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Swain

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[54] **DRAWER EXTENDERS**

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[52] **U.S. Cl.** ..... **312/330 R**; 312/333; 312/348

[58] **Field of Search** ..... 312/330 R, 333, 334, 312/335, 350, 348, 233, 345, 336, 339, 341 R; 308/316, 318

[56] **References Cited**

U.S. PATENT DOCUMENTS

886,192	4/1908	Decanio	312/333
2,560,721	7/1951	Gibson	312/233
2,614,022	10/1952	Kurtzon	312/348
2,655,422	10/1953	Gussack	312/333
2,981,584	4/1961	Friend	312/341 R
3,092,429	6/1963	Barnes	312/333
3,409,257	11/1968	Elm	248/205 A
3,488,097	1/1970	Fall	312/339
3,616,096	10/1971	Roeder	248/205 A

FOREIGN PATENT DOCUMENTS

849145	9/1960	United Kingdom	312/335

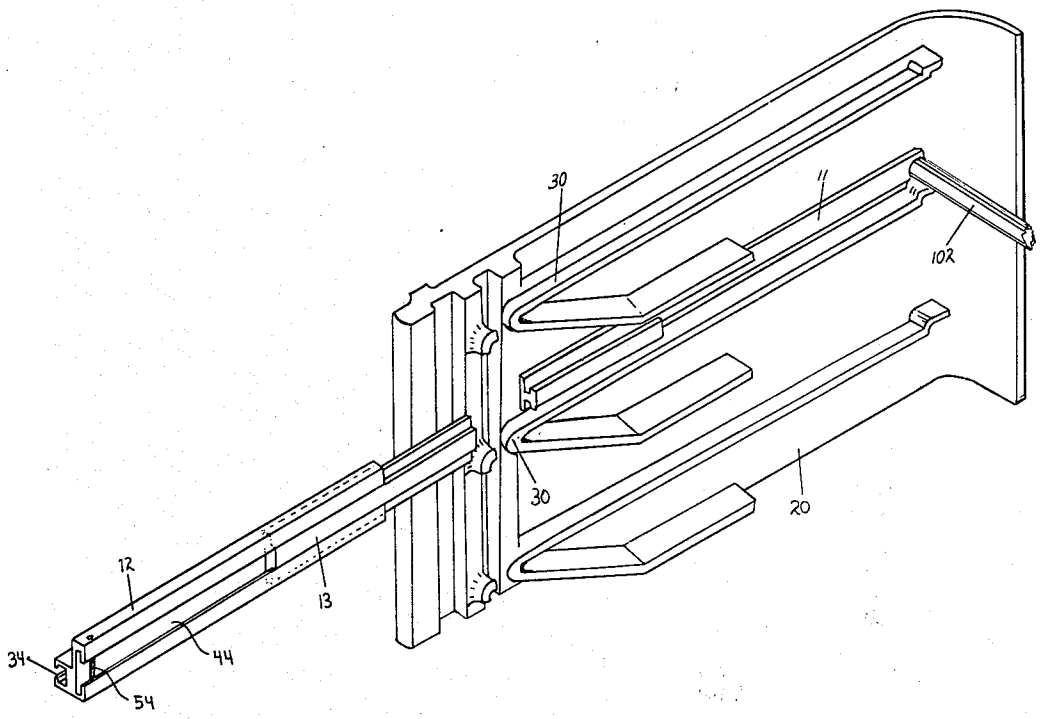
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[57] **ABSTRACT**

A drawer extender assembly comprising a pair of cabinet rails which are removably secured to the internal walls of a cabinet structure. The cabinet rails are provided with a floating rail guide positioned toward the front of the cabinet rail on which a floating rail member slides. Each floating rail member comprises an integral member defining two C-shaped channels having a common back for at least a portion of their height. One of the C-shaped channels is adapted to fit over and slide upon a horizontally extending floating rail guide and is provided with a vertically-extending pin located towards the rear of the channel adapted to abut against the rear surface of the floating rail guide when the floating rail members are fully extended and the other C-shaped channel is adapted to receive a drawer slide which is secured to a drawer; the other channel being provided with a vertically-extending pin located towards the front of the channel acting as a stop by abutting against the leading edge of a drawer slide when the drawer is fully extended. Each of the door slides is horizontally slidable on each of the floating rails.

