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3,377,115

DRAWER CONSTRUCTION

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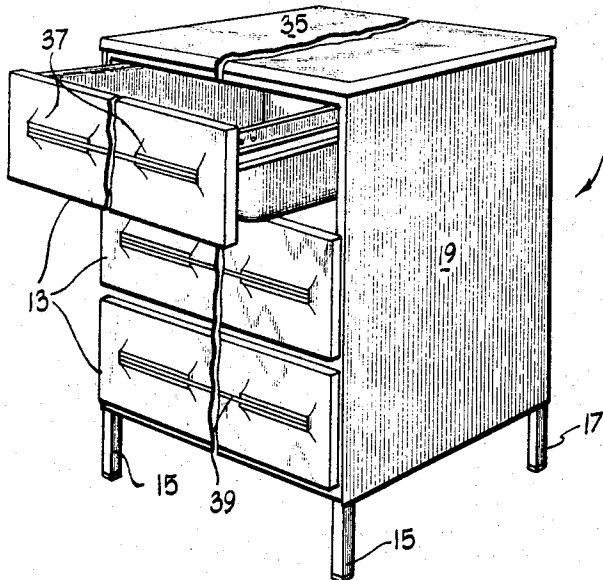
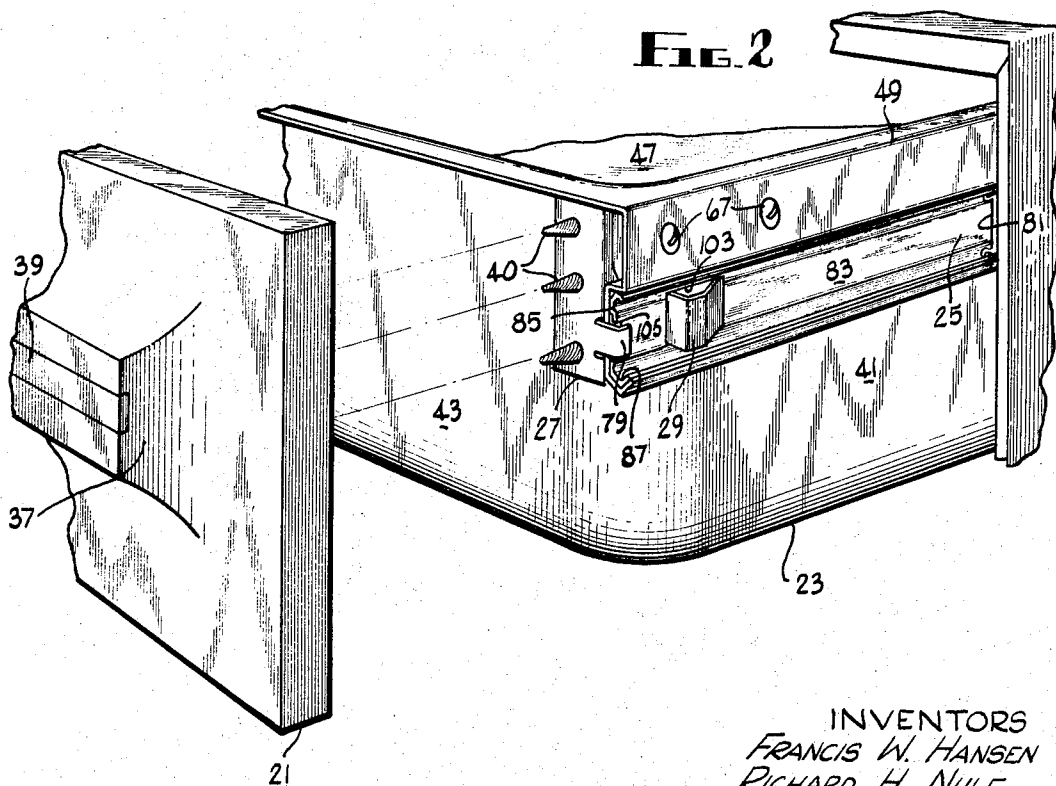


