Feb. 9, 1943. C. W. STRAUBEL 2,310,879

DRAWER WITH TILTING BACK WALL

Filed June 6, 1941 3 Sheets-Sheet 1

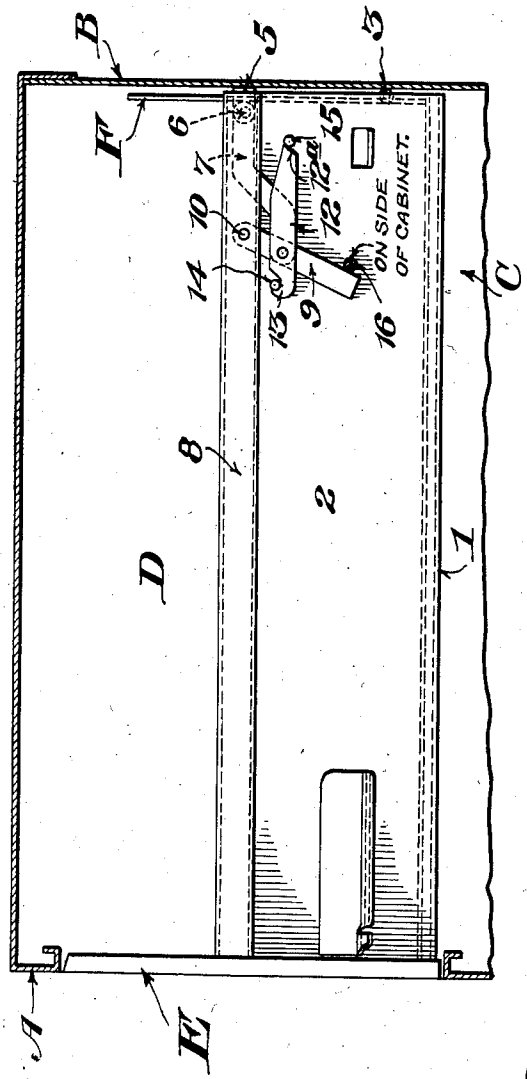


Fig. 1.

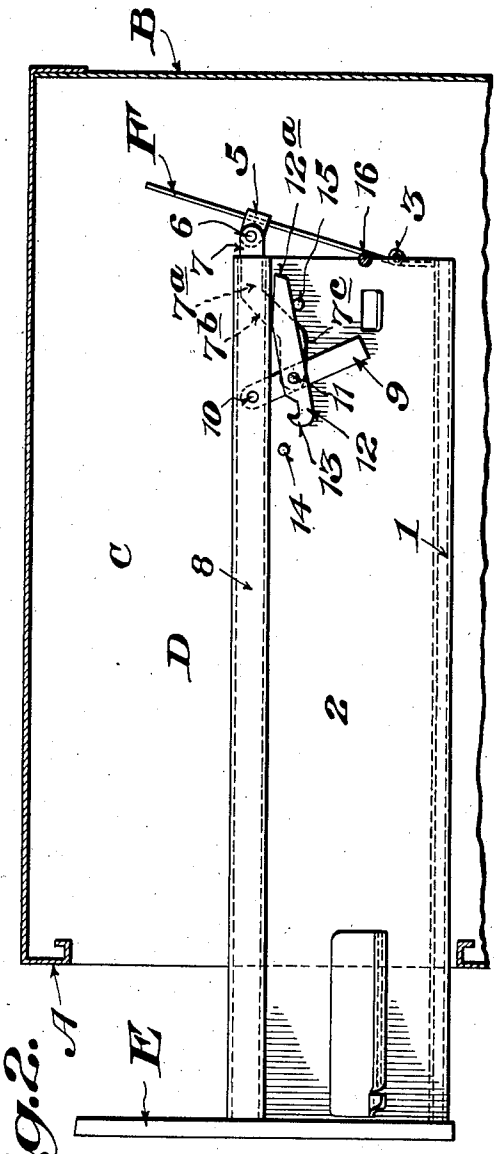


Fig. 2.

Inventor

Clarence W. Straubel,

By Wolcott, Hoffer & Groff

Attorneys

Feb. 9, 1943. C. W. STRAUBEL 2,310,879

DRAWER WITH TILTING BACK WALL

Filed June 6, 1941 3 Sheets-Sheet 2

Fig. 4.

