Sept. 26, 1967 H. L. GOGERTY 3,343,205

MEANS FOR GUIDING MOVABLE WALL PANELS

Original Filed May 21, 1962 3 Sheets-Sheet 1

Fig. 1

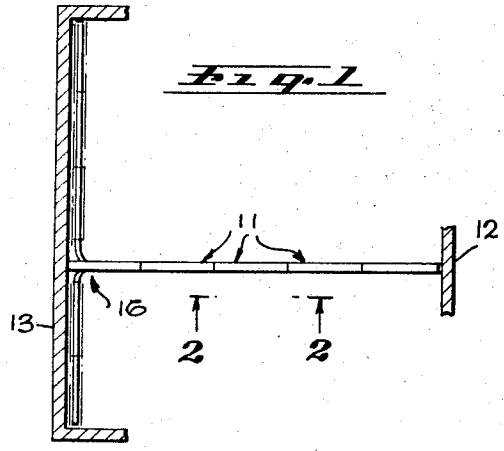


Fig. 2

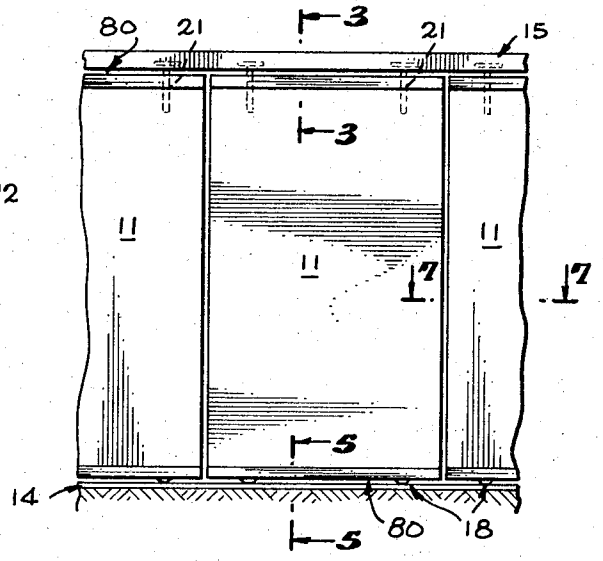


Fig. 3

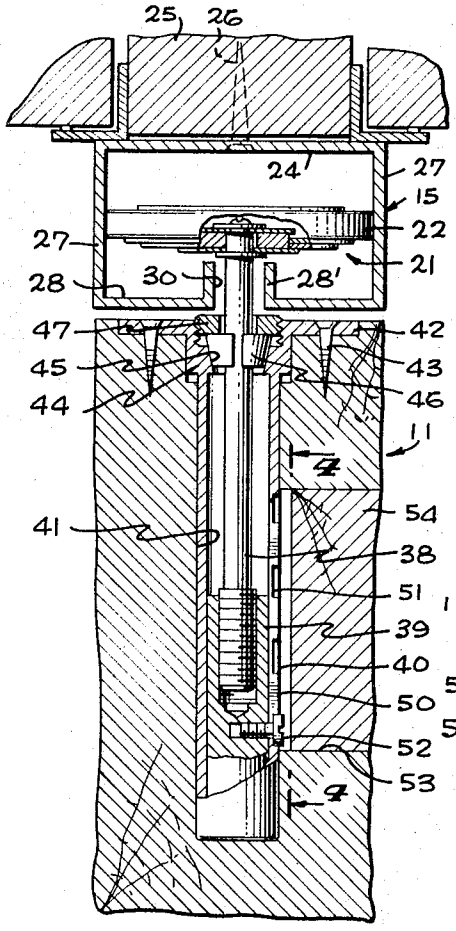


Fig. 5

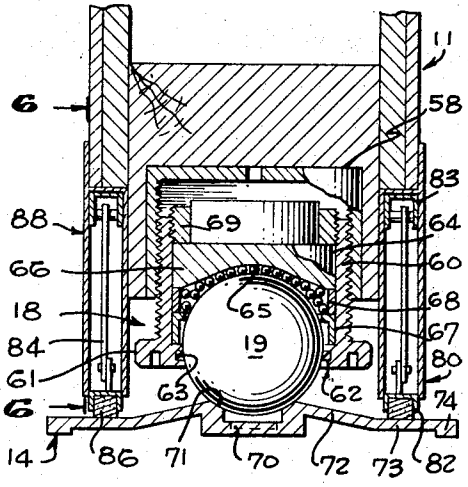
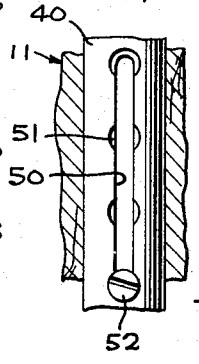