FIG. 1



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Fig. 3

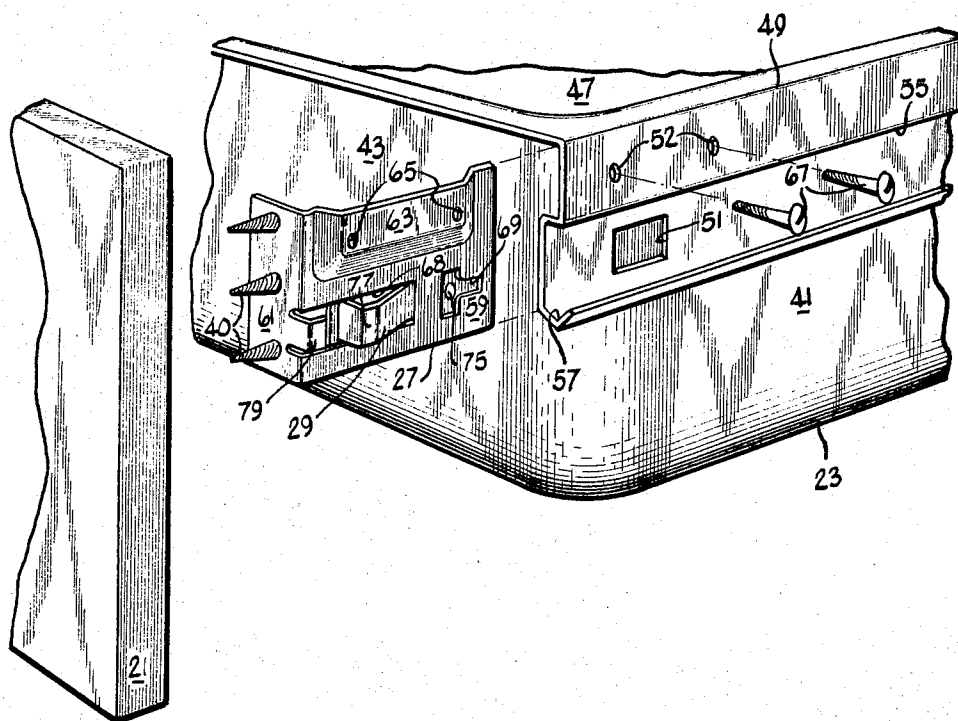
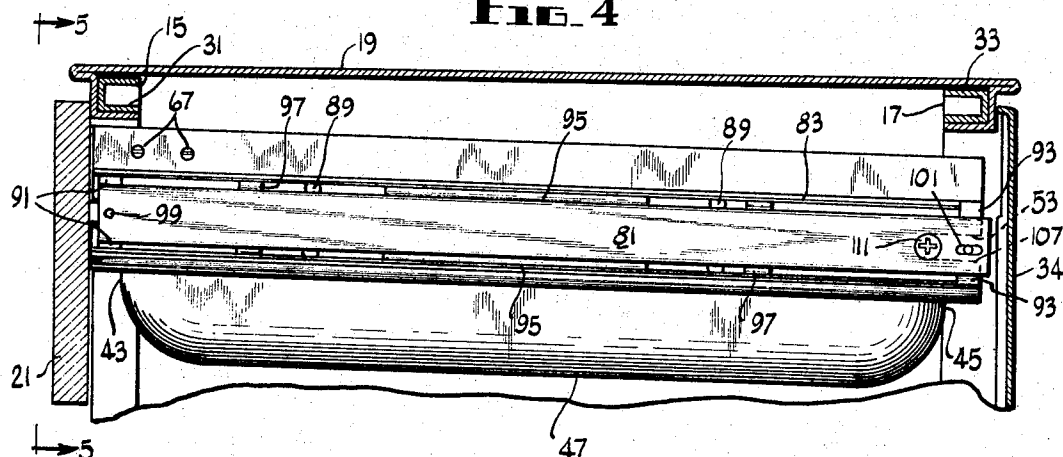