6 Claims, 7 Drawing Figures



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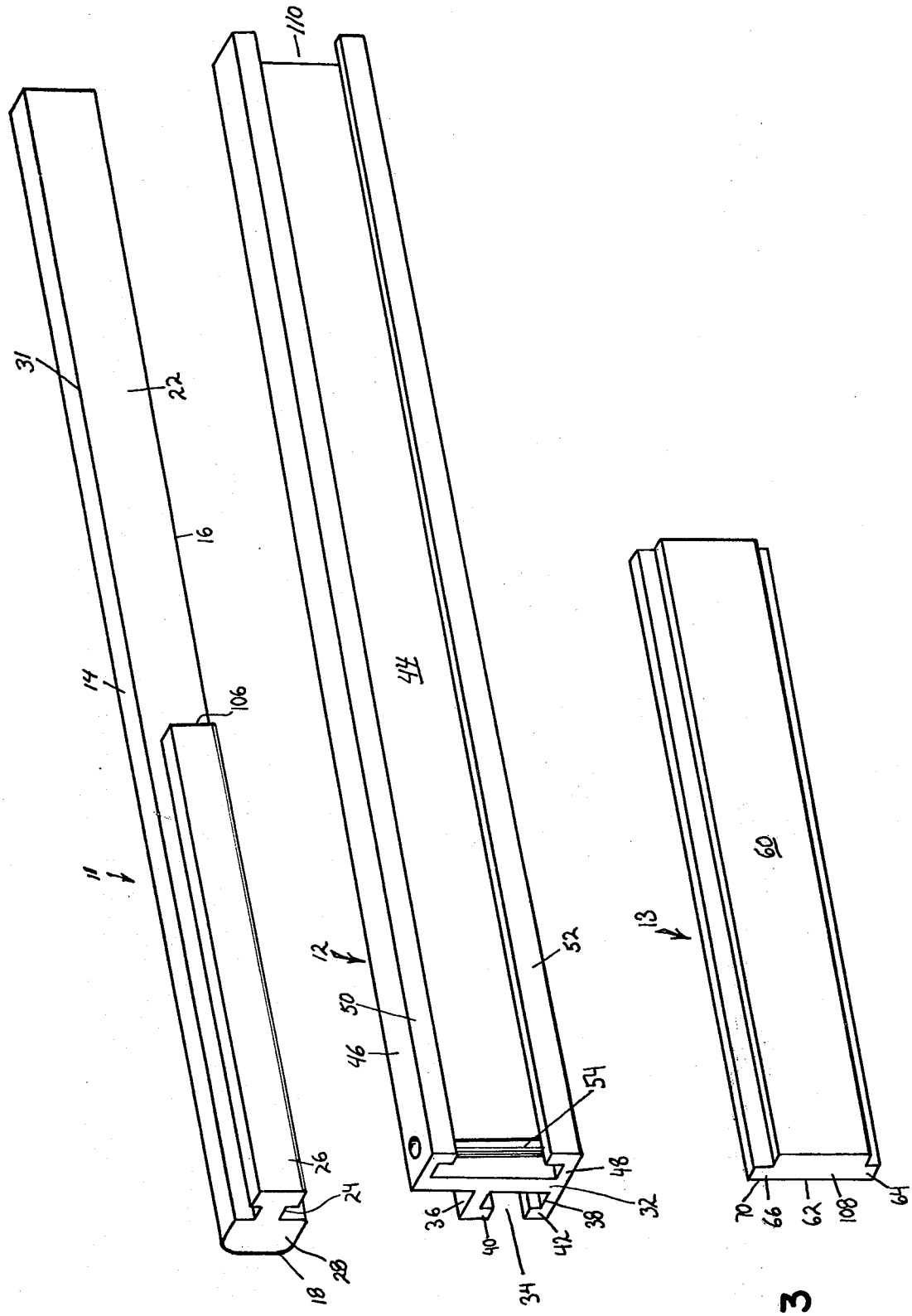


