

April 24, 1956

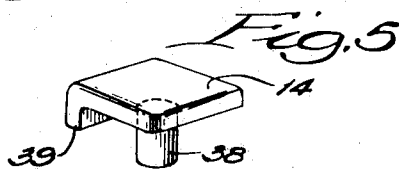
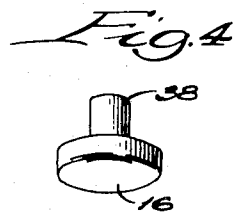
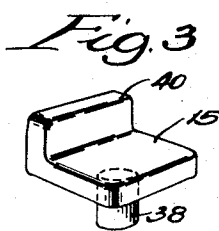
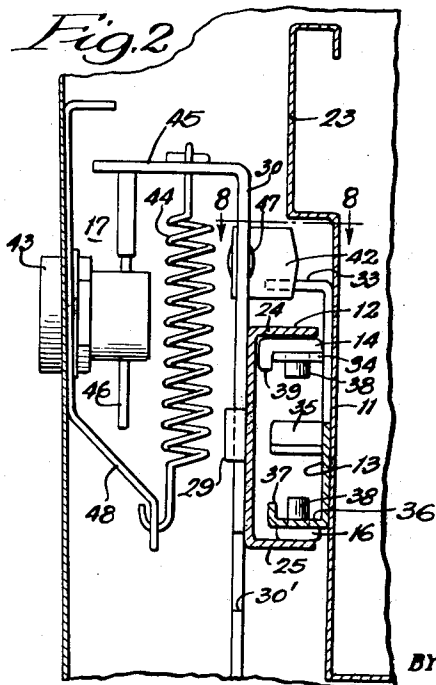
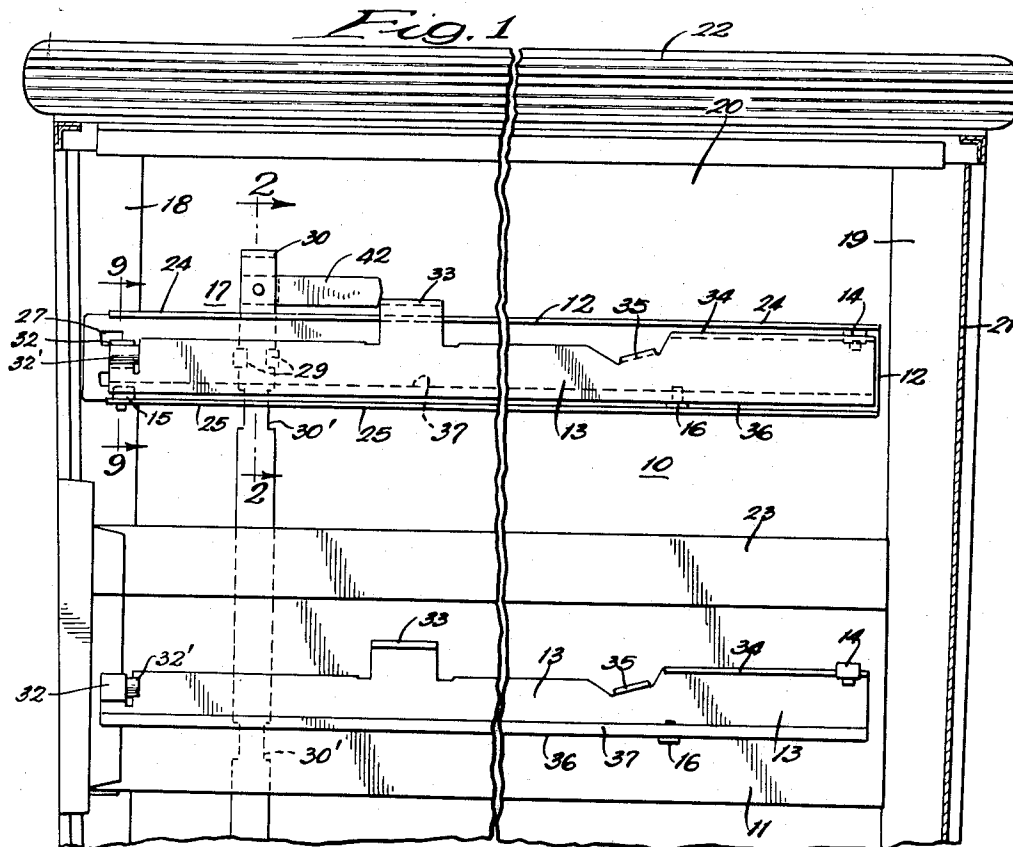
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2,743,149