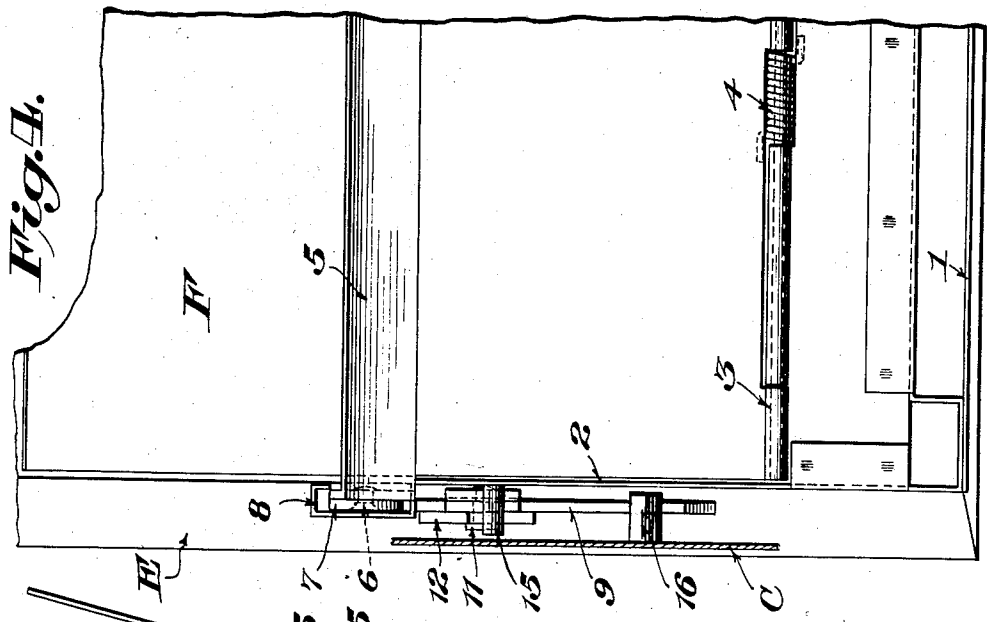
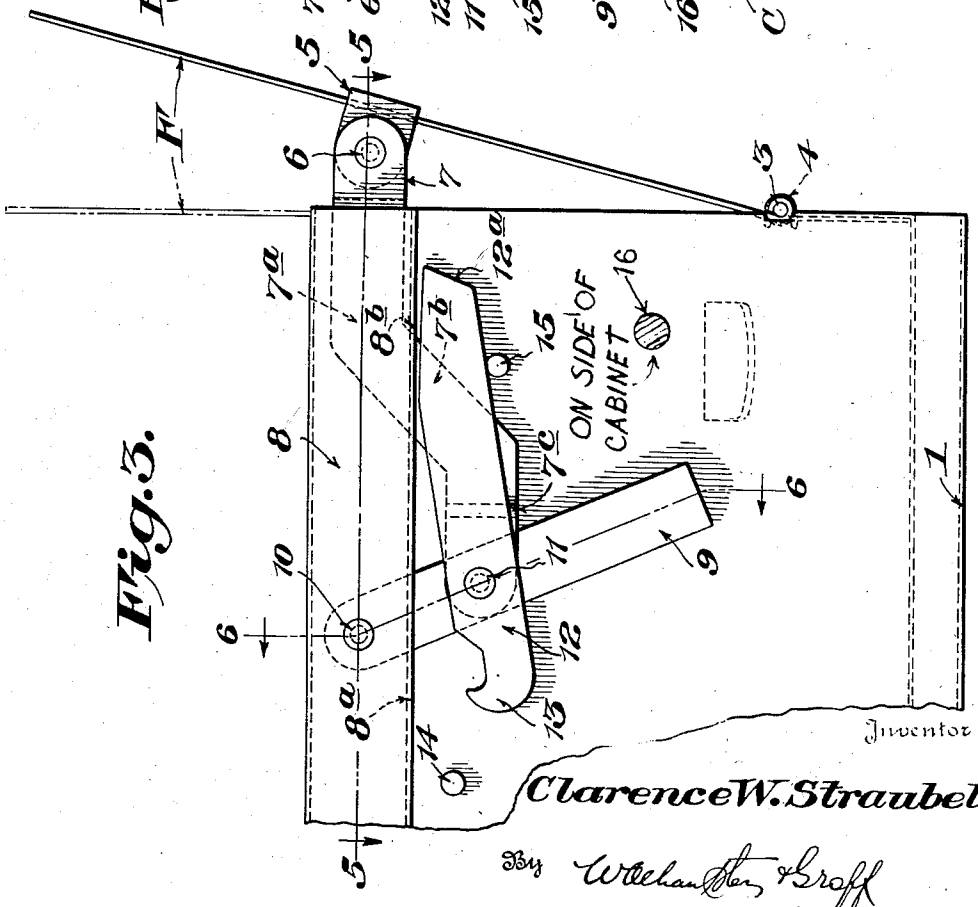


Fig. 3.