FIG. 1

FIG. 2

FIG. 3

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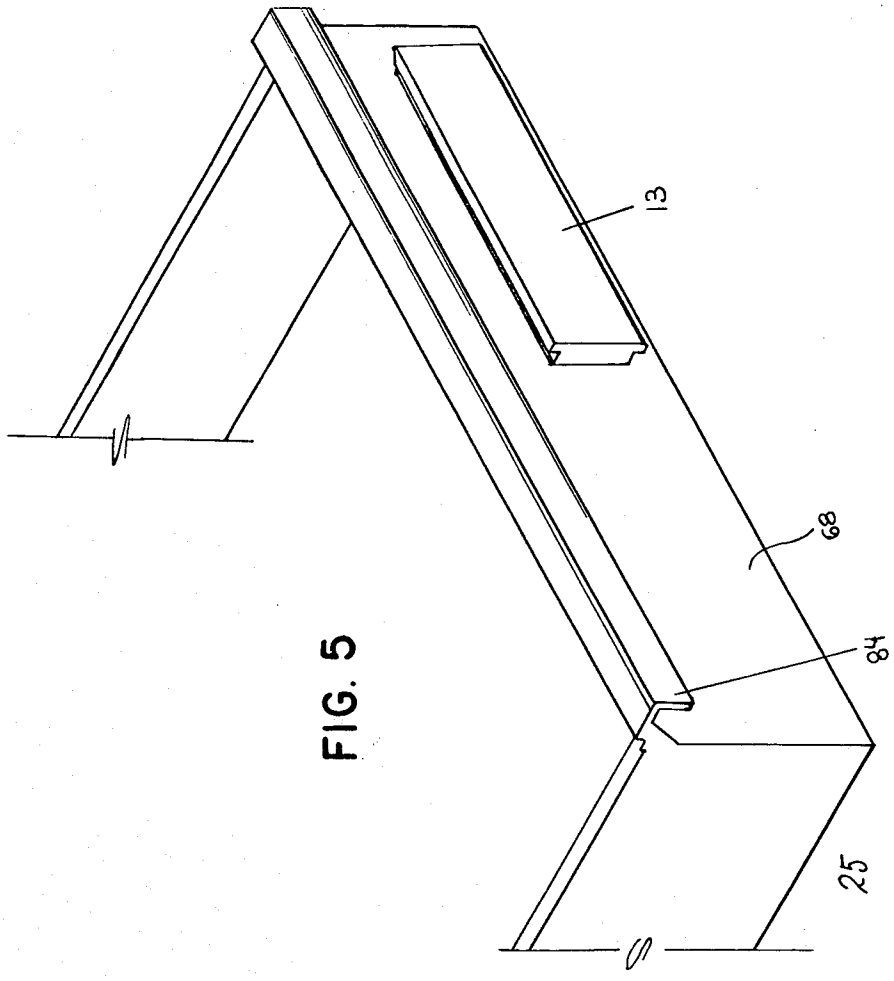
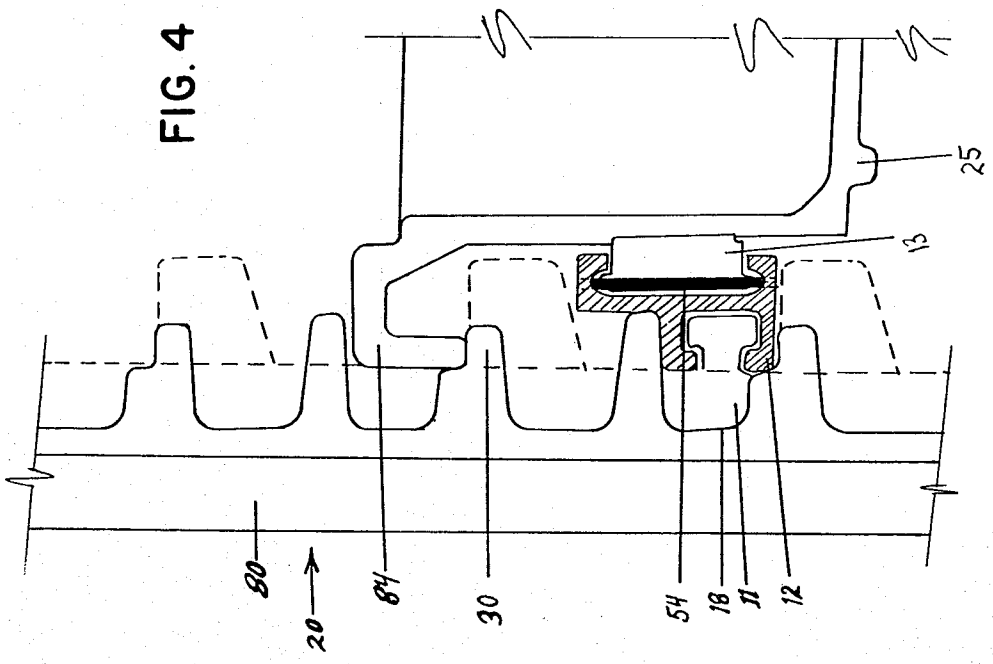


