United States Patent [19]

Read

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[54] **V-RAIL AND DRAWER MOUNTING SYSTEM THEREWITH**

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[52] **U.S. Cl.** ..... **308/3.6**; 312/341 NR

[51] **Int. Cl.²** **F16C 17/00**

[58] **Field of Search** ..... 308/3.6, 3 A, 3 R; 312/341 NR, 345, 346, 347, 330; 16/94 B, 96 D, 93 D, 95 D

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Primary Examiner—Charles J. Myhre
Assistant Examiner—R. H. Lazarus
Attorney, Agent, or Firm—Mahoney, Schick & Cislo

[57] **ABSTRACT**

A uniquely designed V-rail support for drawer support systems and a system of utilizing said V-rail wherein drawers may be mounted in a drawer frame with the V-rail in overlying or underlying relationship with respect to said drawer. A mounting system for sliding support of a drawer is disclosed wherein the system may be utilized in a selective manner depending upon the construction of the drawer with which the system is utilized. The alternate selectivity of system mounting permits lower inventory costs and storage and provides a drawer mounting system which is relatively economical in comparison to existing mounting systems so as to support a drawer in sliding relationship to a rail or track member which additionally permits easy installation of a drawer within a drawer frame or support.

15 Claims, 13 Drawing Figures

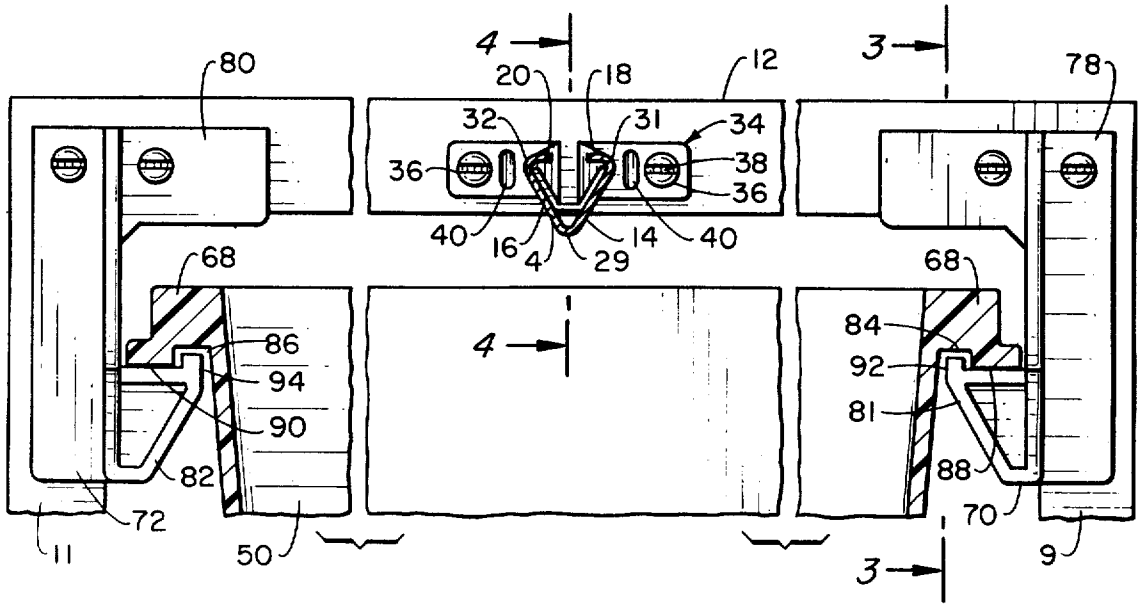


Fig. 1.