Fig. 4



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FIG. 5

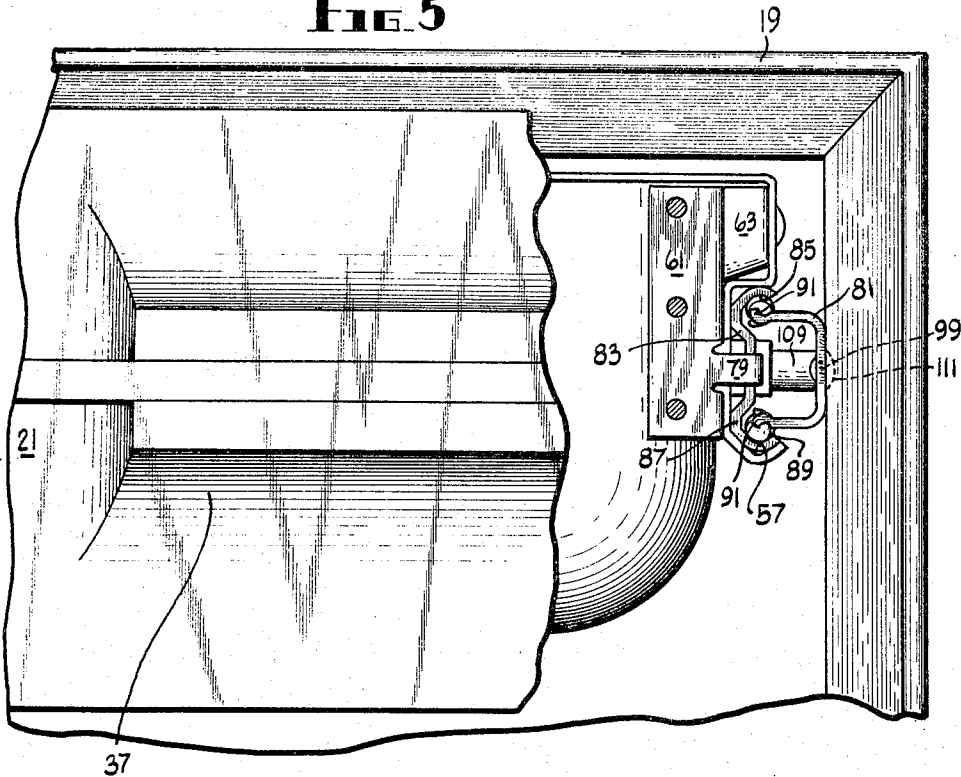


FIG. 7

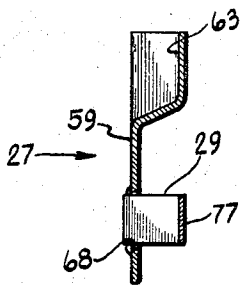
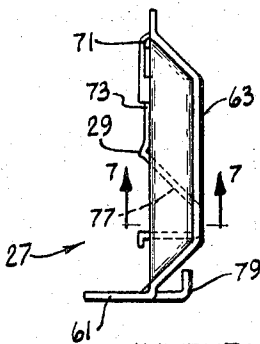


FIG. 6



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DRAWER CONSTRUCTION
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ABSTRACT OF THE DISCLOSURE

A drawer having integral depending side flanges formed with longitudinally extending seats for one of a pair of telescoping members. The fixed telescoping member is secured to the interior of the cabinet shell. The movable telescoping member is demountably latched in the seat by a spring leaf which is a part of a bracket that unites the front panel to the drawer shell and permits easy removal of the drawer from the cabinet. The removable runner unit may include a pair of facing channel members with bearing balls residing in upper and lower tracks formed in the facing flanges thereof.

The present invention relates to improvements in metal cabinetry, and more particularly to an improved drawer assembly especially designed for ease of installation, operation, and removal for maintenance, and for ready adaptability to varied frontal decorative treatment, as design preference may dictate.

