Aug. 11, 1953 C. W. STRAUBEL 2,648,585

DRAWER CONSTRUCTION

Filed Feb. 2, 1950 4 Sheets-Sheet 1

Fig. 1.

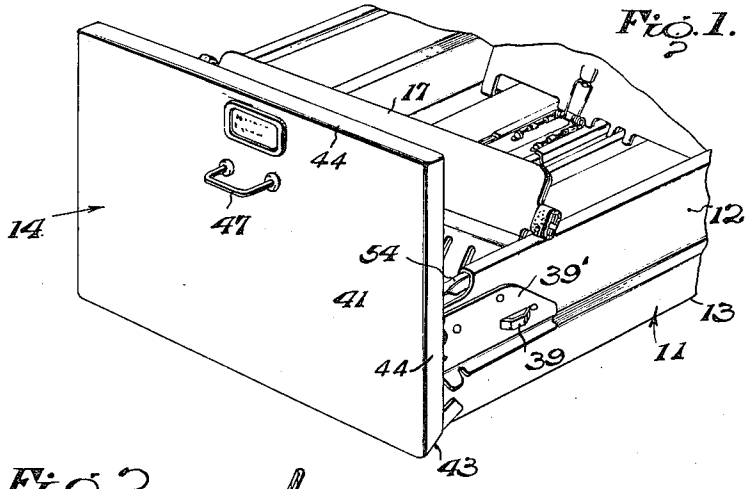


