Nov. 7, 1933. J. T. FAIRHURST 1,934,299

FOLDING PARTITION

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Fig. 1.

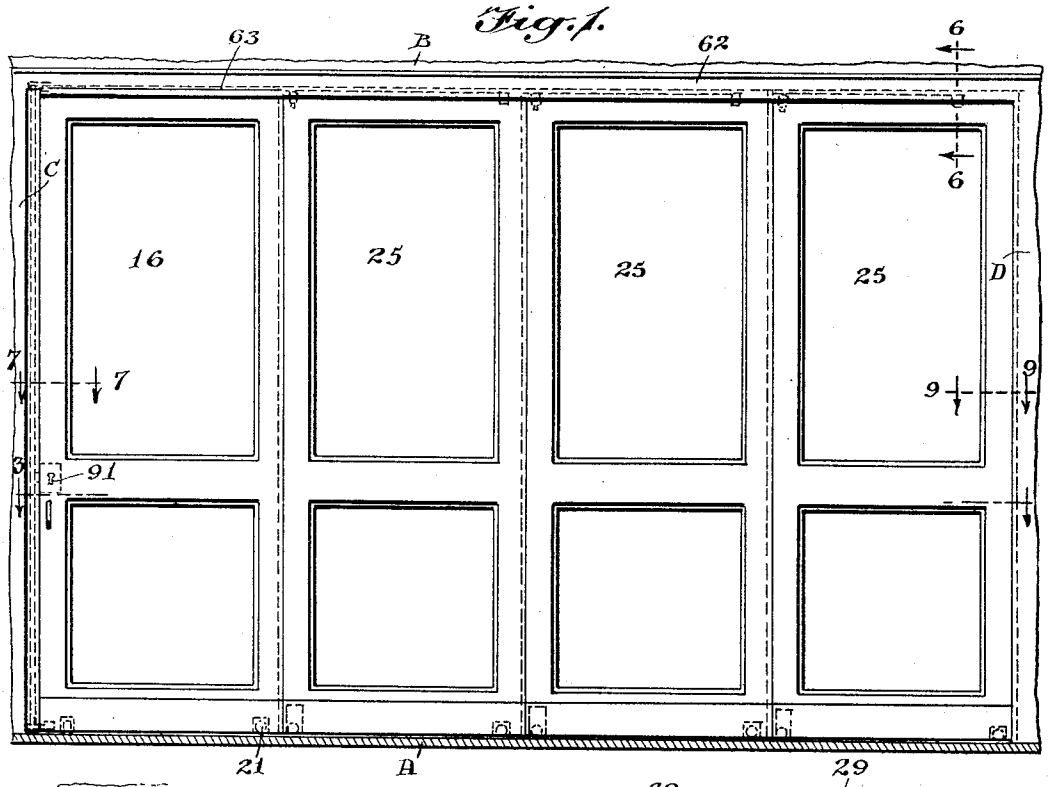


Fig. 2.

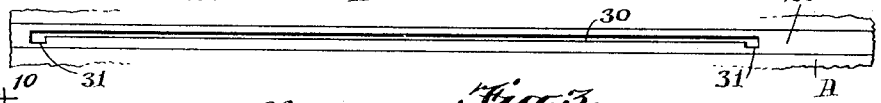


Fig. 3.

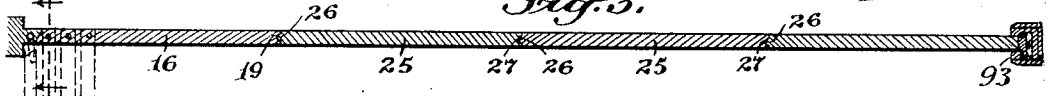


Fig. 5.

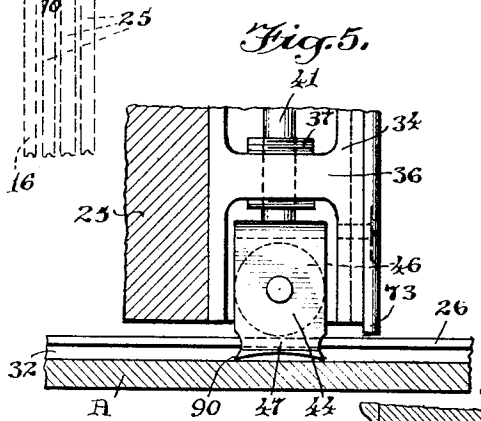


Fig. 4.