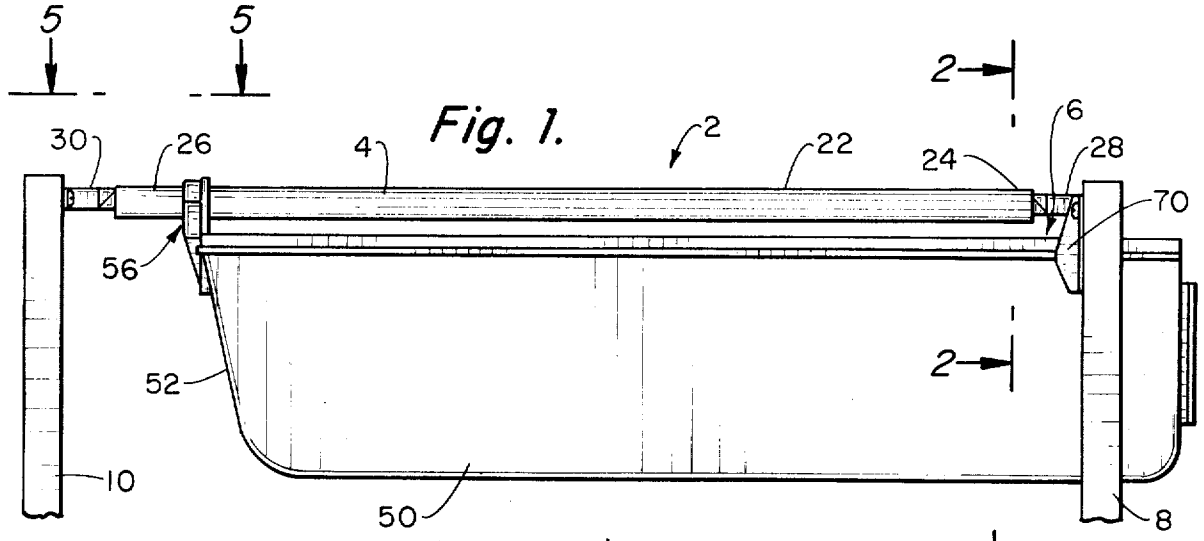


Fig. 2.

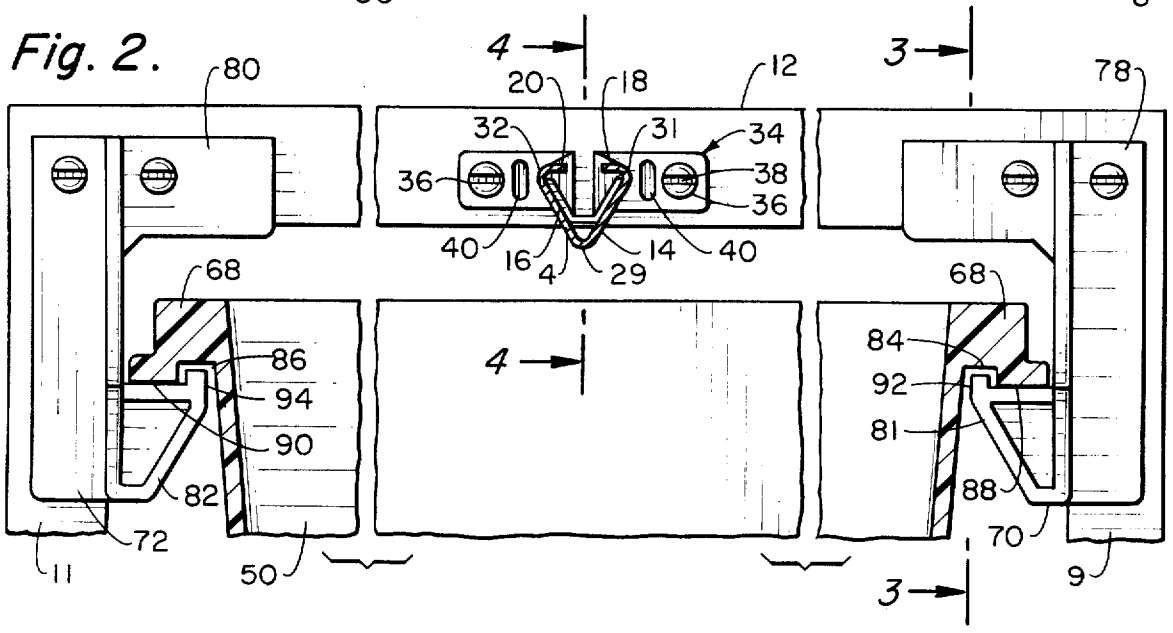


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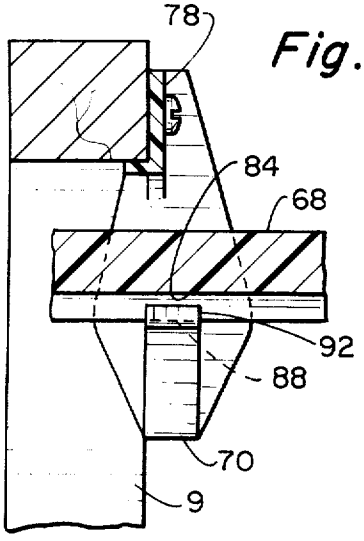


Fig. 4.

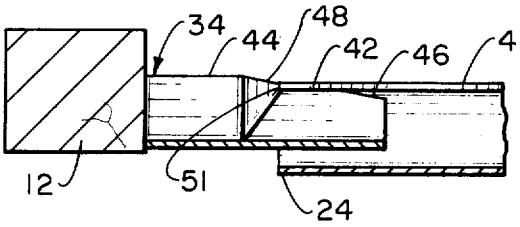


Fig. 5.