Fig. 2.

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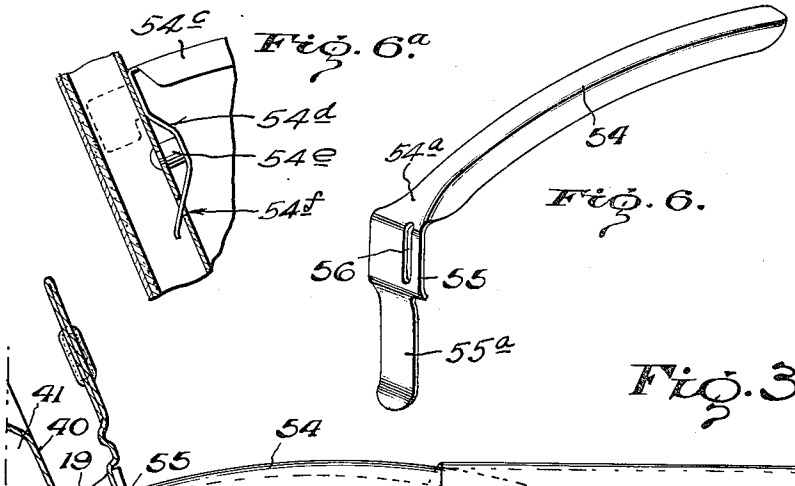
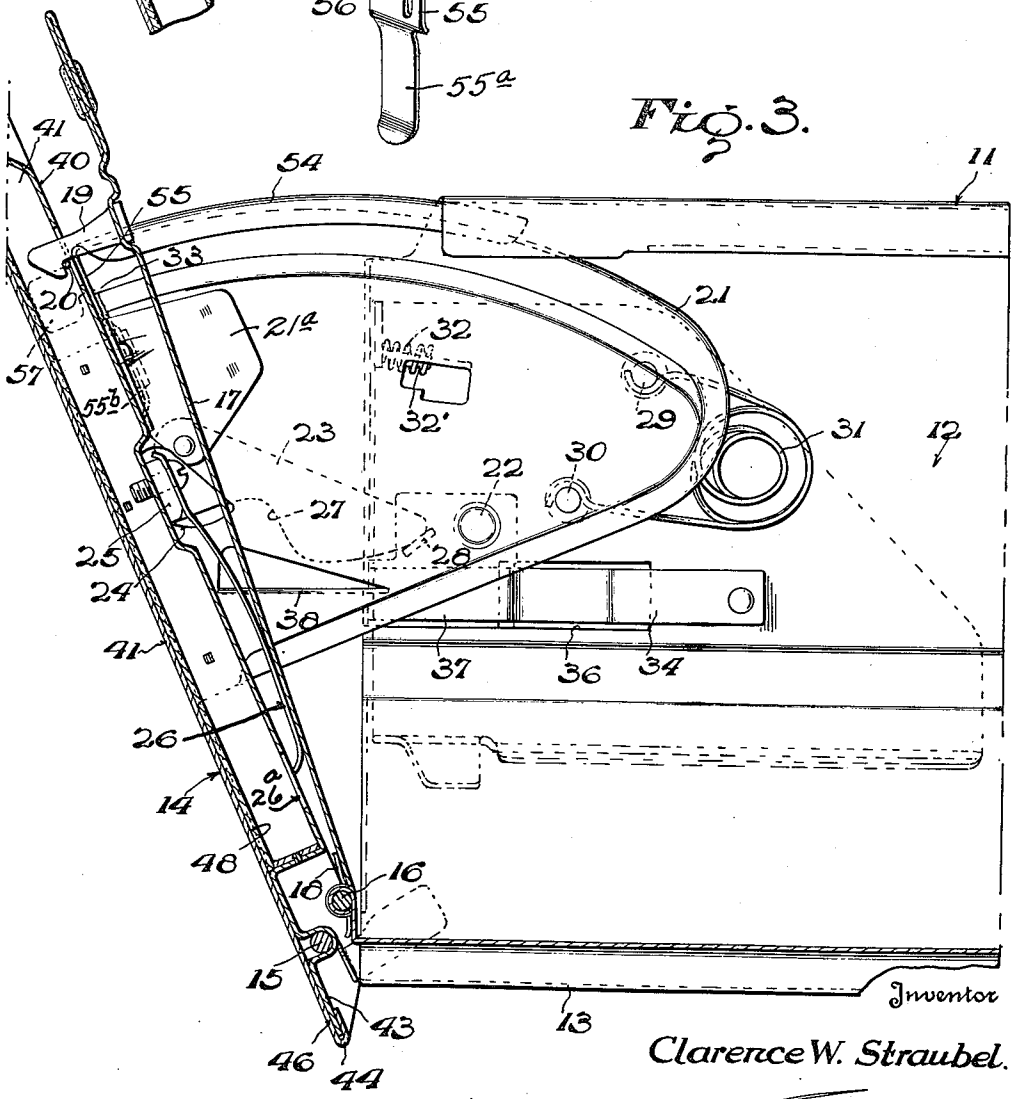


