or retracted position. The door then may be closed concealing the drawer.

Referring now to FIGS. 9-11 a modified embodiment of the locking mechanism will be described in detail. A U-shaped bracket 101 extends into the storage chamber from the inner surface of case 11. Pivotably mounted on the U-shaped bracket by suitable means such as pin 103 is a striker 102 having a locking surface 104. Striker 102 is biased against stop 106 by means of spring 105.

Operatively associated with the striker 102 is an L-shaped keeper 110. Keeper 110 is affixed to the outer surface of the side of drawer 15 by suitable means. When the drawer 15 is in closed position as shown in FIG. 9 through 11 the keeper locking surface 111 squarely abuts the striker locking surface 104. Striker 102 has a cam surface 112 along its upper surface. When the drawer is moved in a rearward direction the keeper 110 bears against cam surface 112 forcing the striker to pivot about pin 103 in clockwise fashion. When the keeper passes beyond the strike locking surface 104 the biasing spring returns the strike to the position indicated in FIG. 10, thus securing the drawer in its rearward position.

An arcuate actuating arm 120 having a depending flange 121 is affixed to door 12 in such a manner that the depending flange abuts the stop surface 122 on the case when the door is in its open horizontal position. The striker actuating lever 130 is pivotably mounted to striker 102 by means of pin 131. Flange 133 on striker 102 restricts any initial pivotal movement of lever 130 in a clockwise direction as shown in FIG. 11, but does not restrict the lever's initial pivotal movement in a counter-clockwise direction.

When the door 12 is open the path of movement of the depending flange 121 is such that it engages cam surface 132 of the striker actuating lever 130. Since lever 130 is not free to pivot in a clockwise direction the striker is rotated about pin 103 in a clockwise direction. This rotation lowers strike locking surface 104 out of engagement with keeper locking surface 111 and allows drawer 15 to slide forward under the influence of its spring bias. As door 12 is lowered further the depending flange 121 slides past cam surface 132 and allows the striker 102 to return to its initial position against stop 106. When the drawer is moved back into the case its keeper locking surface 111 will again engage strike locking surface 104 to retain the drawer in the rearward position. When the door is closed depending flange 121 contacts lever 130. Since lever 130 is freely pivotable in a counterclockwise direction depending flange 121 merely pushes it out of the way and passes thereunder without disturbing the position of striker 102.

FIG. 8 shows a modified spring structure for urging the drawer to extended position. A pair of brackets 80 are secured to the case, preferably one to each of the frame members 37. A spring 81 is stretched between them. The spring 81 engages behind the bracket 82 secured to

the bottom of the drawer 15 at a point centered between the sides of the drawer. The spring is under tension at all times. When the drawer is closed, it is stretched. When the drawer is released, the spring urges the drawer to extended position. This spring arrangement has the advantages of maintaining a positive outward bias on the drawer at all times. This tends to keep the drawer in extended position. Thus, it will not tend to roll back into the compartment while an operator is working on the files in it.

While a preferred embodiment of this invention has been illustrated together with a modification thereof, it will be recognized that other embodiments of the invention may be made with some modifications of structure which will incorporate the principles of this invention. Such of these modified embodiments as incorporate the principles of the invention are to be considered as included in the hereinafter appended claims unless these claims by their language expressly state otherwise.

We claim:

1. In a file cabinet the combination comprising:
 - a case having an open-ended storage chamber;
 - a tray having a back, two sides, a bottom and an open front;
 - means mounting said tray for horizontal travel into and out of said storage chamber;
 - a biasing means urging said tray outwardly from said storage chamber;
 - a latch having keeper and striker components, one of said components being mounted on one side of the tray and the other being mounted on the inside of said case adjacent the open end of the storage chamber, said keeper having a cam surface for shifting said striker when said tray is moved into said storage chamber to permit the striker and keeper to engage and thus restrain outward movement of said tray;
 - a door pivotably mounted for downward and outward movement, said door closing off said open end of said storage chamber when it is in closed position;
 - an arcuate arm extending towards said storage chamber from each end of said door, said arm having a stop for limiting the downward and outward movement of said door when said door is pivoted to horizontal open position;
 - an actuating lever for said latch interposed in the path of movement of the inner end of said arm and moved by said arm when said door is opened, said lever disengaging said latch when so moved; and
 - means for biasing said lever into the path of movement of said arm, said lever being yieldable to shift out of the path of movement of said arm when said door is closed.
2. The apparatus as set forth in claim 1 in which said keeper is mounted on the drawer.
3. The apparatus as set forth in claim 2 in which said lever is pivotably attached to one extremity of said striker and in which said striker has a flange extending therefrom for restricting the rotation of said lever in one direction.
4. In a file cabinet the combination comprising:
 - a case having a plurality of open-ended storage chambers;
 - a plurality of drawers associated with said storage chambers each having a back, two sides, a bottom and an open front;
 - means mounting said drawers for horizontal travel into and out of said storage chambers;
 - biasing means urging said drawers outwardly from said storage chambers;
 - a latch associated with each of said storage chambers and drawers, said latch having keeper and striker components, one of said components being mounted on one side of the associated drawer and the other being mounted on the inside of said case adjacent the open end of the associated storage chamber, said keeper having a cam surface for shifting said striker