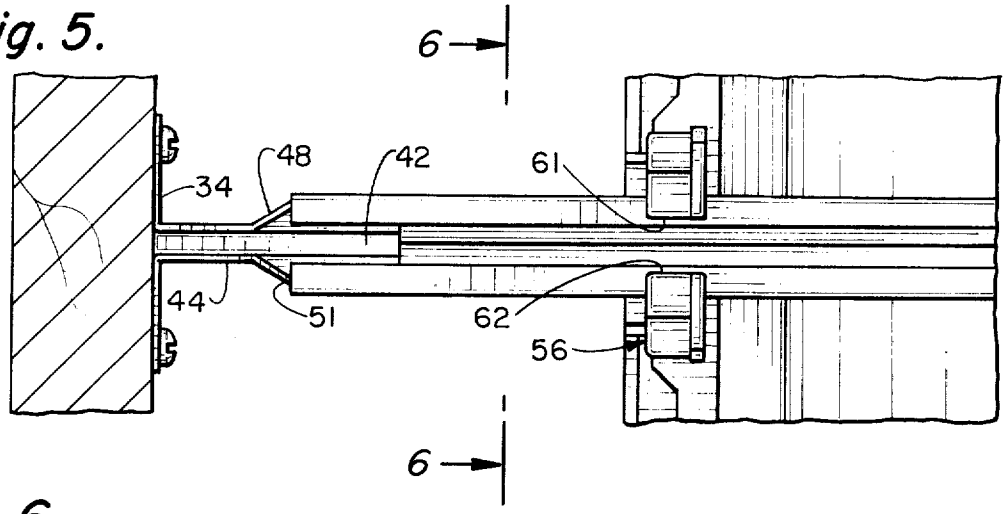


Fig. 6.

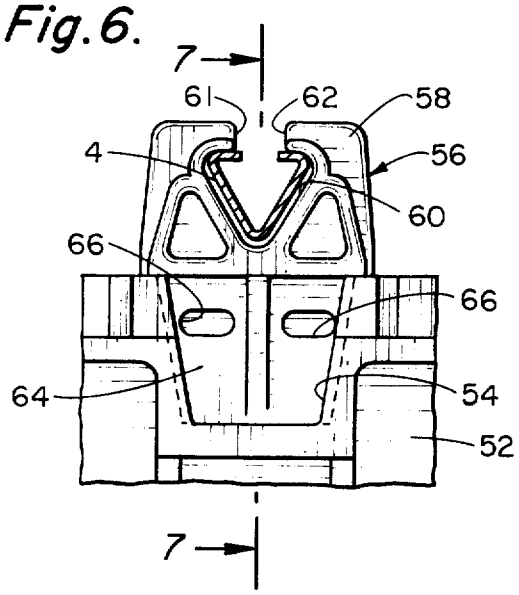


Fig. 7.

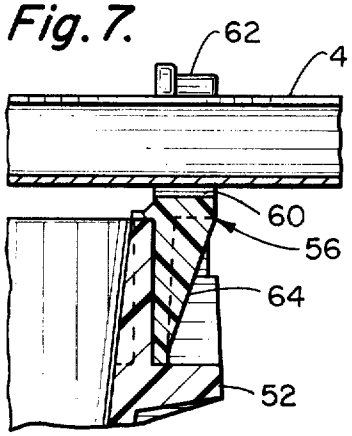


Fig. 11.