These objects are accomplished by a structure in which a drawer shell is provided with integral downwardly extending side flanges which are formed to provide longitudinal seats for the movable one of a pair of telescoping drawer runner tracks with which the drawer shell is maintained in demountable assembly by means of a spring latch. The latch is formed as part of a front bracket by means of which a variety of decorative drawer fronts may be chosen for assembly with the drawer shell. The following detailed description of the preferred embodiment should be read in conjunction with the accompanying drawings wherein:

FIGURE 1 is a front perspective view of a three-drawer cabinet embodying the invention;

FIGURE 2 is an enlarged fragmentary exploded perspective view of the upper righthand portion of the cabinet shown in FIGURE 1;

FIGURE 3 is a view similar to FIGURE 2 showing a further exploded condition;

FIGURE 4 is a righthand elevational view of the top drawer in the cabinet in FIGURE 1 shown in its retracted position in the cabinet, with portions of the cabinet shown in section and other portions broken away;

FIGURE 5 is an enlarged fragmentary front elevational view of the upper portion of the cabinet shown in FIGURE 1 with a portion of the front panel of the drawer broken away;

FIGURE 6 is a plan view of the mounting bracket portion of the drawer assembly shown in FIGURE 5; and

FIGURE 7 is a sectional view taken along line 7-7 of FIGURE 6.

Illustrated in FIGURE 1 is a cabinet or chest of drawers 11 which has three drawers 13, the upper of which is shown partly extended. The cabinet 11 is supported by four legs which are the lower ends of four tubular posts 15 and 17. The front tubular posts 15 and the rear posts 17 form parts of front and rear peripheral frames, respectively, which, when suitably united with a wrap-around shell 19, form the body of the cabinet 11.

Each drawer 13 is basically an assembly of a front decorative panel 21, a drawer body or shell 23 and a pair of side runner units 25. The runner units 25, which sus-

pend the drawer in the cabinet structure, each comprise a pair of telescoping members, one of which is suitably attached, front and rear, to adjacent inner surfaces of the tubular posts 15, 17 of the front and rear peripheral frames, thereby structurally interconnecting these frames and adding rigidity to the construction of the cabinet 11 as a whole. The other telescoping member is detachably latched to the drawer body 23 in a manner which permits the runner unit 25 to be first mounted in the cabinet shell and the drawer 13 subsequently mated thereto. The front decorative panel 21 carries a pair of mounting brackets 27 on the rear surface thereof, one at each side. These mounting brackets each include a spring leaf 29 which assists in the initial attachment of the front panel 21 to the drawer body 23 and also accomplishes the detachable latching of the runner unit 25 to the drawer body.

The construction of the cabinet 11 is described in more detail in our copending patent application Ser. No. 618,868, filed concurrently with this patent application and is detailed here only to the extent necessary to describe the mounting of the drawers 13 therein.

As earlier indicated, the cabinet 11 basically is made up of a pair of front and rear peripheral frames and the wrap-around case body 19 which is roll-formed out of suitable sheet metal that is coated, if desired, with a protective finish or with an attractive lamination, such as vinyl sheet material. In FIGURE 1, the cabinet is shown as being split down the middle simply to represent that the drawers 13 and cabinet 11 may be constructed to have any desired width.

As best seen in FIGURE 4, the front peripheral frame is constructed by interconnecting the tops of the front posts 15 via a rearwardly open channel 31. Another similar channel (not shown) interconnects the two front posts 15 at a location immediately below the lowest drawer. The rear frame is of similar construction, the tops of the rear posts 17 being interconnected by a channel 33. A rear panel 34 closes the back of the cabinet 11. The flat top of the wrap-around shell 19 may be used as the upper surface of the cabinet 11, as seen in FIGURE 4. Optionally, as shown in FIGURE 1, a separate decorative top panel 35 may be suitably attached, as by cementing, atop the upper surface of the case body 19 to provide a more decorative appearance or to provide an upper surface of a different material than that of the case body.

The front panel 21 may be made of any suitable material, as for example, wood, metal or plastic. The front panel 21 illustrated is vacuum-formed shell of thermoplastic material mounted on a wood core and incorporates on its front face a pair of smoothly contoured bosses 37 which support an integrally-mounted drawer pull 39. The pair of mounting brackets 27, which join the front panel to the drawer shell and are secured to the rear surface of the front panel 21 by screws 40, are described in more detail hereinafter.