FIG. 5

FIG. 4



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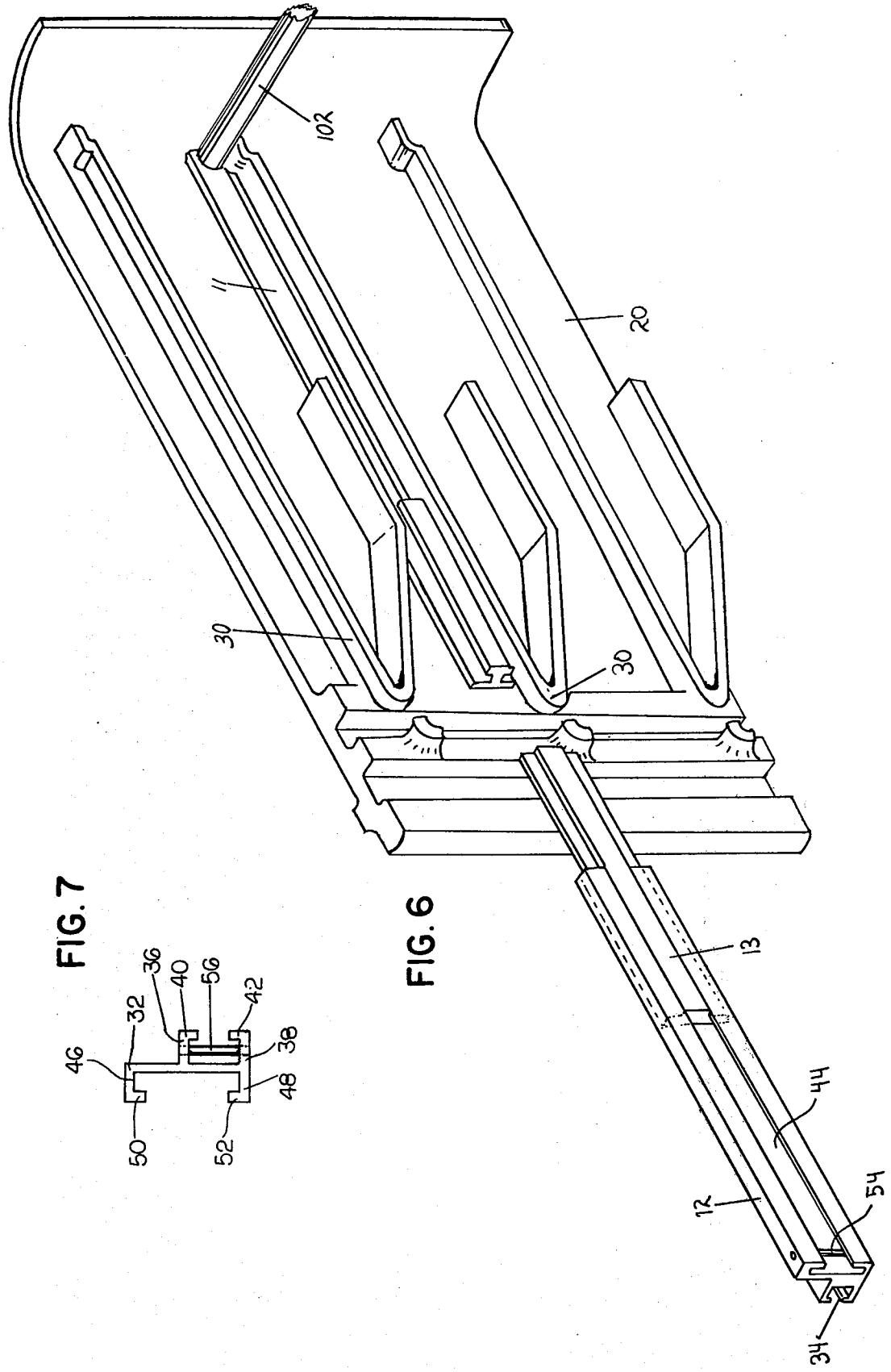


FIG. 6

FIG. 7

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DRAWER EXTENDERS

BACKGROUND OF THE INVENTION

This invention relates to an apparatus which comprises a pair of assemblies adaptable to being secured to the sides of a storage unit. The cabinet or other storage unit is ordinarily provided with a plurality of drawers; the assemblies referred to herein serve to extend the drawers beyond the ordinary extension allowed by the storage unit. More specifically, the present invention comprises a pair of assemblies which are secured within a cabinet or storage unit. The assemblies matingly receive a drawer guide which is secured to the side walls of a drawer held within the storage unit. Without the use of the present invention, the drawer held within the cabinet or storage unit can only be withdrawn or extended from within the cabinet a distance somewhat less than the length of the drawer. The present invention, however, allows the drawer to be fully withdrawn from the storage unit and yet held in a horizontal position and capable of being totally replaced into the storage unit or cabinet without the need of realigning the drawer with the support rails of the cabinet or storage unit.