Inventor

Clarence W. Straubel,

By Wheelan Stern & Groff

Attorneys

Feb. 9, 1943. C. W. STRAUBEL 2,310,879

DRAWER WITH TILTING BACK WALL

Filed June 6, 1941 3 Sheets-Sheet 3

Fig. 5.

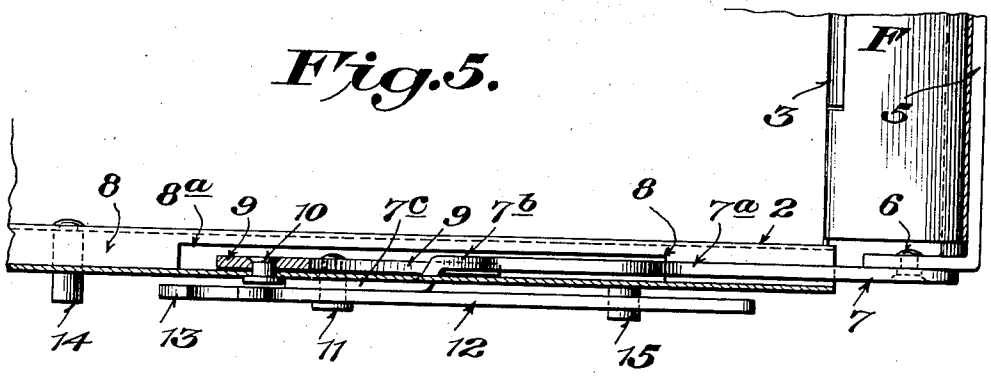


Fig. 6.

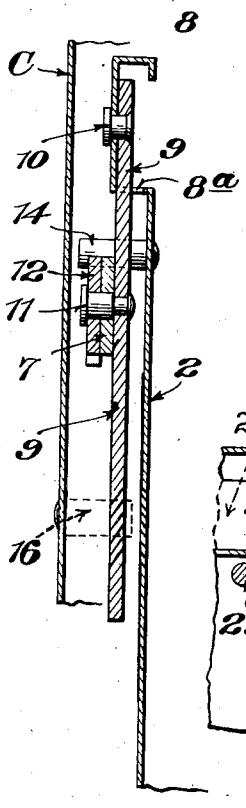


Fig. 7.

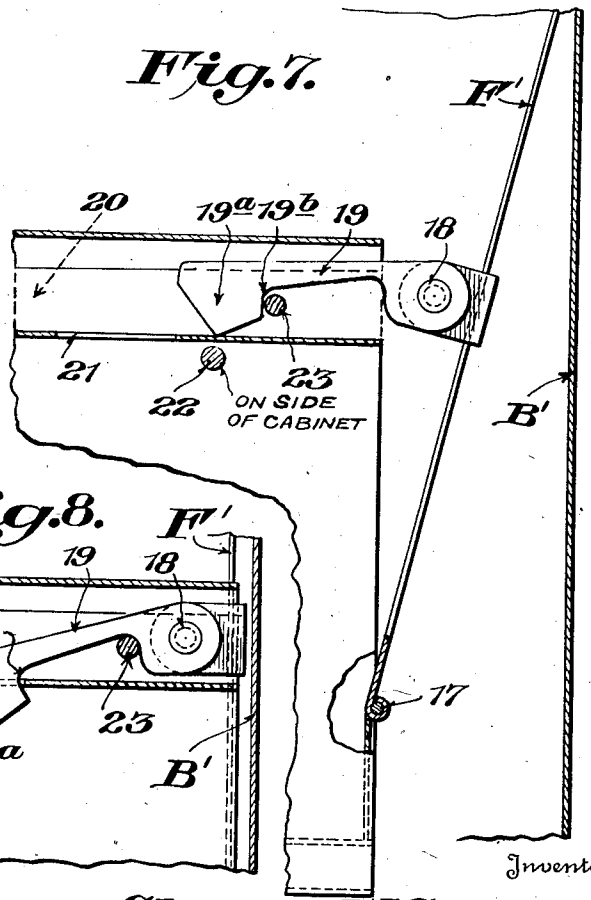


Fig. 8.