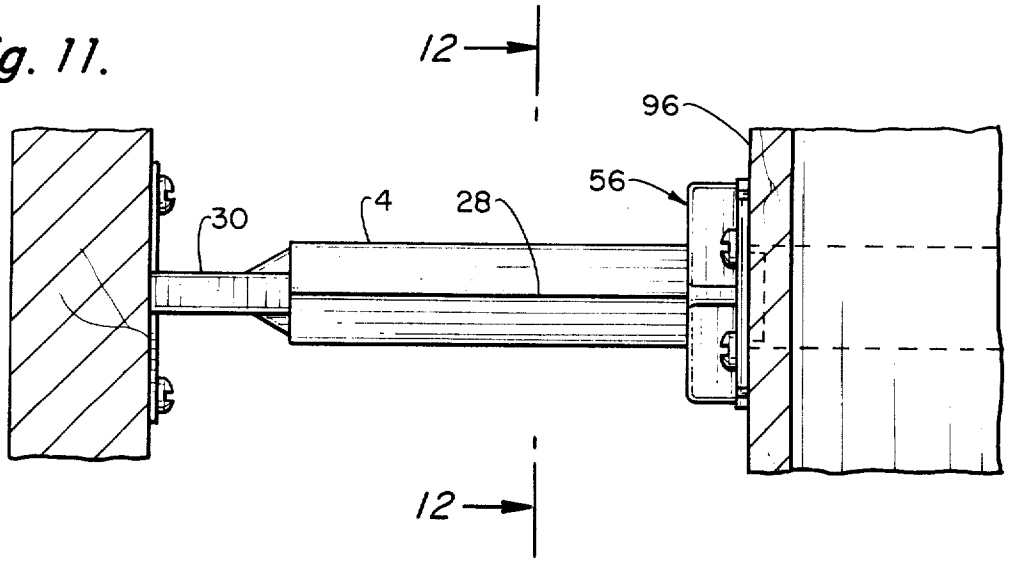


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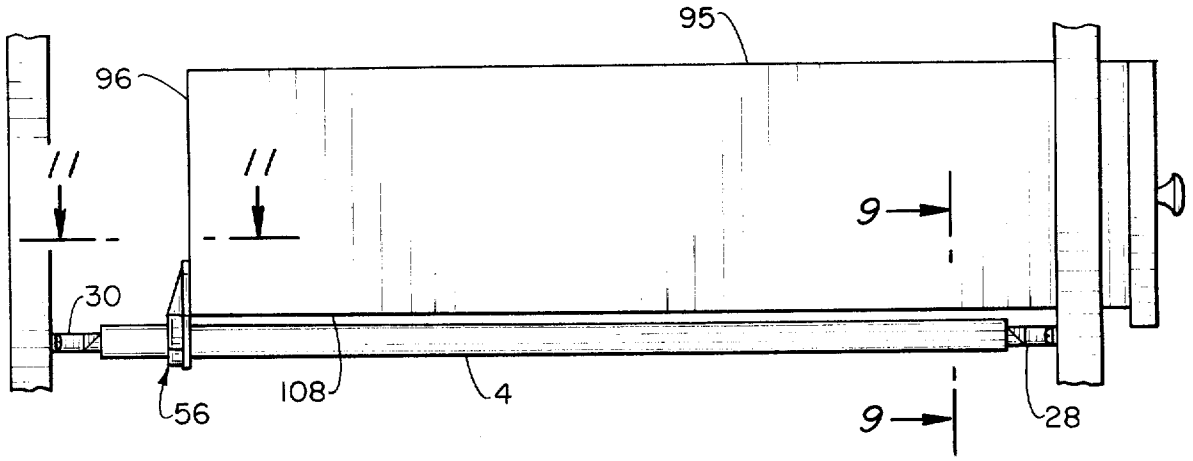


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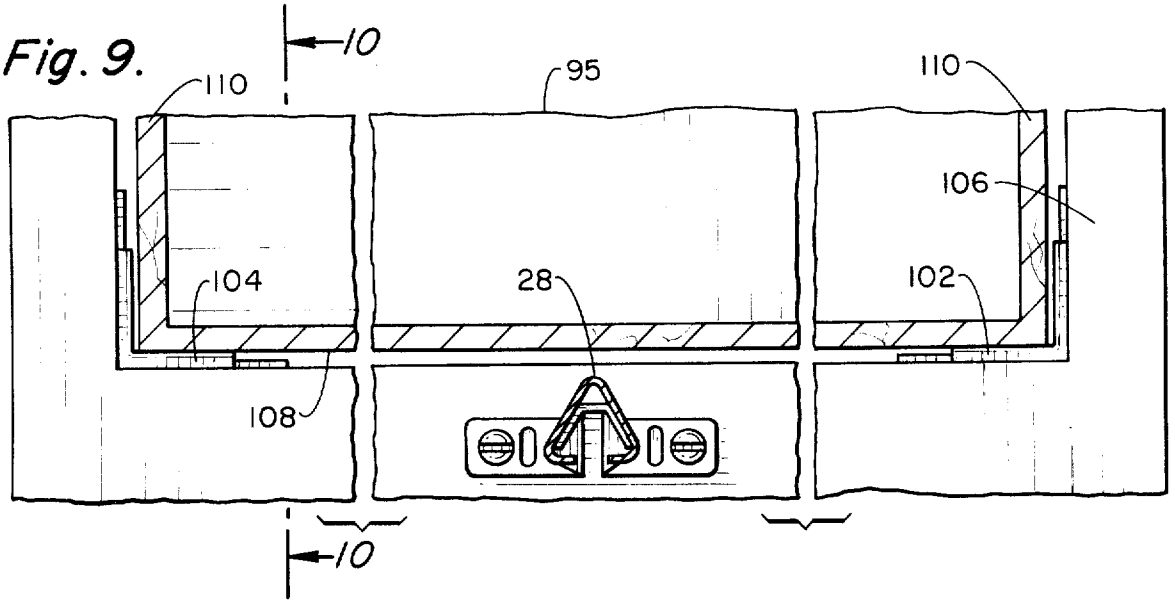


Fig. 10.

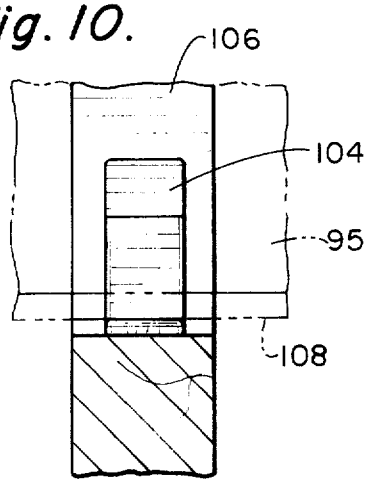


Fig. 12.