SLIDING DRAWER CONSTRUCTION

Original Filed Dec. 6, 1949

2 Sheets-Sheet 1



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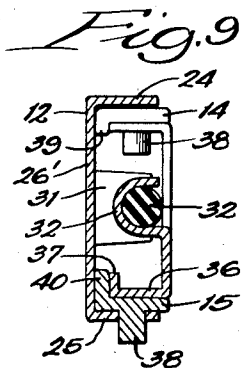
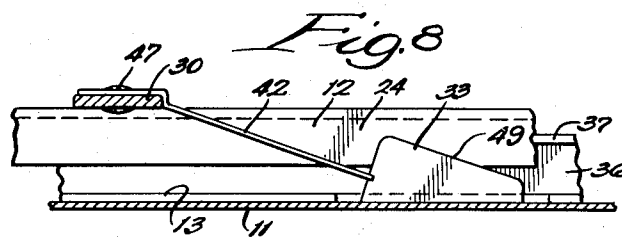
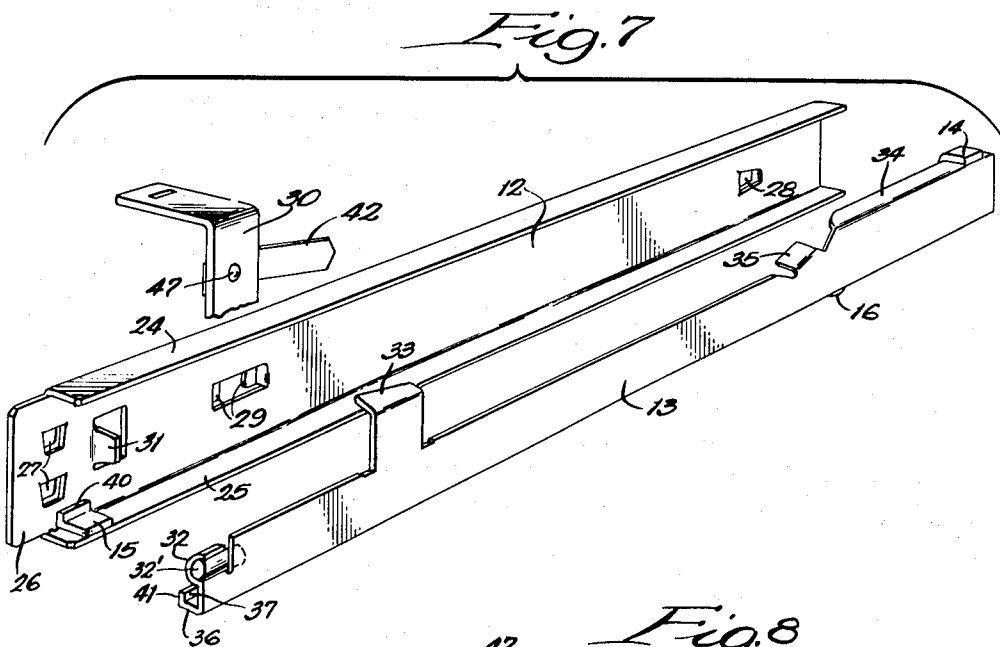
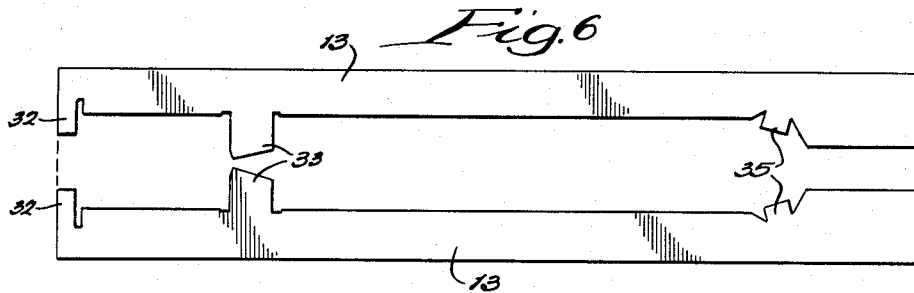
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SLIDING DRAWER CONSTRUCTION

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Original application December 6, 1949, Serial No.
131,400, now Patent No. 2,646,333, dated July 21,
1953. Divided and this application May 22, 1953,
Serial No. 357,776

10 Claims. (Cl. 312—219)

This invention relates to drawer slides, particularly those used in desks and cabinets and is a division of application Serial No. 131,400 filed December 6, 1949, now Patent No. 2,646,333, granted July 21, 1953.