Inventor

Clarence W. Straubel,

By Wallace & Groff

Attorneys

Patented Feb. 9, 1943 2,310,879

UNITED STATES PATENT OFFICE

2,310,879

DRAWER WITH TILTING BACK WALL

Clarence W. Straubel, Youngstown, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio, a corporation of Ohio

Application June 6, 1941, Serial No. 396,956

9 Claims. (Cl. 45—2)

This invention relates to an improvement in drawers for filing cabinets, and has particular reference to a construction which assists in permitting the opening up or spreading apart of the drawer contents when the drawer is opened.

While it has been heretofore proposed to free the compressed contents of a filing drawer for easier access and better view of indicia by providing the drawer with an outwardly tiltable or swinging head, nevertheless even with a construction of this type it is often desirable to obtain additional freeing of the drawer contents, and, moreover, where a rigid drawer head is used, this objective is particularly desirable.

Accordingly, a primary object of the invention is to provide the drawer with a movable back wall which will tilt rearwardly when the drawer is opened to relieve the pressure on the drawer contents whether the drawer is loaded throughout to capacity, or whether the rear section of the drawer is filled behind a divider plate, follower plate, or other subdividing means. This arrangement also permits a follower plate or the like, when at the extreme rear of the drawer and the drawer is open, to tilt rearwardly for maximum capacity with increased accessibility.

A further and more specific object is to provide a pivotally supported back wall for the drawer which may be thrown back or tilted by gravity due to weight of drawer contents, or automatically by a spring, when the drawer is pulled open, and which is maintained in upright position when the drawer is closed by suitable cooperating means on the drawer and the filing cabinet or drawer casing. Thus, when the drawer is closed the actuated back wall will not yieldingly bear against the rear wall of the cabinet and tend to force the front of the drawer out of the cabinet.

With the above and other objects in view which will be more readily apparent as the nature of the invention is understood, the same consists in the novel combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a vertical sectional view of a filing cabinet having a drawer therein including the present improvements, the drawer being shown in its closed position.

Fig. 2 is a view similar to Fig. 1 showing the relative position of parts when the drawer is pulled open.

Fig. 3 is an enlarged detail view showing in elevation the side wall of the drawer and the control means for the back wall.

Fig. 4 is a bisected rear elevation of the drawer shown in Fig. 3.

Fig. 5 is a horizontal cross section taken on the line 5—5 of Fig. 3.

Fig. 6 is a vertical cross section taken on the line 6—6 of Fig. 3.

Fig. 7 is a detail side elevation partly in section showing a modification of the invention.

Fig. 8 is a detail view of the latch of Fig. 7 in closed position.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

The filing cabinet A in the accompanying drawings is of the conventional type, including a rear wall B and suitable suspension means (not shown) on the side wall C of the cabinet for slidably supporting the filing drawer D. The drawer D includes a drawer body having a front drawer head E, which may be of the rigid, tilting or extensible type, and also including the usual bottom wall 1 and side walls 2.

The present invention is particularly concerned with the novel back wall F which is movable relative to the rear ends of the side walls 2 when the drawer is opened, that is, withdrawn from the cabinet, and which is held vertical when the drawer is closed, that is, fully pushed into the cabinet. More specifically, the invention is directed to a tilting back wall for the drawer which is movable to a rearwardly inclined position when the drawer is opened to assist in freeing the drawer contents, and which is moved to a vertical position and preferably locked or held in that position when the drawer is closed. To accomplish these ends the lower portion of the back wall F is hinged or pivoted, as indicated at 3, at the rear of the drawer body so that the upper edge of the back wall is movable rearwardly or outwardly of the filing space of the drawer. Preferably, the movement of the back wall from a vertical to an inclined or tilted position is controlled by suitable throw-back spring means which, in the example shown, are preferably in the form of one or more coil springs 4 mounted coaxially with the pintle or axis of the hinge 3, as shown for example in Figs. 3 and 4. These springs may be assembled to the rear of the drawer body and the back wall by properly positioning them in spaces provided therefor in the back wall and rear of the drawer body prior to threading the pintle of the hinge 3 in position so that the opposite free ends of the spring will

engage with the same faces respectively of the drawer body and the back wall to place the latter under tension and tend to throw it backwardly to an inclined position. Obviously, however, it is within the purview of the present invention to use flat springs, or re-arrange the spring means shown, so as to accomplish the object referred to.