DESCRIPTION OF THE PRIOR ART

Many storage arrangements, such as vertical file cabinets, are provided with drawer extenders. These drawer extenders serve to allow the user of the file cabinet to fully withdraw the particular drawer desired from the confines of the storage or file cabinet. By totally withdrawing the drawer from the file cabinet, the user or operator is given greater access to all parts of the drawer. The drawer extenders, previously described, are generally designed to allow the entire drawer held within the file cabinet to horizontally slide and then be held in a plane level with the position of the drawer when it is in its closed position. The prior art also discloses means for stopping the drawer or support surface from being totally withdrawn from the cabinet or storage unit.

The aforementioned vertical file cabinets, while being provided with drawer extender members, do not allow these extender members to be readily removed and reapplied to other storage or cabinet structures. These prior art drawer extenders are made for permanent installation. Conversely, the present invention disclosed herein teaches the use of a pair of assemblies which are adapted to be removably secured within any suitable storage or cabinet structure with a drawer slide also removably secured to a drawer such that any cabinet or storage unit will have the capability of allowing the drawer or support surface to fully extend beyond the front wall of the cabinet or storage unit.

The prior art drawer extenders are generally constructed of metal or preferably steel components and are provided with a plurality of ball bearings for facilitating the movement of the drawer. The invention disclosed herein, however, need not necessarily be constructed of a metal and, due to its simple construction and functional design, is not provided with ball bearings, thereby substantially eliminating any problems and costs inherent therein.

As previously mentioned, the present invention is adaptable for use with any cabinet or storage unit that contains drawer or other support members. The prior art merely discloses drawer extenders which are fixedly and permanently secured within the cabinet or file cabinet structure for use with only that particular structure. However, drawer extenders which allow a drawer to be completely withdrawn from a cabinet or storage unit while still supporting the drawer or support surface, are useful and desirable in a variety of situations.

SUMMARY OF THE INVENTION

The present invention comprises a pair of assemblies which are removably secured to the inside walls of a cabinet or storage unit. A cabinet rail is provided which is removably secured in a horizontal, parallel fashion beneath the guide rails of the cabinet or storage unit. The cabinet rail slideably receives a floating rail. The floating rail is adapted to slide along the cabinet rail and on its other side serves to allow a drawer slide to slide within it. The drawer slide is removably secured to the side of a drawer or other support surface. In this manner, it can be seen that the floating rail will slide along the cabinet rail while the drawer slide, attached to a drawer, slides within another channel provided by the floating rail and, therfore, the entire apparatus serves to extend the distance that the drawer may be withdrawn from the cabinet or storage unit. The floating rail is provided with a pair of stopping pins which serves to prevent the inadvertent total withdrawal of the drawer or tray.

The construction, operation and advantages of the present invention will become more readily apparent and understood from the following detailed specification accompanying the drawings in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the cabinet rail;

FIG. **2** is a perspective view of the floating rail;

FIG. **3** is a perspective view of the drawer slide;

FIG. **4** is a frontal cross-sectional view, partially in section, of a storage unit side wall, with the extender rail assembly in operation and a drawer or other support unit also being shown;

FIG. **5** is a partial perspective view of a drawer with a drawer slide attached thereto; and

FIG. **6** is a partial perspective view of the interior of a cabinet with an extended view of the floating rail and drawer slide;

FIG. **7** is a cross-sectional view of FIG. **2** taken along line a'—a'.

DETAILED DESCRIPTION OF THE DRAWINGS

A cabinet rail **11**, as best shown in FIG. **1**, is adapted to be removably secured to the interior side wall of a cabinet or other storage unit. The cabinet rail **11** may be provided with a plurality of holes or apertures or conventional fastening means, e.g., nails or wood screws. In the preferred embodiment, however, the cabinet rail **11** is adhesively secured by a dissoluble glue to the interior side wall of a cabinet structure **20**. It will be appreciated that description of the cabinet rail **11**, floating rail **12**, and drawer slide **13**, is identical to the cabinet rail, floating rail and drawer slide which must be provided on the other side of a drawer **25**. A duplicate pair of each assembly comprising the cabinet rail, floating rail and drawer slide is required in order for the system to operate. However, as the assemblies are mirror images of one another, description of one of the assemblies will suffice to describe the other.