The drawer body 23 is a deep-drawn sheet metal shell having sidewalls 41, a front wall 43, a rear wall 45 and a bottom 47 which meet one another in smooth curves which eliminate hard-to-clean corners and make the shell easy to sterilize.

The drawer shell has a metal flange extending laterally outward from each sidewall 41 having a depending skirt portion, which is spaced from the sidewall 41 and formed to provide a channel-shaped recess or seat 55, which extends longitudinally therein parallel to the top of the sidewall 41, to receive the drawer runners. The top of the seat is flat and the bottom is V-shaped to provide interlocking engagement with the drawer runners. The vertical wall of the seat 55 is punched to provide a front rectangular aperture 51, and a rearwardly open-slot 53 (FIG. 4). Holes 52 punched in the skirt above the seat

are used to fasten the mounting brackets 27 to the drawer shell.

The right- and lefthand mounting brackets 27 are mirror images of each other, and only the righthand mounting bracket which is best seen in FIGURES 3, 6 and 7 is described in detail. The mounting bracket 27 may be formed from sheet metal to have a main body portion 59 which is insertable between the outer surface of the vertical side-walls 41 of the drawer and the adjacent side flange 49. The front of the bracket is bent at about 90° to the body portion 59 to form a front flange 61 with three vertically aligned holes through which the screws 40 pass to secure the bracket to the rear surface of the front panel 21.

The body portion of the bracket 27 is generally flat and, when installed, abuts the surface of the web of the channel-shaped seat 55. However, to assure snug installation of the bracket, a boss 63 is formed in the body portion to provide an offset flat vertical surface which will abut the adjacent inner surface of the side flange 49 in the location immediately above the runner seat 55. A pair of holes 65 in the surface of the boss 63 register with the holes 52 in the side flanges 49 to facilitate securing the brackets 27, and correspondingly the front panel 21, to the drawer body 23 by sheet metal screws 67.

The spring leaf 29 is carried by the lower portion of the mounting bracket 27. For this purpose, a generally rectangular aperture 68 is provided in the front half of the body portion 59, and rearward thereof the body portion is lanced and then deformed to provide a generally T-shaped opening 69 and an offset surface 71 of the same shape (FIG. 6). The opening and offset provide a slot into which a straight shank portion 73 of the spring leaf 29 can be inserted so that it will reside between the offset T-shaped portion 71 and the flat vertical surface of the body portion 59. The spring leaf 29 may be secured in this location in any suitable manner, as by punching a hole in the shank 73 which accepts an upstanding nib 75 formed in the offset surface 71.

The forward portion of the spring leaf 29 serves as a spring-biased latch 77 which extends through the rectangular opening 68. It is noted that, while the front surface of the latch portion 77 is transverse to the drawer, the rear surface is slanted to provide a camming action when the front panel 21 and brackets 27 are installed. This camming action displaces the spring latches 77 inward toward the sidewalls 41 of the drawer body until they reach the rectangular apertures 51 in the side flanges 49 and protrude therethrough. Formed in the body portion 59 of the bracket immediately forward of the rectangular opening 68 is a positioning ear 79. The latches 77 and the ears 79 also serve to properly locate the brackets 27 with the holes 65 in approximate registration with the holes 52 in the side flanges 49 of the drawer body.

Each runner unit 25 includes a pair of telescoping generally channel-shaped members, an inner stationary channel 81, and an outer movable channel 83. As perhaps best seen in FIGURE 5, the flanges of the channel members are bent to provide facing concave grooves in the outer surfaces of the inner channel 81 and in the inner surfaces of the outer channels 83. When the channels are in assembled position, these concave grooves, which run substantially the entire length of the channel members, face each other and provide an upper track 85 and a lower track 87 within which bearing balls 89 are located. To prevent the bearing balls 89 from escaping from their respective tracks, portions of the flanges of the inner channel 81, at the forward end of the channel, are bent to form front tabs 91 that extend into the regions of the upper and lower tracks 85, 87. Similarly, portions of the flanges of the outer channel 83, at the rearward end thereof, are bent inward to form rear tabs 93 (FIG. 4) which also extend into the region of the upper and lower tracks.