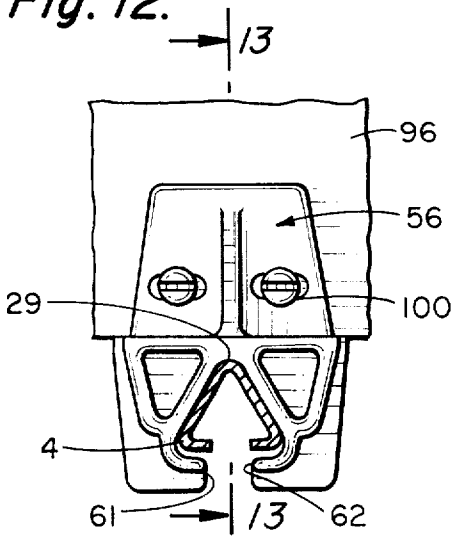
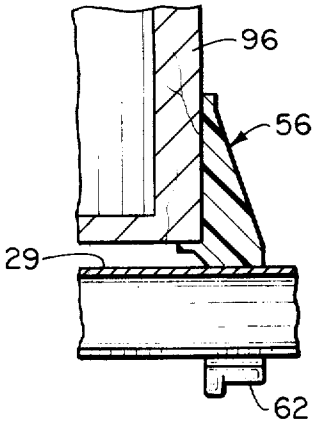


Fig. 13.



V-RAIL AND DRAWER MOUNTING SYSTEM THEREWITH

BACKGROUND OF THE INVENTION

With the present inflationary spiral of costs on every front of business, it becomes incumbent to be able to reduce manufacturing, storage, inventory and labor costs as much as is feasible and practical and yet provide a product which is commercially acceptable for its intended purpose.

In the installation and support of drawers of the type found in cabinets in the household kitchen or those found in other fields of use such as recreational vehicles, boats and the like, it has heretofore been found desirable to mount a drawer on a monorail type of support system so as to permit ease of sliding movement of the drawer in and out of the support frame or cabinet.

One type of drawer slide or track mounting system is that disclosed in U.S. Pat. No. 3,094,363 to Fremstad, et al., wherein a track member of monorail design is provided to coact with a wheel member of a drawer in order to obtain rolling support and ease of movement of the drawer within and without of the drawer frame supporting structure.

Another type of drawer and support system is that as disclosed in Holmes, et al., U.S. patent application Ser. No. 193,661 filed Oct. 29, 1971 and now issued as U.S. Pat. No. 3,784,274. In said pending application, a drawer is provided of a type which receives a roller member which coacts with a super positioned monorail or track member so as to provide rolling movement for the drawer action within the drawer frame or support.

Another type of system for supporting a drawer within a drawer frame in rolling relationship therewith is that as disclosed in U.S. Pat. No. 3,387,906 to Edwards.

These prior art structures, while providing an adequate and acceptable system for the mounting of a drawer within a cabinet or support fixture or the like, have entailed relatively expensive roller members for association with the drawer and/or have necessitated singular placement of the monorail or track with respect to the drawer within the drawer support or cabinet. With the hereindisclosed invention, a uniquely configured V-rail track and system for mounting drawers utilizing said V-rail or track is disclosed, wherein the relatively expensive roller means is dispensed with and in lieu thereof a V-rail provided which may be selectively adapted to be mounted below or above a drawer and to coact with guide members so as to provide sliding movement of the drawer into an out of the drawer cabinet or support frame.

Because of the flexibility and alternative manner of utilizing the V-rail track or support member of the invention, in overlying or underlying relationship to the drawer which it supports, a high degree of versatility is obtained and of course the consequential reduction in inventory of parts. Additionally, the provision of slide members as opposed to roller members to coact with the V-rail support or track lowers the cost of the installation while still retaining the advantages of having a drawer advantageously supported for ease of movement with respect to the support system.

OBJECTS AND SUMMARY OF THE INVENTION

It is an object of the invention to provide a rail support for drawer support systems wherein it may be utilized in alternative relationship with respect to the drawer which it supports.

It is another object of the invention to provide a rail support and drawer support system utilizing a rail of specific configuration which permits utilization of said rail in overlying or underlying relationship with respect to the drawer which it is intended to support.

It is another important object of the invention to provide a rail and support system for mounting a drawer in sliding relationship therewith.

It is still another more important object of the invention to provide a flexible drawer mounting system which may be utilized in a selective manner in order to support drawers depending upon the specific construction of the drawers.

It is another still further more important object of the invention to provide a drawer support support and system wherein a drawer is supported in sliding relationship and wherein the support system is easily installed.

It is still another and more further important object of the invention to provide a V-rail system for supporting drawers in sliding relationship with respect to a drawer support frame or cabinet wherein a guide member is secured to the drawer for coaction with a track or rail for sliding support of said drawer on said rail.

It is still a further and more important specific object of the invention to provide a rail support and system utilizing said rail for supporting drawers in sliding relationship therewith wherein the rail support is uniquely configured so as to lend itself for alternative modes of utilization with drawers having different design features and construction.

It is another further even more specific object of the invention to provide a drawer support system wherein drawers are supported in an advantageous manner without the utilization of high cost components.