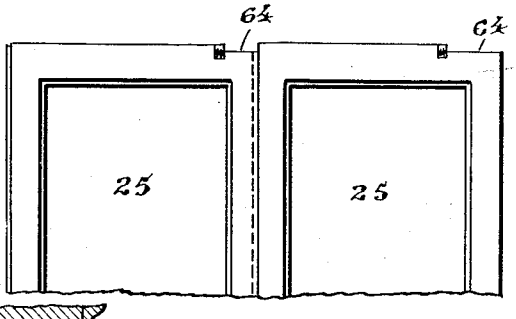
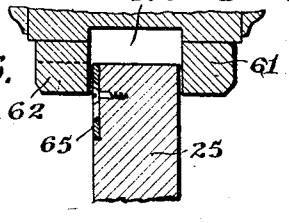


Fig. 6.



WITNESSES

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Nov. 7, 1933. J. T. FAIRHURST 1,934,299

FOLDING PARTITION

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Fig. 7.

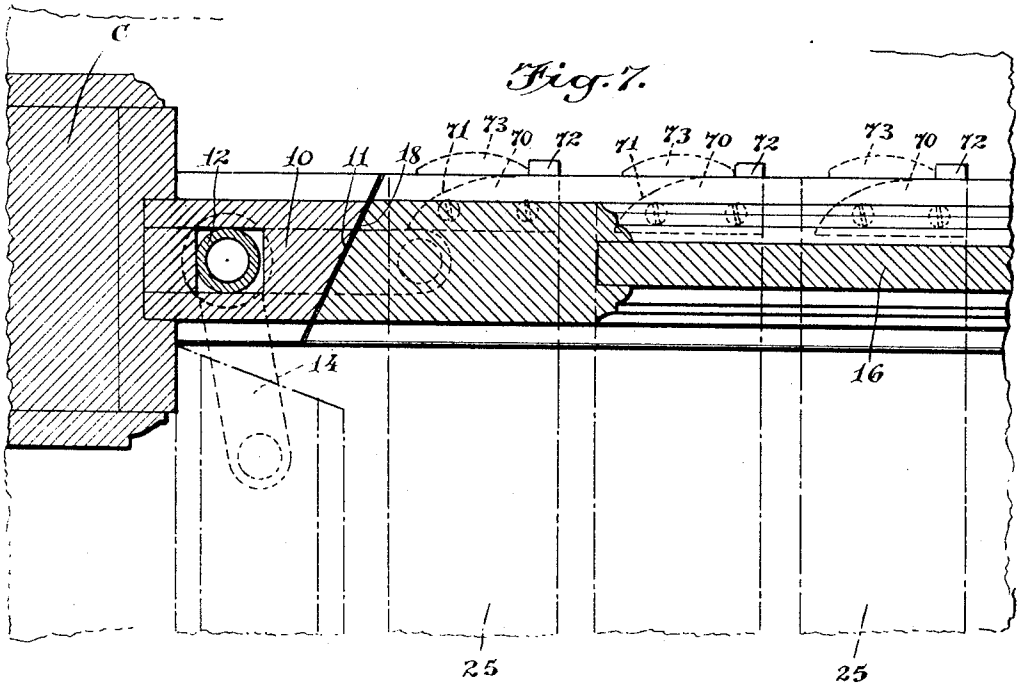


Fig. 9.

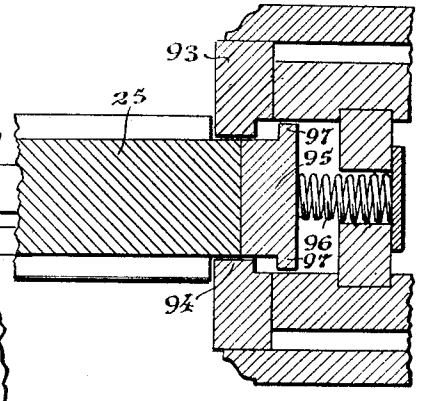
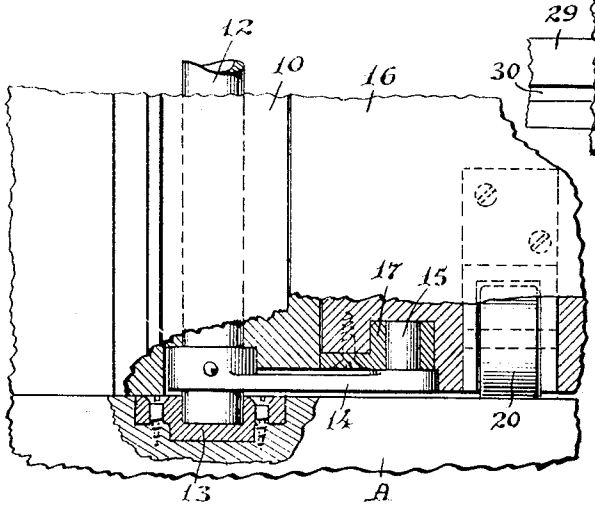


Fig. 8.