Fig. 4



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Fig. 7

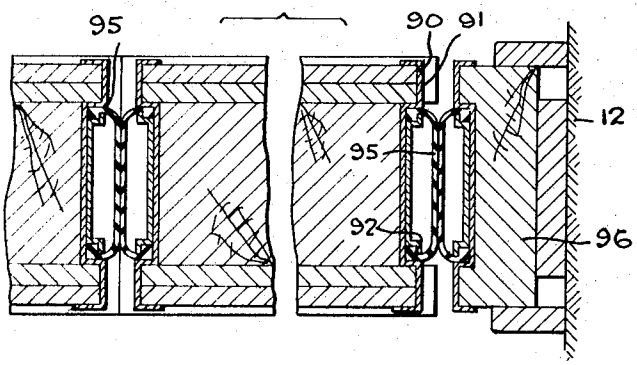


Fig. 8

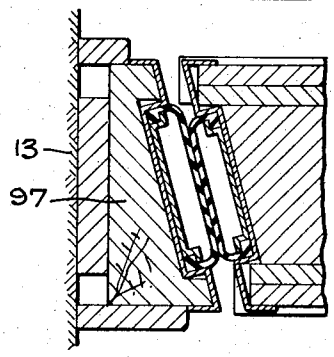


Fig. 6

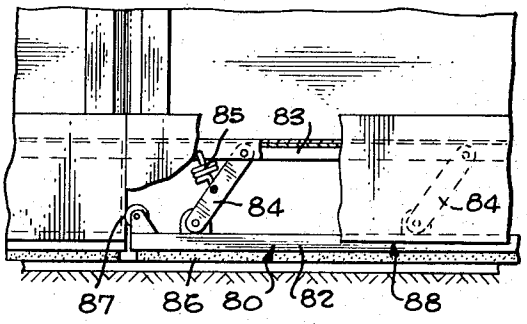


Fig. 11

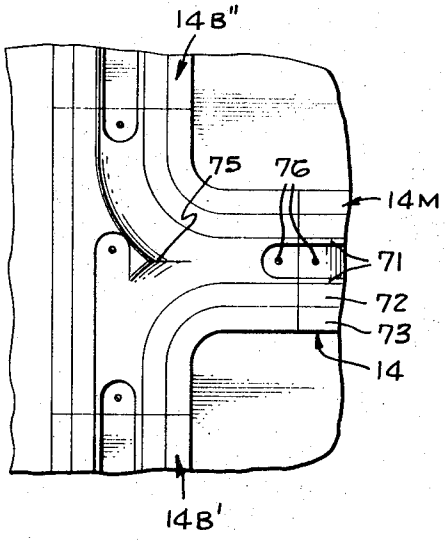


Fig. 10

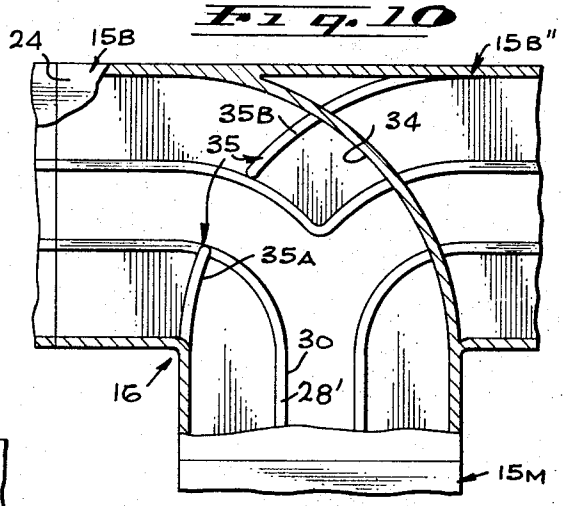
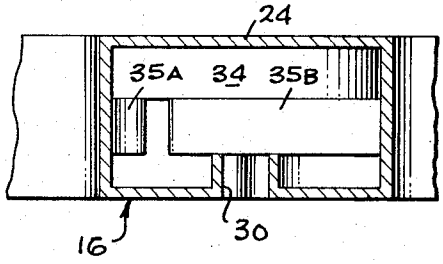


Fig. 9



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MEANS FOR GUIDING MOVABLE WALL PANELS

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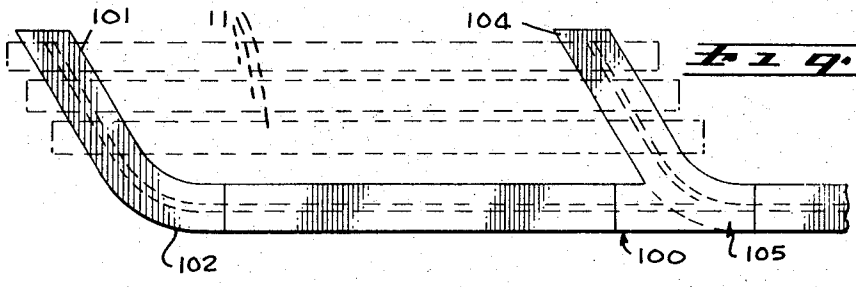


Fig. 12

Fig. 14

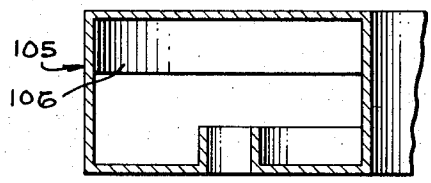


Fig. 13

Fig. 15

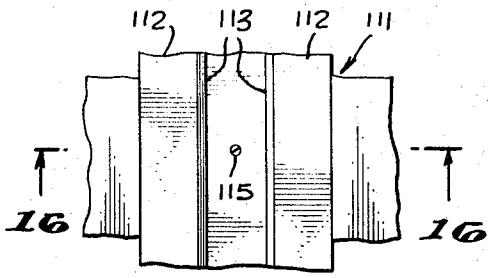
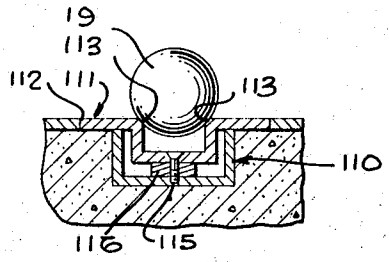


Fig. 16



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MEANS FOR GUIDING MOVABLE WALL PANELS

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Original application May 21, 1962, Ser. No. 196,050, now Patent No. 3,241,197, dated Mar. 22, 1966. Divided and this application Mar. 18, 1966, Ser. No. 535,495
4 Claims. (Cl. 16—106)

ABSTRACT OF THE DISCLOSURE

This invention relates generally to building construction and more particularly to the support and guidance of movable panels and the like and the storage or housing thereof.

The application is a division of my copending application, Ser. No. 196,050, filed May 21, 1962, entitled, "Means for Guiding Movable Wall Panels," Patent No. 3,241,197.