Generally, in an exemplary embodiment, the invention pertains to a rail support for drawer support systems wherein an elongate rail of sufficient length to span the length of a drawer structure, in which a drawer is to be supported, is utilized wherein the rail is integrally formed and has a V-like shape in cross-section having upper leg portions of the V with inwardly directed horizontal flange ends terminating in spaced relationship to form in cooperation an elongate guide path for coaction with a guide element when the rail is supported in overlying relationship to a drawer. Alternately, the opposite or apex portion of the rail serves as a guide path when the rail is positioned beneath a drawer in order to facilitate sliding movement of said drawer on the rail. The end portions or termini of the rail have an interior area sufficient to receive end supporting members in telescopic relationship therewith.

In another more specific embodiment, the invention pertains to a drawer support system for drawers of the type which may have provision for a track guide member or to drawers to which a track guide member may be secured wherein the system is selective for alternative, under or over, positioning of a guide rail with respect to the drawer. In said system an elongate rail of sufficient length to span the length of the drawer frame is provided wherein the rail has a V-like shape in cross-section with the upper leg portions of the V having

inwardly directed horizontal flange ends forming in cooperation an elongate guide path. The interior area of the rail at least at the opposed ends thereof, are of sufficient size to accommodate an end supporting member in telescopic relationship with each of the ends. End supporting members having a bracket portion adapted to be secured to a drawer frame and an opposite extending end for telescopic, tight fitting reception into each of the opposed ends of the rail are also provided in order to provide rigid support for the rail, either above or below the drawer which it is intended to support. A track guide member is provided for securement to a back wall of a drawer to be supported in cooperative sliding relationship with the rail wherein the track guide member has a securement end and an opposed rail cooperating end, wherein the rail cooperating end is congruently configured to the rail for cooperative, sliding association therewith.

These and further objects of the invention and embodiments thereof will become more apparent from the drawings and the hereinafter following commentary.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates one embodiment of the invention showing a drawer frame and supported drawer utilizing the invention in elevation view;

FIG. 2 is a view taken along the line 2—2 of FIG. 1;

FIG. 3 is a view in partial cross-section taken along the line 3—3 of FIG. 2;

FIG. 4 is a view taken along the line 4—4 of FIG. 2;

FIG. 5 is a view taken along the line 5—5 of FIG. 1;

FIG. 6 is a view taken along the line 6—6 of FIG. 5;

FIG. 7 is a view taken along the line 7—7 of FIG. 6;

FIG. 8 is an alternate embodiment of the invention showing in elevation the system of the invention supporting a drawer and underlying the supported drawer;

FIG. 9 is a view taken along the line 9—9 of FIG. 8;

FIG. 10 is a view taken along the line 10—10 of FIG. 9;

FIG. 11 is a view taken along the line 11—11 of FIG. 8;

FIG. 12 is a view taken along the line 12—12 of FIG. 11; and

FIG. 13 is a view taken along the line 13—13 of FIG. 12.

DESCRIPTION OF THE BEST EMBODIMENTS CONTEMPLATED

In describing one mode of the invention, reference will be made to a molded plastic drawer of the type having a slot configuration in the back wall for securement of a guide or slide member wherein said drawer, not forming a part of this invention, is disclosed in Holmes, et al., U.S. pending patent application Ser. No. 193,661 filed Oct. 29, 1971 and now U.S. Pat. No. 3,784,274, the description pertaining to said drawer which is hereby incorporated by reference. It should be understood that the specific type of drawer used for illustrative purposes is only for that reason and the invention is not to be thereby limited. Indeed, with regard to the alternate embodiment of the invention, it will be seen that the conventional type of wooden drawer is also utilizable with the device of the invention. Those of ordinary skill in the art will at once recognize the adaptability of the invention to drawers of a myriad of configurations and fabrication.

Referring now to FIGS. 1–7 inclusive, in particular and to other of the figures as the description proceeds wherein like numeral of reference will designate like elements throughout, it will be seen that the drawer support system 2 comprises a V-rail 4, in this instance of integrally fabricated metal having a length sufficient to span the depth of a drawer opening 6 formed by the usual and conventional drawer support or frame, as may be found in a cabinet or the like, utilizing front frame member 8 and rear frame member 10. It is, of course, understood that the frame structure also includes a front member 12 and a bottom member (not shown) to form the usual box-like structure found in cabinets and the like for supporting drawers therein.

The V-rail 4 is of uniform cross-section area with legs of the V 14 and 16 (FIG. 2) forming an included angle of approximately 60° with each other and terminating in inwardly directed horizontal flange portions 18 and 20 spaced from one another and forming through the length of the rail 4, a guide path 22 as will become more apparent as the description proceeds.

The opposed ends 24 and 26 of V-rail 4 are of sufficient size in order to telescopically receive end support members 28 and 30. It will be noted that legs 14 and 16 of V-rail 4 are of equal length and are fabricated so as to have radiused corners or apexes 28, 30 and 32.

End supporting members 28 and 30 have a bracket portion 34 having holes 36 to receive screws 38, where desired, and elongate slots 40 should nails or other screws be desired in order to position the support member 28 and 30 in an adjustable vertical manner with respect to the front frame member 12.