Fig. 6a.

Fig. 6.

Fig. 3.



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DRAWER CONSTRUCTION

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Fig. 4.

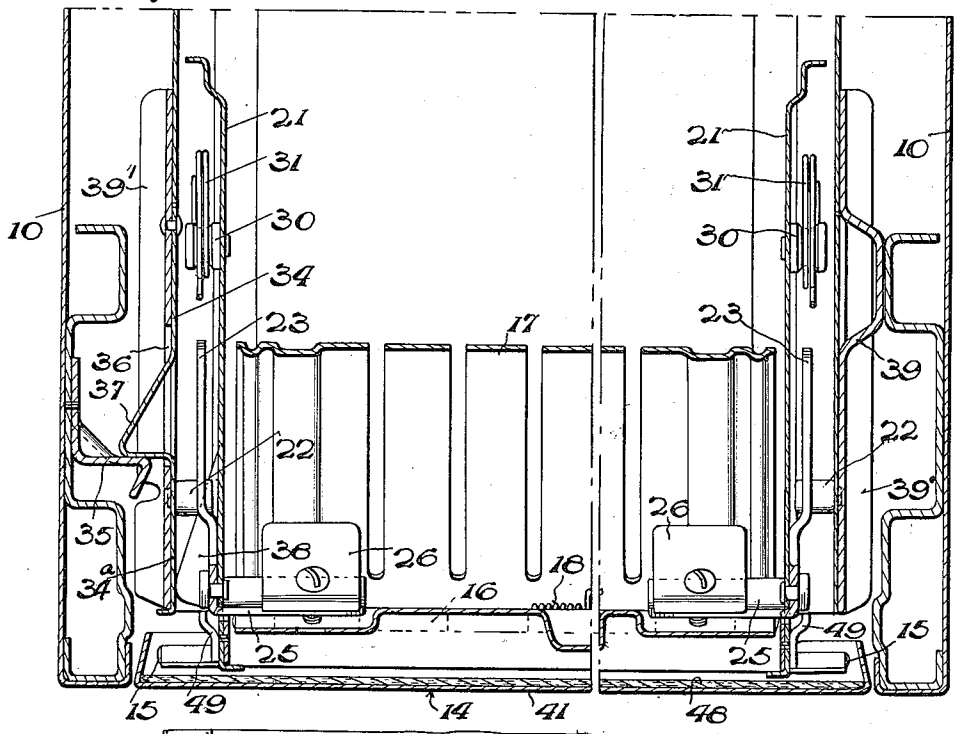
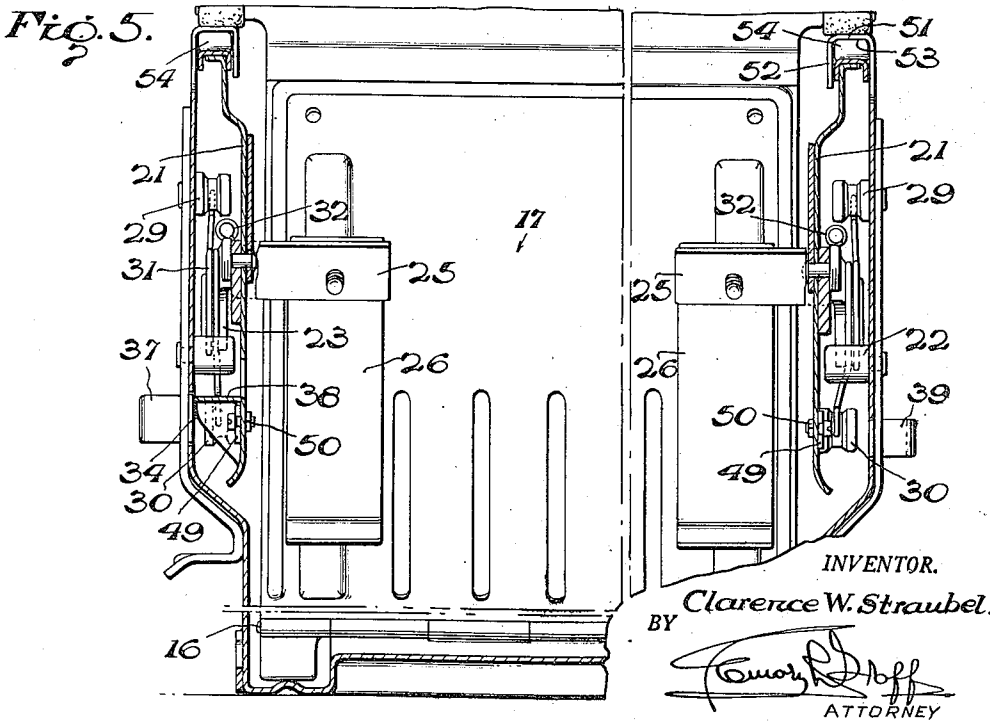


Fig. 5.