The movable back wall F preferably has its intermediate portion connected with suitable control mechanism, which may be duplicated at opposite sides thereof, and which, in the preferred form, counteracts the tendency of the spring means 4 to move the back wall to open or tilted position when the drawer is closed. This control means preferably consists of link, latch and lever elements associated with a side wall of the drawer and cooperating with fixed abutment means on the inner wall of the cabinet or drawer casing to retract and retain the back wall from open position to closed position.

Referring more specifically to the control mechanism for the back wall F, it may be observed that said wall is provided with one or more pivot ears 5 connected as at 6 with a link 7. This link is preferably of angular formation and the arm 7a thereof is slidably supported and positioned in the inwardly opening channel portion 8 at the edge of the side wall 2 of the drawer. The intermediate offset portion 7b of the link projects through a slot 8a in the bottom of the channel 8, and therefore the end 8b of the slot constitutes, in effect, means for limiting the rearward tilting movement of the back wall F. The portion 7c of the link, which is disposed in a plan parallel to the arm 7a, is offset outwardly of the side wall of the drawer to accommodate a lever 9 pivotally supported at 10 to the outer wall of the channel 8. Where the lever 9 crosses the arm 7c, it is pivoted thereto as indicated at 11. The purpose, therefore, of outwardly offsetting the arm 7c of the link is to provide clearance for the swinging of the lever 9 from the fixed pivot 10 and enable the lever to control the movement of the link through the pivot 11. A latch member 12 is pivotally supported at the outer face of the lever 9 on the same pivot pin 11 which connects the lever to the link. This latch is provided with a hook 13 intended to cooperate with suitable keeper means on the side wall of the drawer, for example, a lug or pin 14. The arm of the latch opposite the hook, is relatively long to thereby overbalance the hook portion 13 and urge it toward the keeper pin 14, and the end of said arm is beveled, as indicated at 12a, to cooperate with the cam element 15 which may be in the form of a pin also projecting laterally from a side wall of the drawer.

The relatively free end of the lever 9 is intended to cooperate with an abutment or stop 16 on the inner side wall of the cabinet or casing when the drawer D moves to closed position, as clearly shown in Fig. 1. When the drawer is pulled out of the cabinet, as shown in Fig. 2, the lever 9 moves away from the abutment or stop 16 and the spring means 4 moves the lever, latch, and link elements as the back wall F is forced open.

The operation of the construction shown on the drawings is as follows:

When the drawer is fully pushed into the cabinet and the lever 9 is engaged with the abutment or stop 16, the latch 12 has its hook portion 13 in engagement with the locking pin 14 and the beveled end 12a of the latch rests on the cam pin 15. The link 7 is also fully retracted in the channel 8 because the lever 9, through pivot connection 11, also maintains the link in its fully inward position, thereby holding and maintaining the back wall F in a vertical position. When the drawer D is pulled open, that is, slidably moved out of the cabinet, the lever 9 begins to swing and eventually leaves the abutment 16 as the drawer travels further toward open position. As the drawer moves outwardly, the spring means 4 throws the back wall rearwardly, the hook 13 of the latch being released from the pin 14 as the beveled end of the latch rides upwardly and over the cam pin 15. When the lever 9 is entirely clear of the abutment 16 and swings to the limit shown in Fig. 2, the link 7 is fully pulled or projected rearwardly of the channel, and, when the angular portion 7b of the link reaches the end 8b of the slot 8a, the back wall F reaches its limit of outward tilting movement. When the drawer is again pushed inwardly, the lever 9 re-engages the abutment 16 on the side of the cabinet and the back wall F is moved to a vertical position because the link 7 is retracted and the latch 12 is permitted to move so that the hook portion 13 engages the locking pin 14 and thereby holds the entire assembly firmly in position to maintain the back wall vertical. With this arrangement there is no possibility of the spring urged back wall F engaging the rear wall B of the cabinet A in such a way as to cause the drawer to creep out of the cabinet.

From the foregoing it will be apparent that the present invention primarily provides a back wall for the drawer which is movable to a position to increase the length of the top of the drawer and thereby free the drawer contents. The essentials of this construction are the pivotally supported back wall F and means for holding or locking the back wall in its vertical position.