The members 28 and 30 are formed integrally of metal and extending from the bracket end 34 is an extending end 42 of congruent configuration to the upper legs portion of V-rail 4 for tight, telescopic interrelationship therewith, best seen in FIG. 4.

An intermediate web portion 44 between the end 42 and bracket end 34, completes the structure of support member 28 and 30. It will be noted that the intermediate web portion 44 is of parallel wall construction and flares outwardly to form the congruent side wall portion 42, which is telescopically received by the ends 24 and 26 of V-rail 4. It will also be noted that the end 42 is received within an end of the rail 4 a sufficient distance in order to provide adequate rigid support therefor in cooperation with the oppositely disposed support member which is telescopically received in the opposite terminus of V-rail 4. The support members 28 and 30 with the support ends 42, are easily secured to the front and back supports 8 and 10 in a manner well known in the art.

The support end 42 is slightly tapered as at 46 for ease of reception into the interior of V-rail 4 and connects to the intermediate web portion 44 by flared wall portion 48 terminating in shoulder 51 which forms an abutment surface against which the end 24 of the V-rail 4 abuts so as to hold the V-rail 4 in secure relationship.

It will be noted that in this particular embodiment the drawer mounting system thus far described is positioned above the drawer 50 which is to be supported within the drawer frame. It will also be noted that the V-rail 4 is supported from support members 28 and 30 in such a manner as to have the guide path 22 positioned in a horizontal plane above the drawer 50.

The back wall 52 of drawer 50 (FIG. 6), is in this instance, provided with a slot 54 which is adapted to receive a track guide member 56. The track guide member, in this instance of molded plastic, has an upper portion 58 having a slotted portion 60 congru-

ently configured to V-rail 4 and having a discontinuance, upper wall portion so as to form ends 61 and 62 the lower surfaces of which ride upon guide path 22 formed by V-rail 4. The lower portion 64 of track guide member 56 has a tab-like configuration for reception into the slot 54 formed in the back wall 52 of drawer 50. To this end, the lower portion 64 has a lesser transverse dimension at the lowermost end as compared to the uppermost end approximately intermediate the upper portion 58 and the lower portion 64. The track guide member 56 is provided with elongate slots 66 for purposes which will become apparent with regard to the alternate embodiment of the invention.

Suffice to say in the particular embodiment under discussion, wherein the drawer 50 is of molded plastic or the like, or of any other material having an accommodating slot 54 to receive the tab end 64 of track guide member 56, the latter member may be glued or otherwise secured to the back wall 52 of drawer 50.

The drawer 50 is also provided with lateral flanges 68 to be received by right-hand lateral guide member 70 and left-hand lateral guide member 72 best seen in FIG. 2. Lateral guide members 70 and 72 are identical in construction with the exception that they are mirror images of one another for right and left-hand placement to the drawer 50 and more specifically, for securement to vertical support members 9 and 11 making up the drawer frame or support. Generally, lateral guide members 70 and 72 are somewhat L-shaped in configuration having a securement end 78 and 80 respectively with apertures by which means they may be rigidly secured to members 9 and 11 in rigid fashion. The lowermost ends 81 and 82 of lateral guide members 70 and 72 respectively, have an outwardly extending projecting end for cooperative association with the flanges 68 of drawer 50 forming with the side walls thereof elongate slots or tracks 84 and 86 extending the approximate length of the drawer 50 and being positioned on each of the lateral sides thereof. The support ends 81 and 82 provide a planar portion 88 and 90 to receive the end portions of the flanges 68 and upward projections 92 and 94 serve to captively retain the drawer 50 in supported relationship therewith so as to limit lateral movement of drawer 50 with respect to the drawer frame in which it is supported.

Thus, in the specific embodiment just described, a V-rail is utilized which cooperates with a track guide or slide member to slidingly support a drawer within a drawer frame. In order to facilite such supportive association, lateral guide members, such as 70 and 72 may be provided so as to provide adequate support for the drawer and to facilitate guiding movement thereof within the drawer support frame or cabinet. Thus, it is seen that a drawer support system, utilizing a uniquely configured track member, dispenses with the necessity of having an expensively fabricated rolling member in order to get satisfactory movement of a drawer supported within a cabinet or the like structure.

Referring now to the remaining figures of drawing, the alternate embodiment will be described wherein the support system is adaptable for utilization with a wooden drawer 95, for example, wherein the same elements are utilized with the exception of the lateral guide members 70 and 72 as previously described for the already described embodiment of the invention.

Thus, the V-rail 4 is of the same construction as the V-rail described for the earlier embodiment as is the support members 28 and 30 therefor. However, as shown in FIG. 8, the apex of the V-rail 4 is oppositely positioned to that shown in the FIG. 1 embodiment and likewise, the support members 28 and 30 are positioned below the drawer 95 as opposed to being positioned above as for the FIG. 1. embodiment. Inasmuch as it is apparent that all structural features with the exception of the lateral guide members are the same except as pointed above, those of ordinary skill in the art will at once appreciate the similarity of operation.