- when said drawer is moved into said storage chamber to permit the striker and keeper to engage and thus restrain outward movement of the associated drawer;
 - a plurality of doors pivotably mounted for downward and outward movement, each of said doors closing off the open end of one of said storage chambers when it is in closed position;
 - a pair of arcuate arms associated with each door, said arms extending towards the storage chamber from each end of the door, said arms each having a stop for limiting the downward and outward movement of said doors when said doors are pivoted to horizontal open position;
 - an actuating lever associated with each latch, said lever being interposed in the path of movement of the inner end of the arm and moved by the arm when the associated door is opened, said lever disengaging its associated latch when so moved; and
 - means for biasing said lever into the path of movement of said inner end of said arm, said lever being yieldable to shift out of the path of movement of said arm when the associated door is closed.
5. In a file cabinet the combination comprising:
 - a case having an open ended storage chamber;
 - a drawer having a back, two sides, a bottom and an open front;
 - means mounting said drawer for horizontal travel into and out of said storage chamber;
 - biasing means urging said drawer outwardly from said storage chamber;
 - a latch mechanism associated with each side of said drawer, said latch mechanism having striker and keeper components, one of said components being mounted on the side of said drawer and the other being mounted on the inside of said case adjacent the open end of the associated storage chamber, said keeper having a cam surface for shifting said striker when said drawer is moved into said storage chamber to permit the striker and keeper to engage and thus restrain outward movement of said drawer;
 - a door pivotably mounted for downward and outward movement, said door closing off said open end of said storage chamber when it is in closed position;
 - an arcuate arm extending into said storage chamber from each end of said door, said arm having a stop for limiting the downward and outward movement of said door when said door is pivoted to horizontal open position;
 - an actuating lever for each of said latch mechanisms interposed in the path of movement of the inner end of each of the arms, and moved by said arm when said door is opened, said lever disengaging said latch when so moved; and
 - means for biasing said lever into the path of movement of said arm, said lever being yieldable to shift out of the path of movement of said arm when said door is closed.
 6. The apparatus as set forth in claim 5 in which said keeper is mounted on the drawer.
 7. In a file cabinet having a case and a drawer and means mounting said drawer within said case for forward and rearward travel with relation to said case, a door hingedly mounted to said case in front of and enclosing said drawer when closed, the improvement in said file cabinet comprising: a latch having a strike pivotally mounted on said drawer and a keeper fixedly mounted on said case;
 - means biasing said strike into engagement with said keeper;
 - a release plate slidably mounted on said case, said release plate in one position being disengaged from said strike and in another position shifting said strike to disengage from said keeper;

7

a depressible spring on said release plate;
a trip element on said door engaging said release plate
and slidably shifting it to said other position as said
door is opened; and
said trip element disengaging said spring during the 5
latter portion of opening travel of said door, said
trip element depressing and moving past said spring
as said drawer is closed, a member mounted on said
case biasing said drawer for forward travel.
8. A file cabinet as recited in claim 7 wherein said 10
member is a plunger and a resilient element urging said
plunger forwardly;
said trip element being an arcuate arm having a pro-
jecting hook on its end, said hook being the portion
of said trip element engaging said spring; and 15

8

a stop element on said case engaged by said hook when
said door is open for holding said door at the limit
of its opening travel.

References Cited by the Examiner

UNITED STATES PATENTS

879,402	2/1908	Myrhow	232—24
1,117,550	11/1914	Coburn et al.	134—95
2,201,354	5/1940	Steadman	312—319 X
2,364,604	2/1944	Creager	312—319 X

CLAUDE A. LE ROY, *Primary Examiner.*

CHANCELLOR E. HARRIS, *Examiner.*