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The cabinet rail comprises a longitudinal section **31** which is provided with a large surface area in order to facilitate the attachment of the cabinet rail to the interior of the cabinet structure **20**. The longitudinal section **31** of the cabinet rail **11** comprises a top surface **14**, a bottom surface **16**, cabinet wall contact surface **18**, and side planar surface **22**. The cabinet wall contact surface **18** of longitudinal section **31** of the cabinet rail is adapted to be removably secured to the inside vertical wall surface of the cabinet structure **20**. As previously mentioned, the cabinet wall contact surface **18** is provided with a relatively large surface area in order to facilitate the attachment of the cabinet rail to the interior of the cabinet structure **20**. While holes or apertures may be provided through the cabinet rail to facilitate fastening of the cabinet rail to the inside of the cabinet structure **20**, the preferred embodiment contemplates the cabinet rail being adhesively secured by a dissoluble glue to the inside vertical wall of the cabinet structure. Extending interiorly from the side planar surface **22** of the longitudinal section **31** is a connecting flange **24** which serves to support the stationary floating rail guide **26**. The stationary floating rail guide **26** extends only a portion of the entire length of the longitudinal section **31** and in the preferred embodiment extends one half of the length. The stationary floating rail guide **26** is always, however, provided at the front end **28** of the longitudinal section **31**. As will be further described, the floating rail **12** is provided with a C-shaped channel which matingly slides over the stationary floating rail guide **26** and allows the floating rail to horizontally slide within and be withdrawn from the cabinet structure **20**. While the exact placement of the cabinet rail will be determined by the particular structure of the cabinet to which the assemblies are sought to be applied, the preferred embodiment of the present invention contemplates the cabinet rail being adhesively secured beneath the ordinary drawer glide **30**, the support surface for the drawer flanges which the cabinet structure **20** is ordinarily provided with. The particular orientation of the cabinet rail **11** with respect to the ordinary drawer glide **30** of the cabinet structure **20** can best be seen in FIG. **6**.

The floating rail **12**, as best seen in FIG. **2**, comprises two C-channels which share a common vertical member **32**. The length of the floating rail **12** is substantially identical to the length of the longitudinal section **31** of the cabinet rail **11**. Smaller C-channel **34** comprises vertical member **32**, horizontal top surface **36**, horizontal bottom surface **38**, downwardly directed flange **40**, and upwardly directed flange **42**. The smaller C-channel **34** of the floating rail **12** slideably receives the stationary floating rail guide **26** of the cabinet rail **11**. In this manner, the floating rail **12** will horizontally extend from the cabinet structure **20**.

The larger C-channel member **44** of the floating rail **12** comprises the common vertical member **32**, the top planar surface **46**, the bottom planar surface **48**, the downwardly directed flange **50**, and the upwardly directed flange **52**. Located towards the front of the larger C-channel **44** is a vertical pin **54** which extends between top planar surface **46** and bottom planar surface **48**. Similarly, located towards the rear of the smaller C-channel **34** of the floating rail **12** is a second vertical pin **56** which extends between the top surface **36** and bottom surface **38** of the smaller C-channel **34**.

As best seen in FIG. **3**, the drawer slide **13** comprises a drawer contact surface **60** and sliding member **62**. Sliding member **62** is further comprised of two vertically extending flanges **64** and **66**. The drawer slide **13** may be provided with holes or apertures to facilitate the selective securement of the drawer slide to the side of a drawer **25**. In the preferred embodiment, however, the drawer slide is adhesively secured or glued to the side wall **68** of the drawer **25**. As best seen in FIG. **5**, the drawer slide is adhesively secured to the rear trailing portion of the side wall **68** of the drawer **25**. The drawer contact surface **60** is preferably of a relatively large surface area in order to facilitate the attachment of the drawer slide to the side wall **68** of the drawer **25**. The sliding member **62**, previously described as being comprised of vertically extending flanges **64** and **66**, is of a sufficient height so as to be slideably received and held within the larger C-channel **44** of the floating rail **12**. It will be appreciated that the vertically extending flanges **64** and **66** of the drawer slide **13** extend into the cavities formed by the top planar surface **46**, bottom planar surface **48**, downwardly directed flange **50**, and upwardly directed flange **52**. The side of the drawer slide **13** opposite the drawer contact surface **60** is a flat vertical surface **70**.