The main objects of this invention are to provide improved means for slidably supporting a drawer on housing guides so as to render the sliding movement of the drawer quiet and facile; to provide an improved construction and arrangement of special composition buttons on the drawer slides and the housing guides to carry the weight of the drawer in its sliding movements; to provide an improved form and manner of stamping the drawer slides which minimizes the waste of material; to provide improved locking means, which, when shifted into locking position, individually secures against subsequent opening all of several closed drawers even if one of the several drawers is open and which drawer upon being closed is also secured against opening pending a retraction of the locking means; and to provide a drawer mounting and locking means of this kind which is economical to manufacture and highly efficient in use.

In the particular embodiment shown in the accompanying drawings:

Fig. 1 is a fragmentary, vertical, sectional elevation of a desk pedestal showing the drawer slide and guide channel mountings and the locking means for a tier of drawers;

Fig. 2 is an enlarged, fragmentary, cross-sectional detail of the locking means, taken on the line 2—2 of Fig. 1;

Figs. 3, 4 and 5 are perspective views of the several forms of composition buttons which slidably support the drawers for movement on the desk pedestal;

Fig. 6 is a plan view showing how the right and left drawer slides are cut from a single piece of sheet material with a minimum amount of waste;

Fig. 7 is an exploded perspective of a drawer slide and pedestal guide channel and a part of the locking means for one drawer constructed in accordance with this invention;

Fig. 8 is an enlarged, fragmentary plan view showing the locking detent whereby a drawer is secured in its closed position by the locking means; and

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 1.

The improved sliding drawer construction embodying this invention is shown applied to a metal desk having pedestals 10, one of which is shown, and is adapted to slidably mount a tier of drawers 11 through the coaction of guide channels 12 and drawer slides 13, the latter being equipped with specially formed drawer-support buttons 14, 15 and 16, and which drawers may be secured in their closed positions by a locking mechanism, generally designated 17.

The pedestal 10 may be of any suitable construction. It is herein shown as formed of sheet metal and comprises pairs of front and rear uprights 18 and 19 between which extend sheet metal panels 20 and 21 and upon which rests a desk top 22.

The drawer 11, wherewith this invention is associated, is also preferably sheet metal. It is formed in the usual manner with a depth and width dependent upon the size of the pedestal 10 and the number of drawers arranged therein. Along its upper edges, the drawer is formed with reinforcing rims 23 (see Fig. 2).

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The guide channels 12, as herein shown, are right and left sheet metal stampings. A pair for each drawer is secured in opposed relationship on the pedestal uprights 18 and 19. At the forward ends of these guides 12 the transverse flanges 24 and 25 terminate short of the end of the channel base 26, as most clearly shown in Fig. 7.

Various lugs are struck out from the base 26 of each of the guides 12. The pairs of lugs 27 at the forward end and a lug 28 at the rear end provide for attachment of each guide channel to the pedestal legs. The pairs of lugs 29 provide support for a locking bar 30, forming a part of the locking mechanism 17, as will be described more fully hereinafter. The lug 31 provides a stop for limiting the outward movement of the drawer 11.

The drawer slides 13 are likewise right and left sheet metal stampings, as shown in Fig. 6. As indicated, a pair of slides is cut from a single piece of material, the part between the slide stampings 13 being usable for other purposes such as, for example, forming the locking bar 30. Each of the slides 13 is formed with spaced extensions or projections along one side face which are subsequently formed to provide a socket 32 at the forward end for retaining a cylindrical cushioning element 32' abutting the stop 31 as the drawer 11 reaches its fully closed position, a stop 33 for coacting with the locking mechanism 17, an upper flange 34 at the rear end, and a backwardly inclined shoulder 35 coacting with the lug 31 on the guide channels 12 for limiting the outward movement of the drawer, but which permits the drawer to be removed when properly tilted upwardly. This is possible because the drawer slide is cut away at its forward end, so that when the drawer is moved outwardly against the stop 31, it may then be tilted upwardly to cause the shoulder 35 to clear the stop 31, whereupon the drawer may be removed from the desk pedestal. Upon replacing the drawer, the backwardly inclined shoulder 35 cams over the stop 31, and the drawer then drops to level position, whereupon the drawer cannot be inadvertently pulled from the pedestal. The lower perimetrical portion of each drawer slide is bent to form a base flange 36 transverse to the main part of the slide 13 and an auxiliary flange or ledge 37 disposed parallel to the main part of the slide 13.

