Dec. 20, 1966 J. G. FENWICK 3,292,986

RAIL SLIDE

Filed June 22, 1964

FIG. 1

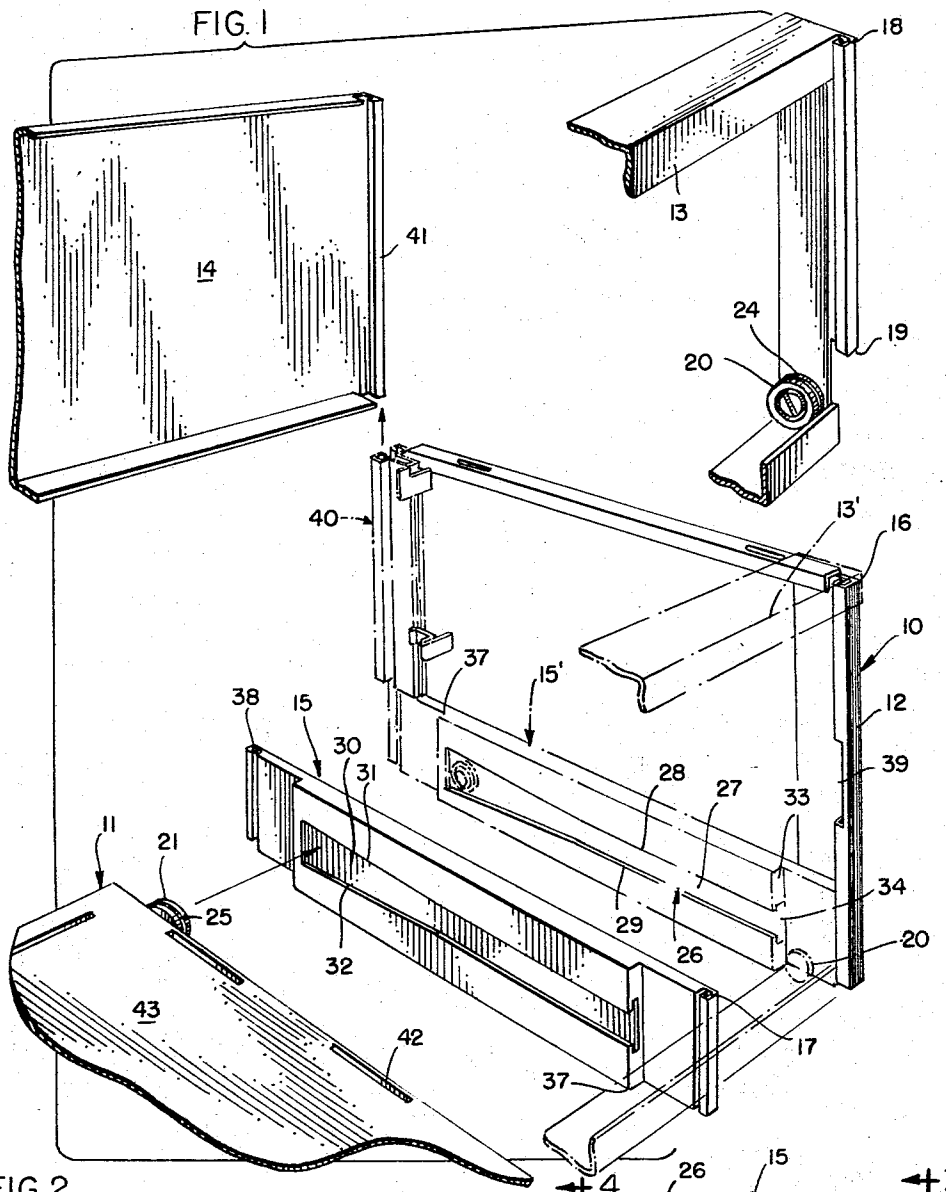


FIG. 2

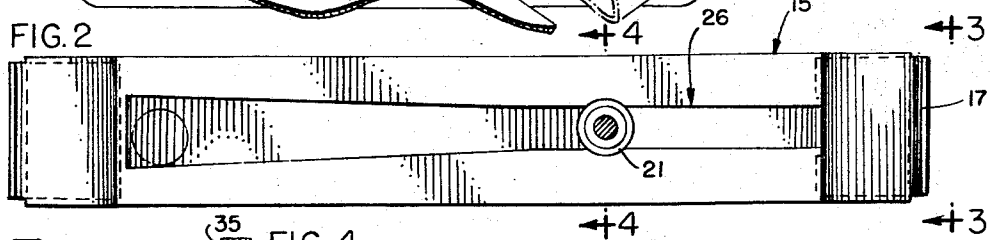


FIG. 3

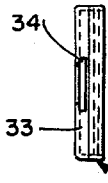
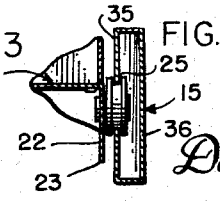


FIG. 4



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RAIL SLIDE

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3 Claims. (Cl. 312—333)

This application is a continuation-in-part of my copending application, Serial No. 362,712, filed April 27, 1964.

This invention relates to a rail slide, and, more particularly, to a slide mounting which is advantageously employed in connection with a drawer, shelf, platform, or like slidable, extensible member.

As indicated immediately above, the invention has application to a wide variety of uses. However, an important and readily comprehended use exists in the drawer field. The matter of reducing friction and facilitating sliding of drawers is an historic one. By and large, the art has resorted either to a complete absence of friction-reducing means, or very complex constructions for facilitating the sliding of drawers and like platforms.

The object of this invention is thus to solve this historic problem and provide a novel means for slidably supporting a platform-providing surface such as a drawer, which is simple, yet effective. Reference to that application may be had for additional details of construction and operation not set down in this case.

Part of the difficulty with existing bearing supports is the work required for installation. In contrast to this, the instant invention provides a slide of essentially unitary construction which embodies a simple yet rugged design for making tooling very economical as compared to present methods. In particular, the instant structure provides for greater simplicity in cabinet construction and drawer construction—eliminating the so-called mating drawer body track hardware. Manufacturing costs are further decreased because of the elimination of extra parts, i.e., the drawer bottom track is formed from the drawer bottom itself; the slide is a one-piece part including means for mounting or attaching the same to a desired cabinet, wall, etc. The provision of such an advantageously constructed slide thus constitutes another object of the invention.