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Fig. 4a

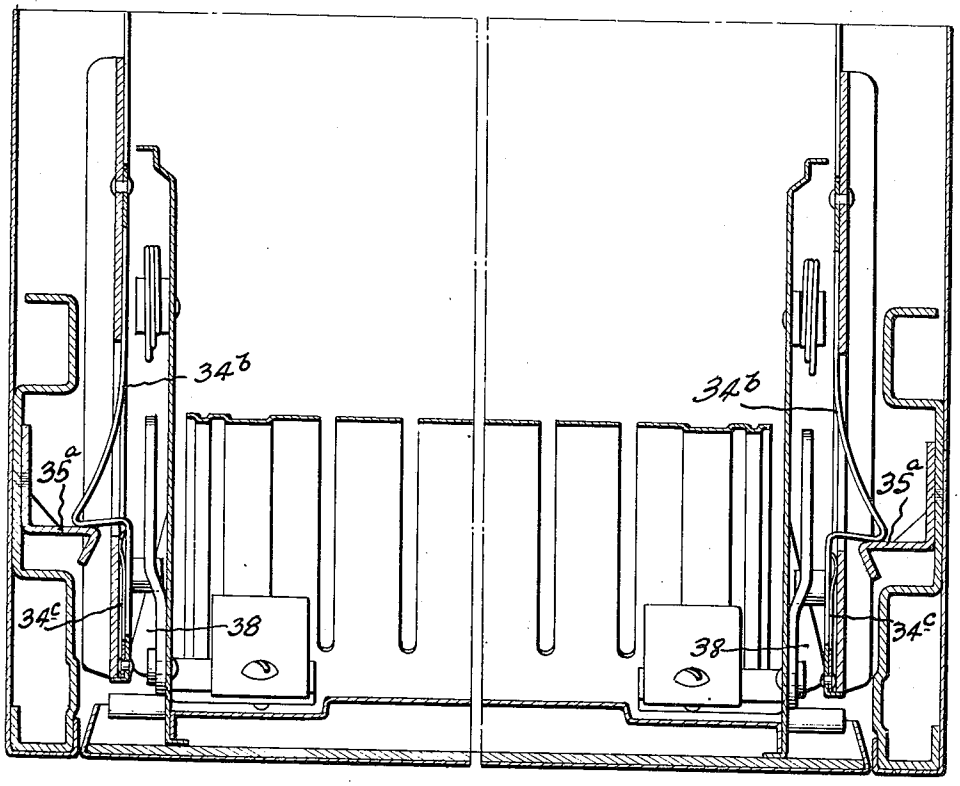


Fig. 4b

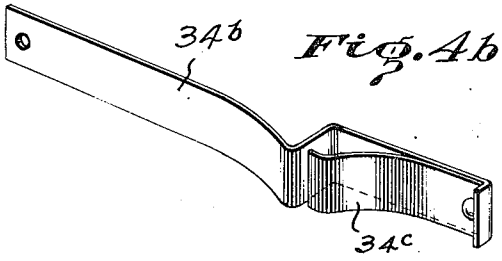
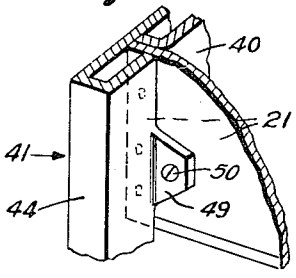


Fig. 2a



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UNITED STATES PATENT OFFICE

2,648,585

DRAWER CONSTRUCTION

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Application February 2, 1950, Serial No. 141,965

5 Claims. (Cl. 312—303)

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This invention relates to improvements in filing cabinet drawers of the type in which the fronts of the drawers are hinged at their bottoms to the drawers for outward swinging movement to afford ready access to the contents of the drawers when the drawers are opened.

One special object of the invention is to provide simple, practical latch means which is operated by inward swinging movement of a drawer front to latch the drawer in a closed position, and which is released by outward swinging movement of the drawer front to permit opening of the drawer.

Another object of the invention is to provide simple, practical means which is rendered effective by closing of a filing cabinet drawer to hold the drawer against undesirable lateral movement relative to a cabinet in which it is contained.

In accordance with the invention the drawer front is provided with side wings the top marginal portions of which travel in downwardly opening channels at the tops of the side walls of the drawer during opening and closing movements of the drawer front, and in this connection another object of the invention is to provide attractive shield elements to cover the tops of said wings, close the front ends of said channels and also to cushion closing movements of the drawer front.

Another object of the invention is to provide a drawer front of such a simple, practical design that it may readily be assembled and disassembled.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts as are illustrated by way of example in the accompanying drawings and as will be hereinafter more fully described and claimed.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a perspective view of the front end portion of a filing cabinet drawer constructed in accordance with the invention;

Figure 2 is a vertical, longitudinal section through the front end portion of the drawer showing the swingable front of the drawer in closed position;

Figure 2[a] is a detail perspective view further illustrating the manner of connecting the drawer head with one of the wings;

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Figure 3 is a view similar to Figure 2 showing the drawer front swung outwardly;

Figure 4 is a horizontal section taken approximately on the line 4—4 of Figure 2;

Figure 4[a] is a cross sectional view similar to Figure 4 but showing the drawer latches duplicated at opposite sides of the drawer and utilizing booster springs;

Figure 4[b] is a detail perspective view of one of the drawer latches shown in Figure 4[a];

Figure 5 is a transverse section taken approximately on the line 5—5 of Figure 2;

Figure 6 is a perspective view of one of the wing shields; and

Figure 6[a] is a detail view partly in elevation and partly in section showing a modified form of wing shield.