Because the contact of the drawer slides 13 and guide channels 12 is confined to the buttons 14, 15 and 16 only a short upper flange 34 is required. The elimination of the perimetrical portion forwardly of the flange 34, except for the extensions which form the stop 33 and the shoulder 35, saves material and contributes to lightening overall weight.

The buttons 14, 15 and 16 provide the only points of contact between the guide channels 12 and the drawer slides 13. Their purpose is to make the sliding of the drawers much easier and more quiet than is afforded by the conventional direct metal-to-metal sliding contact. To that end, these buttons are formed of a material that has an inherent quality of lubricity so that they provide a smooth, slippery contact with the metal parts which they contact. The synthetic substance commonly known as "nylon" has been found to possess this quality of lubricity to a very acceptable degree, and in this particular embodiment, the buttons 14, 15 and 16 are formed of that material. The result is a drawer which shifts with the ease and quietness comparable to that obtained by the use of roller bearings. However, the cost of construction is materially less than that of a roller bearing construction. Each button is formed with a stem 38, which is insertable with a tight fit in a suitable opening in either the drawer slide 13 or guide channel 12 for anchoring the buttons to the respective parts.

A button 14 is secured to the upper face of the flange 34 of each of the drawer slides 13 at the rear ends thereof with the flange 39 on the button 14 extending over the

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edge of the flange 34 and contacting the base 26 of the opposed guide channel 12. A button 15 is arranged on the upper face of the flange 25 of each of the guide channels 12 adjacent the forward ends, with the button flange 40 abutting the base 26 of the respective guide channel 12 and providing contact with the face 41 of the auxiliary flange 37 of the opposed drawer slide 13. The flange 37 makes it possible for a smooth face of the drawer channel to ride against the lip or flange 40 of the button 15, with the result that friction and noise is held to a minimum. When desired, a button 16 also may be secured to the underface of the flange 36 on each of the drawer slides 13, slightly inward from the rear end of the slide, so as to bear on the inner face of the flange 25 of the opposed guide channel 12.

The positioning of the button 16 with relation to the button 14 on the drawer slide 13 is of some importance. The present invention provides a minimum clearance between the guide channels 12 and drawer slides 13 when the buttons 14, 15 and 16 are in place, as shown in Fig. 9. This clearance permits the drawer slides to move freely with respect to the guide channels, but without undue looseness. Due to the close tolerances, the buttons 14 and 16 must be spaced a sufficient distance apart so that when removing or replacing the drawer, it may be tilted upwardly a sufficient amount to avoid conflict between the button 16 and the button 15.

The locking mechanism 17 comprises the locking bar 30, where to is attached a detent 42 for each drawer 11 in the pedestal 10, and which bar is operatively connected to a lock 43 and normally urged by a spring 44 into its locking position.

The locking bar 30 is slidably supported between the flanged lugs 29 on the several channel guides 12 on one side of the pedestal 10. The upper end of the bar is bent at right angles to provide an arm 45 which is connected to a locking bolt 46 for the lock 43. Recesses 30' (see Fig. 1) are formed in the edges to permit the insertion of the bar 30 into the flanged lugs 29.

The detents 42 are preferably spring metal, each being anchored at one end to the locking bar 30 by one or more rivets 47. From the point of its fastening, each detent 42 is angularly disposed to the line of travel of a drawer 11 (see Fig. 8) so that the end of the detent is normally disposed in the path of travel of the stop 33 on the respective drawer. Hence, when the bar 30 is depressed, each detent 42 will engage its respective stop 33 and secure the corresponding drawer against being opened.

Being so formed and positioned, these detents 42 permit the operation of the locking bar 30 to secure any drawer in its closed position, notwithstanding the fact that one or more of the other drawers may be in a partially open position at the time the lock 43 is operated. If, when the bar 30 is thus shifted, a drawer is partially open, a subsequent closing of the drawer will cause the inclined surface 49 on the stop 33 to deflect the detent 42 to permit the closing of the drawer, whereupon the detent 42 will spring into position shown in Fig. 8, to secure such drawer, along with the others, in its closed position.

The lock 43 may be of any suitable form. Preferably, it is mounted on the inner pedestal wall near the front so as to be conveniently accessible to one sitting at the desk.

The spring 44 is connected at one end to the arm 45 of the locking bar 30 and at the other end to a bracket 48 secured to the pedestal side 20 adjacent the lock 43.