In the illustrated embodiment, a pair of steel bearing balls 89 are provided in each track with a long spacer

95 therebetween and short spacers 97 flanking the opposite sides of the balls 89. The spacers may be made of any suitable material preferably light and self-lubricating, such as nylon. The short spacers 97 prevent the bearing balls 89 from being scarred by contact with the tabs 91 and 93. The long spacers 95 assure that the balls 89 are spaced a sufficient distance apart so as to provide positive assurance against any binding of the channel members while they are in telescoping motion, and they also limit the distance to which the drawers 13 can be extended, as explained more fully hereinafter.

As best seen in FIGURE 4, a hole 99 is provided in the web of the inner channel 81, near the front end thereof, through which the inner channel is mounted to the adjacent front post 15 via a suitable sheet metal screw. An elongated hole 101 is provided in the web near the rear end of the inner channel 81 through which it is mounted, via a suitable screw, to the rear post 17. The web of the outer channel 83 is provided with a rectangular aperture 103 generally similar in size and shape to the aperture 51 in the side flange 49. It is through the aperture 103 that the latch portion 77 of the spring leaf 29 protrudes when the drawer body 23 is detachably latched to the runner unit 25.

The outer channel 83 is proportioned to fit into the seat 55 in the side flange. As previously mentioned, the flanges of the outer channel member 83 are bent to provide inwardly concave surfaces which cooperate to define the upper and lower tracks 85, 87. The resulting outer convex surface of the lower flange of the outer channel 83 is snugly accommodated in the V-shaped groove 57 at the bottom of the seat 55.

The front end of the web of outer channel 83 has formed therein a shallow notch 105 which accommodates the positioning ear 79 of the bracket 27 when the assembly is complete. An open-ended slot 107 is provided at the rear end in the web of the outer channel 83, as shown in FIGURE 4, which registers with the open slot 53 in the seat 55. A suitably proportioned short post 109 is mounted upon the inner surface of the web of the inner channel 81, as by a screw 111 (see FIGURE 5). The end of the post 109 extends through the open-ended slot 107 when the two channels are in telescoped position and engages the closed end of the slot 107 to serve as a positive stop when the drawer is closed, while allowing the channel members to be telescoped to a position where they are substantially coextensive.

As best seen in FIGURE 4, the drawers 13 are mounted to be self-closing by affixing the rear end of the stationary inner channel 81 to the rear post 17 at slightly lower vertical level than that at which the front end is affixed to the front post 15. As previously mentioned, the long spacers 95 maintain the pair of bearing balls 89 in each track sufficiently far apart so that smoothness of telescoping movement is assured, and as a result, gravity causes the drawer 13 to close automatically, as by rolling down the incline. When the drawer is extended, the rear tabs 93 on the outer channel eventually engage the rearwardmost short spacers 97, carrying them 60 and the aligned bearing balls 89 and other spacers in their respective tracks forward therewith until the forwardmost short spacers in each track engage the front tabs 91. At this point, the bearing balls 89, short spacers 97 and long spacers 95 in each track are squeezed between the front and rear tabs 91, 93 and serve to halt 65 the further extension of the drawer 13.

In the usual assembly operation, the right- and left-hand runner units 25, which are interchangeable with each other, are mounted within the cabinets by attaching them at the desired vertical heights to the front and rear posts 15 and 17. The mounting brackets 27 are appropriately attached to the rear surface of the front panel 21 using the screws 41. The front panel 21 is then assembled with the drawer body 23 by sliding the body portions 59 of the brackets between the sidewalls 41 of the drawer

and the depending side flanges 49 until the latch portion 77 of each spring leaf 29 protrudes through the aperture 51 in the respective side flange and the positioning ear 79 abuts the front edge of the side flange 49, as shown in FIGURE 2. The screws 67 are used to secure the mounting of the front panel 21.