An object of the invention is to provide novel means for supporting and guiding large interior wall panels and the like which involves a single main track in the ceiling serving merely for the lateral support of the panels and guidance thereof during movement and a single main track in the floor which carries the weight of the panels, together with alternate novel branch track and diverter means for storing the panels in a side-by-side or edge-to-edge relation, respectively.

Another object is to provide novel guide elements adapted to be mounted in the upper edge portions of the panels for cooperation with an upper track means and so constructed as to enable them to be vertically adjusted for predetermined alignment with a given vertical zone of the track means.

Still another object is to provide a novel individual panel construction adapted to form a sealed partition or wall when a plurality of panels are moved together in edge-to-edge relation.

A further object is to provide a novel roller ball support means for the panels upon which they can be readily moved.

These and other objects will be apparent from the drawings and the following description. Referring to the drawings:

FIG. 1 is a plan view, largely diagrammatic of a portion of a room of a building showing a plurality of movable wall panels in position to serve as a partition;

FIG. 2 is a fragmentary elevational view on line 2—2 of FIG. 1 showing one panel and portions of adjacent panels in elevation;

FIG. 3 is a sectional view on line 3—3 of FIG. 2, but on a larger scale;

FIG. 4 is a fragmentary sectional view on line 4—4 of FIG. 3;

FIG. 5 is a sectional view on line 5—5 of FIG. 2, but on a larger scale;

FIG. 6 is a fragmentary elevational view on line 6—6 of FIG. 5;

FIG. 7 is a fragmentary sectional plan view in the plane of line 7—7 of FIG. 2, but on a larger scale;

FIG. 8 is a view similar to FIG. 7, but at the region of the opposite end of the partition wall;

FIG. 9 is a sectional view on an enlarged scale of the upper track intersection between the main and branch tracks;

FIG. 10 is a plan view, partially broken away, showing the track intersection of FIG. 9;

FIG. 11 is a plan view of the floor track at the point of intersection with the lateral end track;

FIG. 12 is a plan view of another arrangement of track for storing panels;

FIG. 13 is a plan view at the intersection of the branch track of FIG. 12;

FIG. 14 is a cross-sectional view on line 14—14 of FIG. 13;

FIG. 15 is a fragmentary plan view of another type of floor track; and

FIG. 16 is a cross-sectional view on line 16—16 of FIG. 15.

More particularly describing the invention, referring first to FIGS. 1–11, inclusive, in FIG. 1 I show a plurality of movable panels 11 which are disposed in edge-to-edge relation between the walls 12 and 13 of a building, thus serving as a partition. FIG. 1 is largely diagrammatic, however, it is to be understood that the panels are supported upon a floor track 14 and are guided by an upper track 15, and in the particular arrangement shown in FIG. 1 both these tracks, which are in vertical registration, include a main section upon which the panels are disposed in FIG. 1 and two branch sections which intersect at 16 with the main section and provide a region for the storage of the panels along wall 13.

As will appear, the weight of the panels is carried by the floor track 14 and the upper track 15 merely serves to guide the panels and maintain them vertical. Consequently, both the upper track and the overhead support may be lightly constructed. The panels are provided with a pair of spaced roller ball assemblies 18, each of which has a rotatable roller ball 19 which runs on the floor track 14, as best seen in FIG. 5. Vertically above the roller ball assemblies each panel is provided with a pair of spaced guide assemblies 21 each of which includes a guide element or wheel 22 received within the upper track. The panel itself may be of any suitable material and construction.

Referring to the upper track 15, this is preferably substantially tubular and may be made of rectangular tubing, as best shown in FIG. 3. The track includes an upper wall 24 which may be secured to an overhead support 25 in the ceiling or other upper portion of the room by means of screws 26. The track has two side walls 27 and a bottom wall 28, the latter being interrupted by a central slot 30 extending longitudinally of the track and defined in part by flanged or upstanding wall edge portions 28'.