Obviously, the invention may be variously embodied within the scope of the appended claims.

We claim:

1. A sliding drawer construction comprising, a housing having a drawer compartment, a drawer shiftable in said compartment, slides secured to the sides of said

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drawer, slide-receiving guide channels secured to said housing, a latch bar mounted on said housing for vertical shifting to and from a locking position, means operatively connected to said latch bar to shift the latter to and from said locking position, a vertically projecting stop on one of said slides movable through a fixed path with the shifting of said drawer in said compartments, and a detent on said latch bar movable with the vertical shifting thereof into and out of the path of said stop to lock said drawer against movement on said guides.

2. A sliding drawer construction comprising, a housing having a drawer compartment, a drawer shiftable in said compartment, slides secured to the sides of said drawer, slide-receiving guide channels secured to said housing, a latch bar mounted on said housing for vertical shifting to and from a locking position, means operatively connected to said latch bar to shift the latter to and from said locking position, a vertically projecting stop on one of said slides movable through a fixed path with the shifting of said drawer in said compartment, and a detent on said latch bar movable with the vertical shifting thereof into and out of the path of said stop to lock said drawer against movement on said guides, said latch bar shifting means including a spring anchored to said housing and normally biasing said latch bar in one direction.

3. A sliding drawer construction comprising, a housing having a drawer compartment, a drawer shiftable in said compartment, slides secured to the sides of said drawer, slide-receiving guide channels secured to said housing, a latch bar mounted on said housing for vertical shifting to and from a locking position, means operatively connected to said latch bar to shift the latter to and from said locking position, a vertically projecting stop on one of said slides movable through a fixed path with the shifting of said drawer in said compartment, and a resilient detent on said latch bar movable with the vertical shifting thereof into and out of the path of said stop to lock said drawer against outward movement on said guides and resiliently displaceable by said stop when said drawer is closed following the shifting of said lock bar into locking position.

4. A desk comprising, a drawer-containing pedestal, a bank of vertically spaced drawers positioned for shifting within said pedestal, slides secured to the sides of each of said drawers, slide-receiving guide channels secured to said pedestal, a vertically disposed latch bar slidably supported on the guide channels on one side of said pedestal, a lock mounted on said pedestal and operatively connected to shift said latch bar, a vertically projecting stop on one of said slides for each of said drawers movable through a fixed path with the shifting of the respective drawer, and a plurality of detents secured to said latch bar in vertically spaced relationship and movable therewith to locate one of said detents in the path of each of said stops to secure the respective drawers against movement on said guide channels.

5. A desk comprising, a drawer-containing pedestal, a bank of vertically spaced drawers positioned for shifting within said pedestal, slides secured to the sides of each of said drawers, slide-receiving guide channels secured to said pedestal, and having horizontally-spaced opposed flanged lugs struck out from the base of the guide channels on one side of said pedestal, a vertically disposed latch bar slidably supported on said flanged lugs for vertical shifting to and from a locking position, means operatively connected to said latch bar to shift the latter to and from said locking position, a vertically projecting stop on one of said slides for each of said drawers movable through a fixed path with the shifting of the respective drawer, and a plurality of detents secured to said latch bar in vertically spaced relationship and movable therewith to locate one of said detents in the path of each of said stops to secure the respective drawers against movement on said guide channels.

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6. A sliding drawer construction comprising; a housing having a drawer compartment; a drawer shiftable in said compartment; a horizontally-disposed guide channel fixed on each side of said housing, at least one of said guide channels being formed with a stop lug adjacent the front end; and a slide on each side of said drawer; each of said slides being formed with a flange along the entire lower edge, and a transverse flange along the upper edge at the rear end thereof for reception in the opposed guide channel; and at least one of said slides being formed with a shoulder flange slightly forwardly of the front of said transverse upper flange, said shoulder flange being at the level of said stop lug; whereby the shoulder flange and the stop lug coact to prevent the drawer from being completely removed by a simple sliding motion but permit complete removal by lifting the front end of the drawer so that the shoulder flange clears the stop lug.