WITNESSES

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Nov. 7, 1933. J. T. FAIRHURST 1,934,299

FOLDING PARTITION

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Fig. 10.

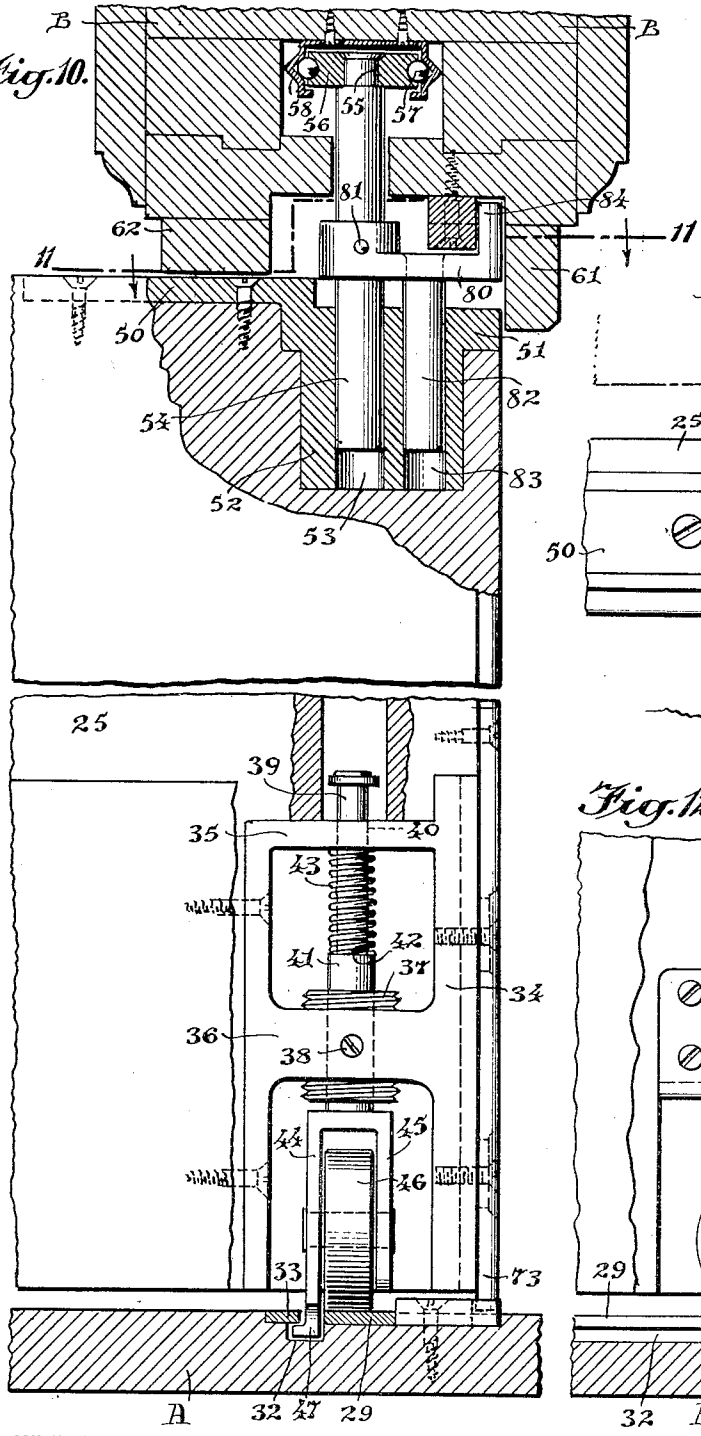


Fig. 11.

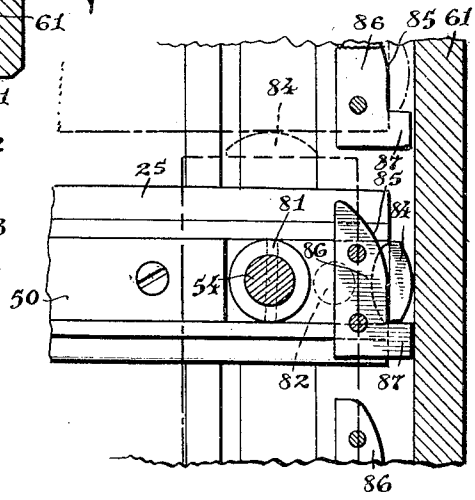
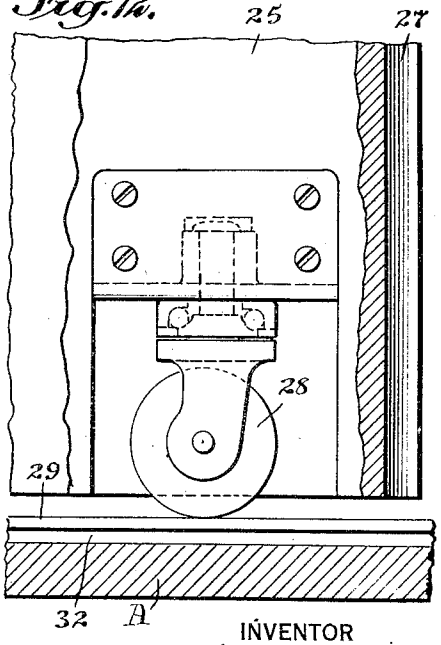