Fig. 7 illustrates the further range of application of the invention including the essentials above referred to. In this form of the invention the back wall F' may be either spring actuated or may be actuated by gravity to open position or tilted under the weight of the drawer contents when the drawer is pulled open and away from the back wall of the cabinet B'. Referring further to Figs. 7 and 8, it will be observed that the back wall F' is pivotally supported to the drawer body, as indicated at 17. The intermediate portion of the back wall F' is also pivotally connected at 18 with a locking latch 19 which operates in the inwardly opening channel 20 at the top of the side wall of the drawer. The bottom of the channel 20 is provided with a slot 21 for receiving the head 19a of the latch when the back wall F is in its closed vertical position. The head 19a of the latch is provided with keeper means in the form of a shoulder 19b for locking the latch to the side wall of the drawer when the back wall F' is closed. An abutment or stop 22 is provided on the inner side wall of the cabinet so that when the drawer is pulled out of the cabinet the stop 22 will engage the rounded edge of the head 19a of the latch and lift the locking shoulder 19b away from the end of the slot 21 with which it has been engaged, thereby to free the latch so that the back wall F' can tilt rearwardly by gravity or under the weight of drawer contents. To limit the travel of the latch 19 in a rearward direction, a suitable stop pin 23 or its equivalent is provided on the inside face of the bottom of the channel 20 on the drawer.

Upon closing the drawer carrying the back wall F', and assuming that the wall is in its rearwardly tilted position, the upper edge of said back wall F' will engage the inner face of the back wall B' of the cabinet, and, as the closing movement of the drawer continues, the wall F' will be moved to a vertical position and the shoulder 19b of the latch-head will engage with the rear end of the slot 21, thereby to lock the back wall F' in a vertical position so that it will not lean against the inner face of the back wall B' of the cabinet and tend to push the drawer out of the cabinet.

From the foregoing it will be apparent that the present invention contemplates the provision of a hinged back wall which may or may not be spring tensioned, but which moves to a rearwardly tilted position when the drawer is pulled open, thereby to additionally free the contents of the drawer for inspection purposes. It will, of course, be understood that the back wall of the drawer may be hinged to a short permanent back wall of the drawer, as shown, or, on the other hand, the horizontal pivot axis for the back wall may be positioned as low as the drawer bottom itself. In all cases the essential feature is to provide a hinged back wall for the drawer. Moreover, when the drawer is fully closed and the back wall is erect, means is provided for preventing the back wall from engaging the rear wall of the cabinet or casing, thereby avoiding any tendency of the back wall to cause the drawer to creep out of the cabinet.

Without further description, it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art and it will of course, be understood that changes in the form, proportion and arrangement of parts may be resorted to within the scope of the appended claims.

I claim:

1. In a filing cabinet having side and rear walls, the combination including a drawer mounted for sliding movement in the cabinet and having side and bottom walls, a back wall hinged on a fixed transverse axis to the rear of the drawer body and movable from a vertical position when the drawer is closed to a rearwardly inclined position when the drawer is open, cooperating means on a side wall of the drawer and the back wall for limiting angular movement of the back wall, and means on a wall of the cabinet cooperating with said last named means to hold said back wall vertically locked to the drawer and out of engagement with the rear wall of the cabinet when the drawer is closed.

2. In a filing cabinet having side and rear walls, the combination including, a drawer mounted for sliding movement in the cabinet and having side and bottom walls, a back wall hinged on a transverse axis to the rear of the drawer body, spring means for urging the back wall to a rearwardly inclined position when the drawer is pulled out of the cabinet, abutment means on a side wall of the cabinet, and means on the side wall of the drawer operatively connected with said back wall and having a portion cooperating with said abutment for maintaining the back wall in vertical position when the drawer is closed.

3. In a filing cabinet having side and rear walls, the combination including a drawer mounted for sliding movement in the cabinet and including side and bottom walls, a back wall hinged on a transverse axis to the rear of the drawer body, a coil spring coaxial with the axis of said hinge for constantly urging the back wall to a rearwardly inclined position, and means on the side wall of the drawer operatively connected to the back wall and cooperating with means on a side wall of the cabinet to counteract the force of the spring and hold the back wall vertical when the drawer is closed.