7. A sliding drawer construction comprising; a housing having a drawer compartment; a drawer shiftable in said compartment; a horizontally-disposed guide channel fixed on each side of said housing; at least one of said guide channels being formed with a stop lug adjacent the front end; and a slide on each side of said drawer; each of said slides being formed with a flange along the entire lower edge, and a transverse flange along the upper edge at the rear end thereof for reception in the opposed guide channel; and at least one of said slides being formed with a backwardly inclined shoulder flange slightly forwardly of the front of said transverse upper flange, the lower end of the shoulder flange being at the level of the stop lug and the upper end of the shoulder flange being above the level of the stop lug; whereby the lower end of the shoulder flange and the stop lug coact to prevent the drawer from being completely removed by a simple sliding motion but permit complete removal by lifting the front end of the drawer so that the shoulder flange clears the stop lug and whereby the replacement of the drawer is facilitated by the camming action between the inclined shoulder flange and the stop lug.

8. A sliding drawer construction comprising; a housing having a drawer compartment; a drawer shiftable in said compartment; a horizontally-disposed guide channel fixed on each side of said housing; at least one of said guide channels being formed with a stop lug adjacent the front end; a slide on each side of said drawer; each of said slides being formed with a flange along the entire lower edge, and a transverse flange along the upper edge at the rear end thereof for reception in the opposed guide channel; and at least one of said slides being formed with a backwardly inclined shoulder flange slightly forwardly of the front of said transverse upper flange, the lower end of the shoulder flange being at the level of the stop lug and the upper end of the shoulder flange being above the level of the stop lug; a socket formed in the forward end of said slide; and a backwardly extending cushioning element in said socket, said socket being at the same level as said stop lug; whereby the lower end of the shoulder flange and the stop lug coact to prevent the drawer from being completely removed by a simple sliding motion but permit complete removal by lifting the front end of the drawer so that the shoulder flange clears the stop lug and whereby the replacement of the drawer is facilitated by the camming action between the inclined shoulder flange and the stop lug and the cushioning action between the socket and the stop lug.

9. For use in mounting a sliding drawer in shiftable relation in a drawer compartment of a housing that includes a lock for said drawer; a combined suspension and locking mechanism comprising guide channel means adapted for attachment to the side of said housing and adapted for supporting a latch means and a slide means in cooperative relation thereon, said latch means being operatively associated with said lock, said slide means being adapted for attachment to the side of said drawer; wherein said guide channel means has a base with hori-

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zontally spaced opposed flanged lugs struck out therefrom, said lugs supporting said latch means for vertical sliding movement under the control of said lock; and wherein said slide means is formed with a flange along the entire lower edge, said slide flange being turned upward along its perimeter to provide an auxiliary flange disposed parallel to the body of said slide means and opposed to and in substantially parallel relation with the base part of said guide channel means, and a transverse flange along the upper edge at the rear end thereof for reception in the said guide channel means, said slide means also being formed with a stop flange extending above said corresponding guide channel means whereby said stop flange moves through a fixed path with the shifting of said drawer; and wherein said latch means is formed with a resilient detent movable with the vertical shifting thereof into and out of the path of said stop flange to lock said drawer against movement on said guide channel means.

10. For use in mounting a sliding drawer in shiftable relation in a drawer compartment of a housing that includes a lock for said drawer; a combined suspension and locking mechanism comprising guide channel means adapted for attachment to the side of said housing and adapted for supporting a latch means and a slide means in cooperative relation thereon, said latch means being operatively associated with said lock, said slide means being adapted for attachment to the side of said drawer; wherein said guide channel means has a base with horizontally spaced opposed flanged lugs struck out therefrom and a stop lug adjacent the front end, said flanged lugs supporting said latch means for vertical sliding movement under the control of said lock; and wherein said slide means is formed with a flange along the entire lower edge, said slide flange being turned upward along its perimeter to provide an auxiliary flange disposed parallel to the body of said slide means and opposite to and in substantially parallel relation with the base part of said guide channel means, and a transverse flange along the upper edge at the rear end thereof for reception in the said guide channel means; said slide flange also being formed with a backwardly inclined shoulder flange slightly forwardly of the front of said transverse upper flange, the lower end of the shoulder flange being at the level of the stop lug and the upper end of the shoulder flange being above the level of the stop lug; a socket in the forward end of said slide means for receiving a backwardly extending cushioning element, said socket being at the same level as said stop lug; whereby said shoulder flange coacts with said stop lug and said stop lug also coacts with said cushioning element to control the removal and replacement of said drawer; said slide means also being formed with a stop flange extending above said corresponding guide channel means whereby said stop flange moves through a fixed path with the shifting of said drawer; and wherein said latch means is formed with a resilient detent movable with the vertical shifting thereof into and out of the path of said stop flange to lock said drawer against movement on said guide channel means.

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