The track guide member 56 is secured to the lower portion of back wall 96 of drawer 95 by means of screws 100 for example. Referring to FIG. 12, it will be noted that the V-rail 4 now utilizes the apex 29 as a guide path whereas, in the previous embodiment, the flanges 18 and 20 formed the guide path along which the guide or slide track member 56 cooperated therewith in order to facilitate sliding motion of the drawer with respect to V-rail 4.

As in the earlier-described embodiment, the opposed ends 61 and 62 of guide track member 56 cooperate to captively retain the V-rail 4 in cooperative association therewith. To facilitate sliding movement of drawer 95 in supported relationship, L-shaped lateral guides 102 and 104, in this instance of molded plastic material, are positioned in the corners of the drawer support frame 106 and permit bearing of the bottom wall 108 of the drawer 95 thereon as well as means to permit lateral guidance of side walls 110. L-shaped corner guides 102 and 104 may be adhesively secured to the lowermost corners of drawer support frame 106 or otherwise secured in accordance with means well known to those of skill in the art.

Thus, there has been disclosed, a V-rail support member and system utilizing the same which is alternately suitable for supporting drawers from above or below in sliding relationship therewith.

While the invention has been described with specific materials of construction and specific configuration, it will be understood that various modifications and alternatives will suggest themselves to those of ordinary skill in the art and all such modifications and changes will not depart from the essence of the invention and as defined by the appended claims.

I claim:

1. A drawer support system including a drawer structure and a rail support system, the combination including: an elongated rail of sufficient length to span the length of said drawer structure in which a drawer is to be supported, said rail being integrally formed and having a V-like shape in cross-section, comprising intersecting, non-curvilinear opposed legs and upper leg portions forming the base of said V-like shape, said upper leg portions of the V having inwardly directed, horizontal flange ends terminating in spaced relationship, said rail forming an elongate guide path, the depth of said V and the formed interior area being sufficient to receive end supporting members in telescopic relationship.

2. The combination of claim 1 wherein said flange ends lie in the same plane.

3. The combination of claim 2 wherein said intersecting non-curvilinear, opposed leg portions forming said V-like shape are equal in length.

4. The combination of claim 3 wherein said leg portions form an included angle of about 60°.

5. The combination of claim 4 wherein said rail is of metal and the interior wall portions thereof at the juncture of said leg portions and said flange ends are radiused.

6. In a drawer support system for drawers of the type having provision for association with a track guide member for alternate under or over support from a guide rail the combination comprising: a drawer and drawer frame; an elongate rail of sufficient length to span the length of said drawer frame, said rail having a V-like shape in cross-section, the upper leg portions of the V having inwardly directed, horizontal flange ends, said rail forming an elongate guide path within said drawer frame, the interior area of said rail at least at the opposed ends thereof being large enough to accommodate an end supporting member in telescopic relationship; end supporting members having a bracket portion secured to said drawer frame in opposed relationship and an opposite extending end for telescopic, tight fitting reception into each of the opposed ends of said rail to provide rigid support for said rail; and a track guide member secured to a back wall of said drawer and supported in cooperative sliding relationship with said rail, said track guide member having a securement end secured to said drawer and an opposed rail cooperating end, said rail cooperating end being congruently configured to said rail and mounted thereon for cooperative sliding association therewith.

7. The drawer support system in accordance with claim 6 including side guide members adapted to be secured to the lateral sides of a drawer frame for guiding cooperation with a drawer during inward and outward movement thereof within the drawer frame.

8. The drawer support system in accordance with claim 7 wherein said securement end of said track guide member is tab-like having a lesser transverse dimension at the terminus thereof than the upper said opposed rail cooperating end.

9. The drawer support system in accordance with claim 8 wherein said opposed rail cooperating end has an upper discontinuous wall portion forming opposed, inwardly directed flanges for captive association with said rail.

10. The drawer support system in accordance with claim 9 wherein said track guide member is of integrally molded plastic and said guide member is of metal.

11. The drawer support system in accordance with claim 10 wherein the securement end of said track guide member is adapted to be received into an accommodating slot in a drawer for under rail disposition of said drawer in sliding relationship therewith.

12. The drawer support system in accordance with claim 10 wherein the securement end of said track guide member is adapted for securement to the lower back wall portion of a drawer for superposition of said drawer in sliding relationship therewith.

13. The drawer support system in accordance with claim 11 wherein said drawer has upper lateral flanges and side guide members are secured to an upper portion of said drawer frame and have inwardly directed guide arms for cooperative, supporting relationship with said upper lateral flanges of said drawer.

14. The drawer support system in accordance with claim 13 wherein the under surface of said upper lateral flanges of said drawer are provided with elongate slots and the terminus of said guide members have upwardly directed projections received in said slots for providing inhibition of lateral movement of said drawer with respect to said drawer frame.

15. The drawer support system in accordance with claim 12 wherein said guide members are L-shaped in configuration and are secured to the front lower corners of said drawer frame and provide a bearing surface for said drawer.

* * * * *