One of the features of the invention is the provision of guide elements extending above the panels which may be adjustably positioned at a selected elevation within the upper track and the provision of diverter means in the track at the intersection of the main track with a branch track for the purpose of diverting guide elements to the branch track provided the elements are at the proper elevation. A diverter means in the track is made to occupy only a portion of the height of the interior of the track so that the guide elements (wheels 22) may be positioned either to engage such diverter means or to freely pass the same.

Referring to FIG. 10, wherein the intersection 16 between the main section of upper track, designated 15M, and the two branch sections, designated 15B' and 15B'', is shown, it will be seen that slot 30 continues from the main section to the branch sections through a Y-like branch. Within the intersection are two diverter cam means. One of these is formed by an upper curved wall 34 which extends from the side wall of the main section 15M of the track to the far side wall of the branch section 15B'. This diverter cam extends vertically downward only a limited distance from the upper wall 24, as best seen in FIG. 9, and serves to deflect panel guide wheels 22 at the same height from the section 15M to the section 15B'.

Located below the zone of wall **34** is the other diverter cam means which comprises an interrupted wall **35** formed by two sections **35A** and **35B** which curve oppositely to the wall **34** leading from a side wall of the main track to the far side wall of branch track **15B''**. The space between the adjacent ends of wall sections **35A** and **35B** permits passage of the post of such guide wheels as are at a higher elevation.

Referring now to FIGS. 3 and 4, the guide assemblies are shown as comprising a post **38** which carries the aforementioned guide wheel **22** at its upper end. The post is threadedly mounted in a bushing or insert **39** which in turn is adjustably mounted in a barrel **40**. The latter is received in a bore or cavity **41** provided in the upper marginal region of the panel, and includes ears **42** which are recessed in the panel and anchored by screws **43**. The upper end **44** of the barrel has a tapered seat **45** to receive a split tapered ring **46** for locking the post at adjusted height by means of a nut **47**.

To enable adjustment of the post, the mounting tube is provided with a longitudinal slot **50** and several spaced screw-head-receiving recesses **51**. With this arrangement a mounting screw **52**, which threads into the insert, may be selectively positioned at one of the recesses to secure the bushing **39**. Minor adjustments are made by rotating the post. Access to screw **52** is provided through an opening **53** leading to the edge of the panel. The opening may be closed by a block **54**.

It will be apparent that the guide wheels **22** may be adjustably positioned at the desired elevation within the track **15** so as to engage a particular diverter cam means at a track intersection. While the guide wheel of the particular assembly shown can be adjusted to four main positions by means of the screw **52**, slot **50** and recesses **51**, only two are required for the particular track **15** shown which has but two zones, however, I contemplate the provision of tracks with three or more zones.

As previously indicated, the panels rest upon roller balls **19** and another feature of the invention is the construction thereof. Referring to FIG. 5, I provide a cup-like housing **58** which is internally threaded to receive an externally threaded retainer **60** provided with an end flange **61** which receives a dust ring **62** in a grooved semi-spherical ledge **63**. In the retainer is a bearing seat **64** which has a spherical surface **65** opposite and corresponding to that of the roller ball. Outwardly of this, at its periphery, the surface is flared at **66**. A spacer sleeve **67** is provided between the end of the retainer and the seat, and ball bearings **68** are placed between the roller ball and the seat. The seat is retained by ring nut **69**.

It will be apparent that with this construction the roller ball may be adjusted within the housing and hence vertically of the panel by rotating retainer **60**, thereby making it possible to level and adjust the panels.

In FIGS. 5 and 11 I show one form of floor track. This is characterized by a central channel-shaped section **70** with two track surfaces **71** that are preferably formed to be of the same curvature as the roller balls and upon which the latter roll. On each side of the central section the track has an inclined section **72** and outwardly of this a flat section **73** provided with a longitudinal rib **74** on its under surface. The cross-sectional configuration of the center section changes at intersections from rectangular to concave as in the region **75** where the two runways merge. The track is anchored to the floor by screws **76**. In FIG. 11 the intersection of the main section **14M** with the two branch sections **14B'** and **14B''** is shown, this being located in registration or substantially in registration beneath the corresponding T-shaped intersection of the upper track shown in FIG. 10. In this connection I have found it desirable to have the guide wheels **22** of the panels deflected by the diverter means of the upper track slightly ahead of the roller balls **19** as otherwise there is a tendency for the roller balls to lag slightly.