Referring to the drawings in detail, 10 designates a portion of a filing cabinet and 11 designates a portion of a drawer which may be slidably mounted in said cabinet in any suitable manner.

The drawer 11 includes sides 12, a bottom 13 and a front, designated generally as 14, which is pivoted at or near its bottom to a bottom portion of the drawer, as indicated at 15, for swinging movement between a vertically disposed closed position, as shown in Figures 1 and 2 of the drawings, and an upwardly and outwardly inclined open position, as shown in Figure 3 of the drawings.

Also pivoted at or near its bottom to a bottom portion of the drawer 11, as indicated at 16, for swinging movement between a position substantially parallel to the drawer front 14, as shown in Figure 3, and a position upwardly and rearwardly inclined relative to said drawer front, as shown in Figure 2 of the drawings, is a front follower plate 17 which, by suitable spring means, such as helical torsion springs 18 associated with its pivot 16, constantly is urged rearwardly to exert holding pressure against the contents of the drawer.

On the front follower plate 17 is a latch element 19, which, by forward swinging movement of said follower plate relative to the drawer front 14, is engageable with a keeper 20 on said drawer front to hold said follower plate in a forwardly swung position adjacent to said drawer front and substantially parallel thereto when said drawer front is in its forwardly swung or open position. The pivot 16 of the front follower plate 17 is located above and slightly inward relative to the pivot 15 of the drawer front 14. Consequently, when the drawer front 14, with the front

follower plate latched thereto, is swung inwardly to its closed position, the different arcs of swinging movement of the latch element 19 and the keeper 20 result in lifting and release of the former relative to the latter. The springs 18 then act to swing the front follower plate 17 inwardly relative to the drawer front 14 as shown in Figure 2 of the drawings so that said front follower plate exerts rearwardly directed pressure against material contained in the drawer 11.

Rigid with the drawer front 14 at each side thereof and extending rearwardly therefrom is a wing 21, while rigid with each side 12 of the drawer 11 near the front end thereof and extending inwardly therefrom is a stud or pin 22. Reinforcing angles 21*a* are preferably employed on the corners between the wing and the inner plate of the drawer head to prevent tendency of the wings to bend at their junction with the plate.

Disposed at the outer side of and pivoted at its front end to each wing 21 near the front end of the latter, for vertical swinging movement, is a drawer front latch element 23 which has extending inwardly therefrom, through an opening 24 in its related wing 21, an arm 25 to which is fixed the upper end of a leaf spring 26 the lower or free end portion of which is engaged with the front face of the front follower plate 17. The inner plate of the drawer head 14 preferably has a slot 26*a* into which the tail end of the spring may move when the plate 17 is moved by the drawer contents to a substantially upright or vertical position.

By engagement of their lower or free ends with the front follower plate 17, the leaf springs 26 are maintained under forward flexure and thereby tend constantly to swing the latch elements 23 downwardly. In this connection and as shown in the drawings, the latch elements 23 are arranged to ride over the studs or pins 22 when the drawer front is being closed and at their bottoms have recesses 27 to receive said pins when said drawer front is fully closed. Further in this connection and as shown in the drawings, the recesses 27 are inclined downwardly and rearwardly at their rear ends so that as the latch elements 23 are urged downwardly by the leaf springs 26 when the drawer front 14 is closed, camming or wedging actions occur between the pins 22 and the edges defining the rear ends of the recesses 27 whereby the drawer front is maintained tightly closed.

The drawer front latch elements 23 may be of lengths such that their inner end portions remain upon the studs 22 when the drawer front 14 is fully open, or they may be of lengths, as shown, such that when the drawer front is fully open their inner end portions are disposed forwardly of said studs 22 and rest upon suitable supports 28 projecting inwardly from the drawer sides 12. In any event, the leaf springs 26 obviously serve not only to urge the latch elements 23 downwardly whereby the drawer front is maintained tightly closed, but assist the springs 18 in urging the front follower plate 17 rearwardly when the drawer front is closed.