4. In a filing cabinet including a side wall and a rear wall, the combination including a drawer mounted for sliding movement in the cabinet and comprising side and bottom walls, a back wall pivotally supported at its lower edge to the rear of the drawer body to be tiltable away from the ends of the side walls of the drawer when the drawer is moved out of the cabinet, a link pivotally connected at one end to the medial portion of the back wall and slidably supported on a side wall of the drawer to be projectable and retractable relative to the end of said side wall, and cooperating means on the link, the side wall of the drawer and the side wall of the cabinet, for releasably holding said link in retracted position to maintain the back wall vertical and out of contact with the rear wall of the cabinet when the drawer is fully pushed into the casing.

5. In a filing cabinet including a side wall and a rear wall, the combination including a drawer mounted for sliding movement in the cabinet and including side and bottom walls, a back wall pivotally supported at its lower edge to the rear of the drawer body, a spring for constantly urging the back wall to a rearwardly inclined position, link means pivotally connected to the back wall and slidably supported on a side wall of the drawer, rockable latch means pivoted to the end of the link opposite its connection with the back wall, keeper means on the side wall of the drawer for said latch, and cooperating means on the drawer and casing for maintaining the engagement of the latch and keeper means to counteract the tendency of the spring tensioned back wall to swing and thereby maintain said back wall in a vertical position out of contact with the rear wall of the cabinet when the drawer is fully pushed into the cabinet.

6. In a filing cabinet including a side wall and a rear wall, the combination including a drawer mounted for sliding movement in the cabinet and having side and bottom walls, a back wall pivotally supported at its lower end to the rear of the drawer body, a spring for urging the back wall to a rearwardly inclined position, a link pivotally connected at one end to the back wall and slidably supported on a side wall of the drawer, a keeper pin and a cam pin on the side wall of the drawer, a latch member pivoted at an intermediate point to said link and having a hook portion at one end for releasable engagement with the keeper pin and a cam portion at the other end for slidably engaging the said cam pin, a lever swingable on a pivot fixed to the side of the drawer and having its intermediate portion pivoted coaxially with the pivotal connection between the link and the latch member, and an abutment on a side wall of the cabinet for engaging said lever when the drawer is closed to maintain the hook of the latch member engaged with its pin to hold the back wall in vertical position and out of contact with the rear wall of the cabinet, said lever when the drawer is pulled out of the cabinet moving away from said abutment and causing the cam portion of the latch member to engage with the cam pin and thus rock the said latch member to release the hook portion thereof from the keeper pin.

7. In a filing cabinet, the combination includ-

ing, a cabinet having vertical side and rear walls, abutment means on one of said vertical walls of the cabinet, a drawer mounted for sliding movement in the cabinet and including a side wall, a back wall hinged on a transverse axis to the rear of the drawer and movable from a vertical position when the drawer is closed to a rearwardly inclined position when the drawer is open, means carried by a side wall and said back wall of the drawer and cooperating with said abutment means on a vertical wall of the cabinet to cause said back wall of the drawer to be locked to the drawer in a substantially erect position when the drawer is moved to closed position, thereby to prevent said back wall of the drawer from engaging the vertical rear wall of the cabinet when the drawer is closed to prevent said back wall of the drawer exerting pressure against the rear wall of the cabinet tending to push the drawer out of the cabinet.

8. In a filing cabinet, the combination including, a side wall of the cabinet, abutment means on said side wall of the cabinet, a drawer mounted for sliding movement in the cabinet and a back wall hinged on a transverse axis to the rear of the drawer and movable from a vertical position when the drawer is closed to a rearwardly inclined position when the drawer is open, and latch means connected to the back wall of the drawer and cooperating with means on the side wall of the drawer and said abutment means to hold said back wall locked in vertical position to the drawer when the latter is closed.

9. In a filing cabinet, the combination including, a side wall of the cabinet, abutment means on the said side wall of the cabinet, a drawer mounted for sliding movement in the cabinet, a drawer body including side and bottom walls, a back wall pivotally supported at its lower edge to the rear of the drawer body to be tiltable away from the ends of the side walls of the drawer when the drawer is moved out of the cabinet, and latch means connected to said back wall of the drawer and engageable with a side wall of the drawer for limiting angular movement of said wall relative to the rear ends of the side walls of the drawer when the drawer is open, said latch means cooperating with the said abutment means on the cabinet to hold the back wall of the drawer locked to the drawer when the latter is closed.

CLARENCE W. STRAUBEL.