In order to fully understand the operation of the present invention, a brief description of the cabinet structure **20** and a typical drawer **25** removably secured therein will be undertaken. A typical cabinet structure **20** is provided with vertical internal walls **80** which are further provided with drawer glides **30**. Often times the drawer glides **30** of the cabinet structure **20** are integrally molded with the vertical internal walls **80** as shown in the drawings. The drawer glides **30** of the cabinet structure **20** provide horizontal sliding support surfaces for a drawer **25**. Typically, the drawer **25** is provided on its sides with outwardly extending flanges **84**. These outwardly extending flanges **84** are adapted to glide over the drawer glides **30** of the cabinet structure **20**. Thus it can be seen that the drawer **25** may be selectively withdrawn from or replaced within the internal cavity of the cabinet structure **20**. However, the drawer can only be supported by the cabinet structure when a substantial part of the outwardly extending flanges **84** of the drawer **25** rest upon the drawer glides **30**.

In order to use the present invention in an existing conventional cabinet structure, a pair of drawer extending assemblies **100** each comprising the cabinet rail **11**, floating rail **12**, and drawer slide **13** must be utilized. Prior to the securement of the cabinet rails **11** to the vertical internal walls **80**, the floating rail **12** must be slid upon the stationary floating guide **26**, i.e., the smaller C-channel **34** must be slid over the stationary floating rail guide **26**. This is accomplished by the leading edge **104** of the floating rail **12** being slid onto the rear surface **106** of the stationary floating guide **26**. This is the only way that the floating rail **12** may be slid onto the stationary floating rail guide **26** due to the placement of the second vertical pin **56** towards the rear of the smaller C-channel **34**. Additionally, and also prior to the installation of the cabinet rails **11**, the drawer slides **13** must be adhesively secured to the side walls **68** of the drawers **25**. After the attachment of the drawer slides **13** to the drawers **25**, the leading edge **108** of the drawer slide **13** must be slid within the larger C-channel **44** of the drawer slide **13**. The leading edge **108** of the drawer slide **13** must be placed into the rear opening **110** of longer C-channel **44**. Here again, this is the only way for proper assembly due to the position of the vertical pin **54** of the larger C-channel. As previously men-

tioned, the drawer slide **13** is preferably secured towards the rear of the side wall **68** of the drawers **25**. With the assembly **100** prepared as just mentioned, the cabinet rails **11** may be adhesively secured or conventionally fastened to the internal walls **80** of the cabinet structure **20**. As previously mentioned, the preferred embodiment of the invention contemplates the cabinet rail **11** being secured beneath the drawer glides **30**. A horizontally extending cylindrical pole **102** may be secured to the rear surfaces of the side planar surfaces **22** of the cabinet rails in order to facilitate the placement of the cabinet rails in parallel relation.

Operation of the drawer extender assemblies can now be fully explained. With the drawer held within the cavity of the cabinet structure **20**, the outwardly extending flanges **84** glide upon the drawer glides **30**. When the operator desires to partially remove the drawer from the cabinet structure **20**, he merely glides the drawer upon the drawer glide surfaces **30**. However, when the operator desires to totally withdraw the drawer from within the cabinet structure **20** yet also desires to have the drawer horizontally supported after complete removal of the drawer, the outwardly extending flanges **84** of the drawers **25** will no longer be supported upon the drawer glides **30**. Without the use of the drawer extenders **100**, the drawers **25** would not be supported as desired. However, with the drawer extender assemblies **100** installed as just described, when the operator desires to totally remove the drawer while maintaining horizontal and vertical stability of the drawer, the floating rail **12**, i.e., the smaller C-channel **34**, slides along the stationary floating rail guide **26** of the cabinet rail **11**. Additionally, the drawer slide **13** slides within the larger C-channel **44** of the floating rail **12** while still being fixedly secured to the side wall **68** of the drawer **25**. Thus it can be seen that the drawer **25** can be totally withdrawn from the cavity of a cabinet structure **20** and still be supported in a vertical and horizontal position without the need of the outwardly extending flanges **84** of the drawer **25** being supported upon the drawer glides **30** of the cabinet structure **20**.