Carried by and projecting inwardly from each of the side walls 12 of the drawer 11 is a pin 29, while carried by and projecting outwardly from each of the wings 21 is a pin 30. The pins 29 are disposed above the pins 30 and between each pair 29 and 30 of said pins is interposed a coil spring 31, the ends of which are engaged with said pins, respectively. The

said pins are arranged so that when the drawer front 14 is fully open the pins 30 are disposed forwardly of straight lines extending between the pins 29 and the drawer front pivot 15 and so that when the drawer front is fully closed said pins 30 are disposed rearwardly of such straight lines. Consequently, the said springs 31 act, when the drawer front is fully open, to hold the latter open and, when said drawer front is closed, to assist the leaf springs 26 and the latch elements 23 in maintaining the same closed. Moreover, said springs 31 obviously act advantageously to impart both opening and closing movements to the drawer front as soon as the latter is swung either inwardly or outwardly beyond a neutral position in which the pins 30 are disposed in straight lines extending between the pins 29 and the drawer front pivot 15.

Suitably mounted at its rear end upon each of the wings 21 at the outer side of the latter is a helical bumper spring 32, while carried by each side 12 of the drawer 11 in the path of forward movement of each of said bumper springs is a suitable stop element 33. Thus, when the drawer front 14 is opened, the bumper springs 32 engage the stop elements 33 and both limit and cushion opening movement of the drawer front. In this connection and if desired, the springs 32 may be carried by the drawer sides and the stop elements 33 may be carried by the wings 21. As shown, the bumper springs 32 are mounted on tongues 32' struck outwardly from the wings 21.

Suitably fastened to one side 12 of the drawer 11 is a drawer latch element 34 for cooperation with a keeper 35 carried by the adjacent side of the cabinet 10 to latch the drawer in its closed position. The latch element 34 is of leaf spring form, extends longitudinally relative to the drawer side 12, has at least its front portion located at the inner side of the drawer side and is riveted or otherwise suitably fastened only at its rear end to the drawer side so that its front portion is free to flex inwardly and outwardly. Extending outwardly from the said front portion of said latch element, through an opening 36 in the drawer side 12, is a projection 37 for engagement behind the keeper 35 to latch the drawer closed. The front portion of said latch element tends constantly to assume a position spaced inwardly from the drawer side 12 an amount such that the projection 37 is disposed entirely inwardly with respect to the keeper 35. Consequently, unless the front portion of said latch element is flexed outwardly, the projection 37 will not engage behind the keeper 35.

Projecting outwardly from the wing 21 which is located at the same side of the drawer as the latch element 34, is a cam member 38, which, when the drawer front 14 is open, is disposed forwardly of said latch element 34 so as not to interfere with the latter assuming its normal position in which the projection 37 thereof is disposed inwardly with respect to the keeper 35. Consequently, when the drawer front is open, the latch element 34 is not engageable with the keeper 35 and therefore the drawer is free to be closed and opened. When, however, the drawer front is closed, the cam member 38 is engaged with the front end of the latch element 34 and holds the front portion 34*a* of said latch element flexed outwardly, thereby conditioning said latch element so that when the drawer is closed the

projection 37 of said latch element snaps behind the keeper 35 and latches the drawer closed. In this connection and as will, of course, be understood, the drawer front 14 may be swung closed after the drawer is closed with the same result of latching the drawer closed as would occur by first closing the drawer front and then closing the drawer. Obviously, when the drawer and the drawer front are closed, opening movement of the drawer front releases the latch element 34 so that the latter may spring inwardly from behind the keeper 35 to release the drawer for opening movement.

To insure proper coaction between the drawer latch element 34 and the keeper 35, the side of the drawer opposite to the side thereof which carries said latch element may have, adjacent to the front end thereof, a suitable outwardly directed projection 39 to engage an adjacent side portion of the cabinet 10 when the drawer is closed to urge the drawer as an entirety to its limit of movement toward the other side of the cabinet. Thus, too, any undesirable lateral movement of the drawer relative to the cabinet is avoided when the drawer is closed. As shown, the projection 39 may conveniently be struck outwardly from a saddle plate 39' which may be welded or otherwise suitably fixed to the side of the drawer and by means of which the drawer is supported upon its suspension means.