In particular, the invention, in contrast to what has gone before, does not require the expensive, very precise locating of the conventional roller. This simplifies manufacturing finishing and, most of all, installation. The unit can be installed in any area between two vertical walls utilizing conventional installation methods. Thus, the invention makes available for the first time a simple but strong, long lived, economical drawer or other type slide for commercial or home use application. It is susceptible of installation in any cabinet structure, and its positioning and locating is automatically controlled by the shape and function of the unit. In view of this, still another object of the invention is to provide a rail slide embodying a unique roller and rail coaction which is advantageously incorporated into a wide variety of mounting structures and without the need of having the slide dictate the mounting structure arrangement but, instead, adapting the slide to the mounting structure.

Yet another object of the invention is to provide a rail slide which advantageously incorporates a self-closing feature adjustable, for example, to any drawer depth and without the usually expected costly tooling changes. However, the self-closing feature can be eliminated (and again without tool changes) for special applications such as desk drawers, kitchen cabinets, etc.

A yet further object of the invention is to provide a rail track or slide which is constructed so as to be interchangeable, i.e., right-hand or left-hand, which is significantly effective in simplifying production and inventory controls and in the reduction of costs.

Other objects and advantages of the invention may be seen in the details of operation and construction set down in this specification.

The invention is explained in conjunction with the accompanying drawing, in which—

FIG. 1 is an exploded, fragmentary, perspective view of an embodiment of the invention featuring the application of the invention to a drawer part;

FIG. 2 is an enlarged front elevational view of the rail track or guide member found in the central portion of FIG. 1;

FIG. 3 is an end elevational view of the monorail track such as would be seen from the sight line **3—3** applied to FIG. 2; and

FIG. 4 is a fragmentary sectional view taken along the line **4—4** applied to FIG. 2.