In order to prevent inadvertent total withdrawal of the floating rail **12** or the drawer slide **13** from the floating rail **12**, the larger C-channel vertical pin **54** and second vertical pin **56** have been provided. In operation, the floating rail **12** is prevented from being totally withdrawn from the stationary floating rail guide **26** when the second vertical pin **56** of the smaller C-channel **44** abuts against the rear surface **106** of the stationary floating rail guide **26**. Similarly, the drawer slide **13** is precluded from being inadvertently totally withdrawn from the floating rail **12** by the placement of the larger C-channel vertical pin **54**. When the leading edge **108** of the drawer slide **13** abuts against the larger C-channel vertical pin **54** of the floating rail **12**, the drawer slide and consequently the drawer **25** is prevented from further removal. It will be appreciated that the degree of removal of a particular drawer **25** is dependent upon several parameters which may be selectively altered as desired. More specifically, changing the length of the stationary floating rail guide **26**, location of the second vertical pin **56**, location of the larger C-channel vertical pin **54**, and length and position of the drawer slide **13** with respect to the side wall **68** of drawer **25** will result in the drawer being capable of being removed different distances.

When it is desired to remove the drawer extender assemblies **100** from the storage or cabinet structure **20**, it is merely necessary for the operator to unfasten or unglue the cabinet rail **11** from the vertical internal walls **80** of the cabinet structure. The drawer extender assemblies and drawer can then be removed from the cabinet structure and the drawer slide **13** subsequently removed from the side wall **68** of the drawer **25**. The drawer extender assemblies **100** can then be subsequently secured to another drawer for use in another cabinet structure.

While the preferred embodiment of the invention has been disclosed, it is understood that the invention is not limited to such an embodiment since it may be otherwise embodied in the scope of the appended claims.

What is claimed is:

1. A drawer extender assembly comprising a pair of cabinet rails being removably securable to vertical internal walls of a cabinet structure by fastening means, a pair of floating rails, each cabinet rail being provided with a floating rail guide positioned toward the front of the cabinet rail upon which the floating rails slide, said floating rail guides longitudinally extending a distance not greater than one-half the length of the cabinet rails, said floating rails comprising two C-shaped channels having common backs for at least portions of their height, one of said C-shaped channels being adapted to fit over and slide upon a horizontally extending floating rail guide of said cabinet rails, said one C-shaped channel being provided with stop means adapted to abut against the rear surfaces of said floating rail guides when said floating rail guides are fully extended, said stop means comprising a vertically extending pin located towards the rear of said one C-shaped channel, and the other C-shaped channel adapted to slideably receive said drawer slides, said other C-shaped channel being provided with stop means adapted to abut against the leading edge of said drawer slides when said drawer is fully extended, said stop means comprising a vertically extending pin located towards the front of said other C-shaped channel, and a pair of drawer slides, said drawer slides being removably securable to the side walls of a drawer by said fastening means, said drawer slides being less than one-half the length of said side walls of the drawer to which they are fastened, each of said drawer slides being horizontally slideable on each of said floating rails.

2. A drawer extender assembly as claimed in claim **1** wherein said fastening means is a removable adhesive.

3. A drawer extender assembly comprising a pair of cabinet rails removeably securable to vertical internal walls of a cabinet structure by fastening means, a pair of floating rails, each cabinet rail being provided with a floating rail guide positioned toward the front of the cabinet rail upon which a floatinhg rail slides, said a floating rail guide longitudinally extending a distance not greater than one-half of a length of the cabinet rails, said floating rails comprising an integral member defining two different sized C-shaped channels formed with a common back for at least a portion of their height, one of said C-shaped channels being adapted to fit over and slide upon a horizontally extending floating rail guide of said cabinet rail, said one C-shaped channel being provided with stop means adapted to abut against the rear surface of a floating rail guide when said floating rails are fully extended, said stop means comprising a vertically extending pin located towards the rear of said one C-shaped channel, and the other C-shaped channel adapted to slidably receive a drawer slide, said other C-shaped channel being provided with a stop means

adapted to abut against the leading edge of said drawer slide when said drawer is fully extended, said stop means comprising a vertically extending pin located towards the front of said other C-shaped channel and a pair of drawer slides, said drawer slides being removeably securable to the side walls of a drawer by fastening means, said drawer slides being less than one-half of the length of said side walls of the drawer to which they are fastened, each of said drawer slides being horizontally slidable in each of said floating rails.

4. A drawer extender assembly as claimed in claim 3 wherein said floating rail guides are "T-shaped" extensions which slidably mate in the floating rail channel and which serve to support the floating rail guide.

5. A drawer extender assembly as claimed in claim 3 wherein the length of said floating rail member is substantially equal to the length of said cabinet rail member.

6. A drawer extender assembly as claimed in claim 3 wherein said cabinet rail defines an outer arcuate surface constructed to fit into an arcuate recess defined in said cabinet wall.

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