This can be accomplished by having the diverter cam means of the upper track slightly ahead of the curved sections of the lower track at each end of the upper track intersections.

Another feature of the invention is the provision of means for effecting a seal between the panels and the ceiling and floor when the panels are moved together. To accomplish this, each panel at its upper and lower edges is provided with a pair of seals **80**, as shown in FIGS. 5 and 6 which illustrate the lower seals, the upper seals being the same, only inverted. Each seal includes spaced parallel members **82** and **83** connected by pivoted links **84** and springs **85** serving to retract the assembly. The outer member **82** carries a seal strip **86** adapted to contact the floor (or ceiling). At their ends the members **82** are provided with rollers **87** projecting beyond the edge of the panel adapted to be engaged by an adjacent panel to urge the seals to expanded position. A housing **88** contains the assembly.

Also it is desirable to seal the adjacent edges of the panels. For this purpose the vertical side edges of the panels are recessed at **90** and fitted with metal nosing strips **91** having a pair of recessed channels **92** receiving marginal beaded portions of a flexible plastic seal **95**. A similar seal may be provided on a jamb **96** on the wall **12** as shown in FIG. 7. Also, on wall 13, a beveled jamb **97** and seal is provided for contact by the adjacent end of the last panel, also beveled at such edge.

Referring now to FIGS. 12–14, I show an alternate manner of storing the panels wherein a main upper track **100** terminates in an inclined end portion **101** connected by a curved section **102** and wherein a branch track section **104** is connected by a switch or intersection **105**. In this form of the invention the panels are moved down into the end section and branch track to be stored in parallel relation as shown in broken lines, there being floor tracks below those shown.

The switch or intersection **105** has an upper diverter cam wall **106** leading from the outside of the main track to the corresponding wall of the branch track. This wall is of limited height so that it will only divert panels or portions thereof having a guide wheel at the same elevation. Thus by having the leading guide wheel of each panel at an elevation below this diverter cam wall, the wheel may pass through the switch intersection into the end section **101** of the main track and by having the other guide wheel at the elevation of the wall **106** that particular wheel will be diverted into the switch track.

In FIGS. 15 and 16 I show a form of recessed floor track which includes a pair of channels **110** and **111**. Channel **110** is mounted in the floor and can be conveniently installed at the time the floor is poured, should the same be of concrete. The other channel is received within the first channel and has laterally extending flanges **112** extending therebeyond. Two beveled surfaces **113** act as a roller ball runway or track. Preferably these are curved about the same radius as the roller balls. Screws **115** and shims **116** serve to secure the channel **111**.

Although I have illustrated and described preferred forms of my invention, I contemplate that various changes and modifications can be made therein without departing from the invention, the scope of which is indicated by the following claims.

I claim:

1. A guide wheel assembly adapted to be mounted in the upper margin of a mobile panel, comprising a housing for reception in a cavity in the panel an insert in said housing a post threadedly mounted in said insert and projecting therebeyond means for adjustably positioning said insert at different heights in said housing, and a guide wheel carried at the outer end of the post.

2. The guide wheel assembly set forth in claim **1** in which the means for adjustably positioning said insert

comprises a screw receivable through the housing at any of a plurality of locations and a threaded bore in the insert into which said screw is received.

3. The guide wheel assembly set forth in claim 1 in which locking means is provided in said housing to releasably hold said post in adjusted position.

4. The guide wheel assembly set forth in claim 3 in which said locking means comprises a nut threadedly mounted in said housing bearing against a movable wedge-shaped means embracing the post and seated in a wedge-shaped seat in said housing.

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