Figure 4a illustrates a modified arrangement wherein the effect of the projection 39 and one drawer latch 34 may be attained by using a pair of latches 34b and thus eliminate the projection 39. That is to say, instead of using projection 39 to insure lateral shifting of the drawer to take up side play and insure the coaction between the latch element and its keeper, as described above, two latches 34b and two keepers 35a may be used. Thus, under all normal side movement of the drawer in the case, the same will be latched therein when closed.

In connection with the spring drawer latches 34a or 34b, it is preferable to use a booster spring 34c to assist in disengaging the projection 37a from the keeper 35a upon the opening of the drawer. As will be seen from the drawer latch 34 in Fig. 4, the rear end is secured to the drawer side while the free front end 34a tends to spring inwardly when the cam 38 moves away to release 37 from 35. When the drawer latch of Fig. 4 remains flexed outwardly under the influence of cam 38 over long periods of time, it is possible that the latch shank, including projection 37, will lose its original spring effect so that when the drawer head is opened and the cam 38 moves away the projection 37 will not immediately clear the keeper 35, and prevent free opening of the drawer.

The above possibility is eliminated by the use of the booster spring 34c disposed between the inner face of the free end latch 34a and the inner face of the side wall of the drawer. Thus, when cam 38 moves away from the free end of the latch the booster spring 34c retracts the projection 37a into opening 36 and insures 37a clearing its related keeper.

The drawer head or drawer front 14 is composed of an inner plate 40 and an outer finishing plate 41. The inner plate 40 carries the wings 21 and the keeper 20 and is the part of the drawer front which is directly hinged to the drawer. At its top and sides said inner plate has forwardly directed flanges 42 which serve to

stiffen said inner plate and to act as spacers for the outer finishing plate 41, while at the bottom of said inner plate is a downwardly directed flange 43.

At its sides, top and bottom the outer plate 41 is marginally turned rearwardly, as indicated at 44, and then inwardly, as indicated at 45, to stiffen said plate and to provide top and bottom inwardly opening channels 46 to accommodate the top marginal portion and the bottom flange 43, respectively, of the inner plate 40. Said outer plate is assembled with said inner plate by engaging the top marginal portion of the inner plate in the top channel 46 of the outer plate, by then moving said outer plate first downwardly and then upwardly relative to said inner plate to engage the flange 43 of the inner plate in the bottom channel of said outer plate, and by then securing the two plates together by the usual drawer pull designated as 47. To remove said outer plate from said inner plate, the procedure mentioned simply is reversed. Between the two plates 40 and 41 may be interposed a pad 48 of asbestos or equivalent fire resistant material to protect the contents of the drawer 10 in the event of fire.

If desired, the outer plate 41 may have tabs 49 at its sides to be fastened by screws 50 to the wings 21 to assist in fastening said outer plate securely to the inner plate 40.

The top portions of the drawer sides 12 are turned first inwardly, as indicated at 51, and then downwardly, as indicated at 52, to avoid sharp edges and to provide stiffening and reinforcing formations at the tops of said drawer sides, and as a result of this construction downwardly opening channels 53 are provided at the tops of said drawer sides.

The tops of the wings 21 are curved concentrically relative to the pivotal axis 15 of the drawer front 14 and are disposed to travel in the channels 53 during opening and closing movements of the drawer front 14. In this connection, in order to provide attractive finishes for the tops of the wings 21 and to close the front ends of the channels 53, as well as to cushion final closing movement of the drawer front 14, shield pieces 54 are employed to cover the tops of the wings 21.

The shield pieces 54 are of inverted U-shape in cross section to fit over the tops of the wings 21 and are curved to conform to the curvature of the tops of said wings. Moreover, the outer end portions of said shield pieces are of increasing width, toward their outer ends as indicated at 54a to wedgingly engage in the front end portions of the channels 53 of the drawer sides during the final portion of closing movement of the drawer front 14 so as to cushion closing of the door front.