The drawer body 23 is positioned spatially with the runner unit 25 at each side aligned with the respective recess 55 in the side flange. As the drawer 13 is moved rearward, the outer channel 83 enters the seat with the lower convex surface thereof being received in the V-shaped groove 57. As the drawer approaches the full extent of its rearward travel, the rearward camming surface of the latch portion 77 is engaged by the front edge of the outer channel 83 causing each spring leaf to be displaced sideways until it reaches the aperture 103 whence the latch portion 77 protrudes therethrough. As best seen in FIGURE 5, the employment of the relatively deep inner stationary channel 81 provides ample space between the two telescoping members into which the latch portion 77 of the spring leaf may protrude. The outer movable channel member 83 of the runner unit 25 is now locked against movement in a fore-and-aft direction relative to the seat 55 in the side flange of the drawer. Further rearward movement of the drawer body 23 relative to the outer channel is prevented by the engagement of the positioning ear 79 with the front edge of the outer channel in the location of the shallow notch 105. Forward movement of the drawer body 23 relative to the outer channel member 83 is prevented by the engagement of the front edge of the rectangular aperture 103 with the forward transverse surface of the latch portion 77 of the spring leaf. Thus, the drawer assembly has been simply and securely united and installed as a part of the cabinet 11. However, the attachment is such that the drawer 13 can be easily detached from the runner units 25 merely by pressing the latch portions 77 of the spring leaves inward and withdrawing the drawer body 23 until each spring leaf 29 has been unlatched from the rectangular aperture 103 in the respective outer channel member 83 of each runner unit. Thus, the drawer can be easily removed from the cabinet 11 for maintenance repainting, or any other desired purpose.

Various of the features of the invention are set forth in the following claims.

What is claimed is:

1. A drawer assembly for a cabinet or the like which assembly comprises a drawer body formed with a pair of integral downwardly extending said flanges each of which is spaced outward from the respective adjacent sidewall of said drawer, each of said side flanges being formed with an outward facing recess which extends fore-and-aft of said drawer and which recess is partially defined by a groove at the bottom thereof, a runner unit disposed in said recess and said groove in each side flange, said runner unit including a pair of cooperating telescoping members, and bracket means for mounting a front panel to said drawer body and for latching each said runner unit to said respective side flange including means interengaging with said runner unit and with said side flange at the location of said recess to latch one

of said telescoping members against movement in a fore-and-aft direction in said recess.

2. A drawer assembly in accordance with claim 1 wherein said recess in each side flange extends to the rear end thereof to permit assembly of said drawer body to said runner units after said runner units have been mounted in a cabinet.

3. A drawer assembly in accordance with claim 2 wherein there is an aperture in said side flange near the front end of said recess and a spring latch on said bracket means which extends through said aperture when said front panel is assembled with said drawer body.

4. A drawer assembly in accordance with claim 3 wherein one of said channel elements has an aperture in the web thereof which registers with said side flange aperture and through which said spring latch protrudes when said runner unit and said drawer body are assembled.

5. A drawer assembly in accordance with claim 4 wherein said telescoping members are inner and outer channel elements, the flanges of which are bent to form upper and lower tracks therebetween and wherein bearing ball means is disposed in said tracks.

6. A drawer assembly in accordance with claim 5 wherein one of said channel elements is sufficiently deep to provide space into which said spring latch may protrude without interfering with the movement of said drawer.

7. A drawer assembly in accordance with claim 5 wherein an open-ended slot is provided in the opposite end of said channel element from that wherein said aperture is located and wherein a post is mounted upon the web of said other channel element which post is proportioned to travel in said open slot and limit the relative movement of said channel elements during telescoping by engagement with the closed end of said slot while permitting said elements to telescope to a position where they are substantially coextensive.

8. An assembly in accordance with claim 5 wherein means extending into said tracks for retaining said ball bearings in said tracks is provided near the forward end of one of said channel members and near the rear end of said other channel member.

9. An assembly in accordance with claim 8 wherein at least two bearing balls are provided within each of said tracks and elongated spacer means is disposed therebetween, said bearing balls and said spacer limiting the extension of said channel members by being engaged between said retaining means which approach each other.

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