In the illustration given and with particular reference to FIG. 1, the numeral **10** designates generally a frame for receiving a drawer generally designated **11** (illustrated as a fragment of the bottom). Further, the frame **10** includes a right side wall **12** and a front subframe **13**. The right wall **12**, the front subframe **13**, and a left side wall (not shown) are interconnectable along with a rear wall **14** to define a generally rectangular enclosure for receiving the drawer part **11**. Further, each side wall provides means or a base for the mounting of the inventive monorail slide or guide member generally designated **15** (also seen in more detailed form in FIGS. 2–4). The position of the front subframe **13**, when installed, is seen in dotted line and is designated by the numeral **13'**. In like fashion, the slide member **15**, in its installed condition, is shown in dotted line and is designated by the numeral **15'**.

More specifically, in the illustration given, the side wall **12** is equipped with a C-shaped flange at its front end as at **16**. The flange **16** constitutes half of an interlock cooperating with a mating C-shaped flange **17** provided on the rail slide member **15**. Additionally, the C-shaped flange **16** receives a complementarily-contoured flange **18** provided on the front subframe **13**. The flange **18** is seen to be foreshortened, i.e., terminating short of the base of the front subframe **13**, as at **19**, to accommodate mounting the flange **17** of the rail slide member **15** in the flange **16**.

Referring to the upper right-hand corner in FIG. 1 wherein the front subframe **13** is depicted in fragmentary form, the numeral **20** designates a grooved roller which constitutes one sliding bearing for the drawer **11**. The other sliding roller bearing for the drawer part **11** is provided in the form of a second grooved roller designated **21** and which is rotatably mounted on a depending side flange **22** provided as part of the drawer part **11** (see FIG. 4).

In the general operation of the device illustrated, the bottom edge of the depending flange **22** (the edge being designated **23** in FIG. 4) rides in the groove **24** provided in the first grooved roller **20** (see FIG. 1). The second grooved roller **21** (which is equipped with a groove **25** as designated in FIG. 4) is slidably supported within an elongated slot generally designated **26** provided in the elongated rail slide member **15**.

The slot **26** is seen to include two longitudinally-extending portions: a first portion designated **27** in the dotted line showing of member **15'** in FIG. 1, in which the slot-defining side edges **28** and **29** are parallel; and a second portion designated **30** in FIG. 1 (relative to the showing designated **15'**) wherein the side edges as at **31** and **32** diverge in proceeding toward the rear wall **14**. Advantageously, the divergence of each wall relative to the longitudinal center line of the member **15** is of the order of 2°. This provides automatic shelf-closing or self-seating of the drawer part **11**. The symmetry of the slot **26** about the longitudinal center line makes it possible to use an identical element for the left-hand or second wall part (not shown).

Provision is made for the complete withdrawal of the drawer part **11** (and here it should be understood that a platform or shelf may be substituted as desired for the drawer part **11**) through having the slot **26** communicate through the end wall **33** of the member **15** as at **34**. Thus, the second grooved roller **21** can be withdrawn from the slot **26**.

Advantageously, the member **15** is developed by welding a slot-containing portion **35** (see FIG. 4) to a base portion **36**. Equally advantageously, the rail can be economically formed from a variety of materials in addition to steel, such as aluminum, plastic, and wood. It is contemplated that the material will be determined by the actual end use of the invention, and thus the supporting structure, i.e., the cabinet, determines the character of the slide rather than the reverse, which is characteristic of present-day expedients.

Also, as can be appreciated from a consideration of FIG. 1, the member **15** is provided with intermediate end wall portions as at **33** to provide steps as at **37**. The member **15** is rigidly but removably mounted in place through the coaction of the channels **17** and **38** (at the front and rear ends, respectively), with the complementary channels **16** provided in the side wall **12**. Any tendency of the member **15** to rise within the channels **16** is opposed by the weight of the front frame member **13**. Additionally, the channels **16** are notched as at **39** (see FIG. 1) to facilitate insertion of the member **15**. Thus, if the frame **10** is a rigidly connected enclosure (as contrasted to the separable parts shown), it is possible to mount the slide member **15** without disassembling the frame **10**.