While the shield pieces 54 may be mounted operatively relative to the wings 21 in any suitable manner, one practical manner of mounting them may reside in providing the same at their front ends with tail portions which are downward extensions 55 of their top walls, and in providing said downward extensions with slots 56 to accommodate tongues 57 provided at the front ends of the wings 21 near the tops of the latter. The downward extensions 55a are preferably flat and engage a non-metallic disk of felt or the like 55b on the inner plate 40 of the drawer front 14 and may be resilient so as to react from said disk and plate 41 to tend constantly to tilt the shield piece 54 upwardly about the tongues 57, thus to main-

tain the tops of said shield pieces constantly engaged with the top walls **51** of the drawer channels **53** so as to avoid unsightly gaps and finger hazard between the tops of said wings and the said top walls of the channels **53** at the front ends of the latter.

A modification of the inner end of the wings is shown in Fig. 6ª, wherein the body **54c** of the wing is provided with a tail piece **54d** which is of longitudinally arched formation so that its intermediate portion covers the non-metallic shock absorbing button **54e** while its extremity enters slot **54f** of the inner plate of the drawer head.

From the foregoing description considered in connection with the accompanying drawings, it is believed that the novel features comprising the invention will be clearly understood and their advantages appreciated. It is desired to point out, however, that while only single structure embodiments of said features have been illustrated and described, the same are readily capable of specifically different structural embodiments within the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A filing cabinet provided at a side thereof with a keeper for a drawer latch, a drawer slidable in said cabinet and provided at a side thereof with a latch for engagement with said keeper to hold the drawer closed, a drawer front swingable between closed and open positions relative to the drawer, spring means effective when the drawer front is open to move said latch to a position in which the latter is ineffective to restrain opening or closing movements of the drawer, and means carried by the drawer front and operable by closing of the drawer front to move said latch to a position in which it engages behind said keeper when the drawer is closed and thus holds the drawer closed.

2. A filing cabinet provided at a side thereof with a keeper for a drawer latch, a drawer slidable in said cabinet and provided at a side thereof with a latch for engagement with said keeper to hold the drawer closed, a drawer front swingable between closed and open positions relative to the drawer, said latch being of leaf spring form and having a normal bias such that it assumes a position in which it is ineffective to restrain opening or closing movements of the drawer when the drawer front is open, and means carried by the drawer front and engageable with said latch when the drawer front is closed to flex said latch to a position in which it engages behind said keeper when the drawer is closed and thus holds the drawer closed.

3. In a filing cabinet, the combination, including a keeper on the inner side of one wall of the cabinet for a drawer latch, a drawer slidable in said cabinet, a latch on one side of the drawer for engagement with said keeper to hold the drawer closed, a drawer front including a side wing swingable between closed and opened positions relative to the drawer, spring means effective when the drawer front is open to move said latch to a position in which the latter is ineffective to restrain opening or closing movements of the drawer, a cam member projecting from said wing and adapted to engage said latch when the drawer front is closed to maintain said latch in engagement with said keeper.

4. A filing cabinet provided at one side thereof with a keeper for a drawer latch, a drawer slidable in said cabinet, a latch at one side of the drawer for engagement with said keeper to hold the drawer closed, a drawer front swingable between closed and open positions relative to the drawer, said latch being of leaf spring form and having a normal bias such that it assumes a position in which it is ineffective to restrain opening or closing movements of the drawer when the drawer front is open, a booster spring leaf secured to the forward end of said leaf spring and having its free end adjacent the latch to augment the normal bias of said spring leaf, and means carried by the drawer front and engageable with said latch when the drawer front is closed to flex said latch to a position in which it engages behind said keeper when the drawer is closed and thus holds the drawer closed.

5. In combination, a filing cabinet provided on one side thereof with a keeper for a drawer latch, a drawer slidable in said cabinet, a latch on one side of the drawer for engaging said keeper to hold the drawer closed, a drawer front swingable between closed and open positions relative to the drawer, said latch being of leaf spring form and having a normal bias such that it assumes a position in which it is ineffective to restrain opening or closing movements of the drawer when the drawer front is open, a plate secured to the side of the drawer opposite the latch, a projection on the plate for engagement with a related side portion of the cabinet when the drawer is closed to urge the side of the drawer having a latch toward its related side portion of the cabinet, and means carried by the drawer front and operable by closing of the drawer front to move said latch to a position in which it engages behind said keeper when the drawer is closed and thus holds the drawer closed.

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