In the illustration given, however, the frame **10** is of the separable or detachable type, and for this purpose the rear channel of the side wall **12** is equipped with a lock element generally designated **40** which coacts with complementarily-contoured channel **41** provided on the rear wall part **14**.

In the operation of the device, the slide member **15** is mounted in the side wall **12** as shown in dotted line at **15'** in FIG. 1—the side wall **12** serving as a base to cause the slot **26** to lie in a plane parallel to, but spaced from, the side wall **12**. Operably associated with the member **15** is the lower portion of the front subframe **13** which carries the first grooved roller **20**. A consideration of FIG. 4 reveals that the lower edge **23** of the drawer flange **22** is spaced further away from the side wall **12** than the groove **25** of the second grooved roller **21**, so that an advantageous lateral stabilization is provided along both sides of the drawer part **11**. Still further, the bearing provided by the slot, flange, and rollers occurs at different vertical levels on each side, developing a still further stabilization. In some instances, it may be desirable to provide the roller **20** as part of the member **15**, as contrasted to having the same operably associated therewith as shown, and where the drawer part **11** is desired to be used as a platform, upstanding side walls to define a drawer enclosure can be omitted. In the illustration given, elongated openings **42** are provided in the platform portion **43** of the drawer part **11** for the mounting of upstanding side and end walls.

The above-described construction allows for greater use of cubic space in cabinet and drawer constructions. Using the rail slide **15** results in at least about a 17% increase in certain drawer and cabinet storage space—over existing methods and hardware. The construction of the rail and grooved rollers allows for greater increase in drawer span because of the improved stability described hereinbefore. Until this invention, a four-foot drawer was the longest span possible to obtain functionally with old designs. The rail will function on a five-foot span without binding on grooved rollers. This is especially significant, since the drawer or shelf can now be operated at any point along the facia of the unit. The old type track and slide arrangement had to be operated from the general center line of the unit or else drawers would bind and lock.

While in the foregoing specification a detailed description of an embodiment of the invention has been set down for the purpose of illustration, many variations in the details herein given may be made by those skilled in the art without departing from the spirit and scope of the invention.

I claim:

1. A mounting for slidably supporting a platform member, comprising a frame providing spaced-apart, confronting walls, an elongated, generally horizontally-extending slot in each wall, the lower edge of each slot constituting a guide rail, first grooved roller means outstanding from each wall adjacent one end of its associated slot, and a platform member having wall portions extending parallel to said confronting wall, second grooved roller means outstanding from each wall portion into one of said slots and slidably mounted on the guide rail of its associated slot, each of said slots having a first end disposed adjacent said first grooved roller means, each slot adjacent the other end thereof having a portion of its guide rail inclined downwardly in proceeding away from said slot first end, each of said slots being symmetrical about a longitudinal center line, said confronting walls being detachable from said frame, whereby said confronting walls may be interchanged.

2. A rail guide for a drawer, and the like, comprising a unitary plate-like member having a base portion and an elongated wall portion disposed in spaced parallel connected relation thereto, said wall portion having a longitudinally-extending slot therein commencing at one end of said wall member but terminating short of the other end of said wall member, at least one slot edge being straight over at least a substantial portion of its length to serve as a guide rail for a grooved roller introduced into said slot from said one end, and means on said base portion for securing the same to a support structure, said slot adjacent said other end having said one edge downwardly inclined relative to said straight portion to cause a grooved roller riding on said edge to become seated adjacent said other end, said slot being symmetrical about the longitudinal center line of said wall portion whereby a single guide may be used to support both sides of a drawer, and the like.

3. A mounting for slidably supporting a platform member, comprising a frame providing spaced-apart, confronting walls, an elongated, generally horizontally-extending slot in each wall, the lower edge of each slot constituting a guide rail, first grooved roller means outstanding from each wall adjacent one end of its associated slot, and a platform member having wall portions extend-

ing parallel to said confronting wall, second grooved roller means outstanding from each wall portion into one of said slots and slidably mounted on the guide rail of its associated slot, said platform member being equipped with spaced depending flanges constituting said wall portions, each of said flanges providing a second guide rail along its lower edge for coaction with said first grooved roller means, said first grooved roller means being positioned below said one end of its associated slot.

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