Fig. 12.



WITNESSES

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Patented Nov. 7, 1933

1,934,299

UNITED STATES PATENT OFFICE

1,934,299

FOLDING PARTITION

John T. Fairhurst, Forest Hills, N. Y.

Application August 3, 1929. Serial No. 383,203

19 Claims. (Cl. 20—20)

This invention relates generally to partitions, and refers more particularly to folding partitions which are employed for the temporary subdivision of a large room and which are capable of folding to an out-of-the-way position when not in use.

Folding partitions of this nature which have been previously devised have been open to certain objections which the present invention aims to overcome and have lacked the many advantages which it is the purpose of the present invention to supply. Heretofore partitions of this nature have included a plurality of hingedly connected sections adapted to be swung alternately in opposite directions to a folded parallel relation and have required the use of bolts on each section for holding the same in their active closed position. These types of partitions have also had their sections suspended from an overhead support and, obviously, the settlement of a building, waving floors and sagging beams have tended to materially affect the proper operation of the partition.

In order to overcome the above recited objections, the present invention primarily comprehends an improved folding partition in which the sections are mounted for independent movement whereby the same may be individually moved to and from their active and inactive positions.

As a further object, the invention contemplates an improved folding partition which is constructed in such a manner and provided with means for compensating for unevenness of the floor due to settlement of the building or sagging of the beams.

More specifically, the invention embodies a folding partition including a non-slidable swinging end section and a plurality of slidable and swingable sections, together with means for limiting the swinging movement of the slidable sections to a point where the said slidable sections are to be nested alongside of the non-slidable section.

The invention further resides in the provision of an improved folding partition by virtue of which the several sections thereof may be securely locked in their active position by a single locking means.

A further feature of the invention resides in the provision of a flush track, together with means on the partition cooperating therewith, for maintaining the sections in aligned active position without the necessity of individually bolting the sections in place.

Other objects reside in the comparative simplicity of construction and mode of installation of the partition, the economy with which the same may be produced and installed and the general efficiency derived therefrom.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings, in which there is exhibited one example or embodiment of the invention, while the claims define the actual scope of the same.

In the drawings:

Figure 1 is a side view of the partition in closed active position.

Figure 2 is a fragmentary plan view of the track over which the partition sections are moved.

Figure 3 is a sectional plan view taken approximately on the line 3—3 of Figure 1, and illustrating in full lines the partition in closed active position, with the sections shown in broken lines in their folded position.

Figure 4 is a fragmentary side view of the upper portion of several of the slidable partition sections, illustrating the means for limiting the swinging movement of the sections.

Figure 5 is a detail fragmentary sectional view illustrating the self-cleaning means for the track groove.

Figure 6 is an enlarged fragmentary transverse sectional view taken approximately on the line indicated at 6—6 in Figure 1.

Figure 7 is an enlarged sectional plan view taken approximately on the line indicated at 7—7 in Figure 1.

Figure 8 is a detail fragmentary side view with parts broken away and shown in section to disclose the underlying structure, and particularly illustrating the lower supporting means for the non-slidable end section.

Figure 9 is an enlarged fragmentary sectional plan view taken approximately on the line 9—9 of Figure 1.

Figure 10 is a fragmentary enlarged transverse sectional view illustrating one of the sliding doors in its folded position.

Figure 11 is a horizontal sectional view therethrough taken approximately on the line 11—11 of Figure 10.

Figure 12 is an enlarged side view of the free lower corner of one of the slidable sections.

Referring to the drawings by characters of reference, A designates the floor, B the ceiling, and C and D the opposite sides which frame the opening to be partitioned by the folding partition which constitutes the subject matter of the pres-

ent invention. The side C of the opening is formed with a stationary outwardly projecting vertically extending jamb strip 10 which is formed with a beveled free edge 11. A vertical, preferably tubular, shaft 12 extends through the jamb strip and is journaled at its lower end in a step bearing 13 countersunk in the floor A, its upper end being suitably journaled in a bearing carried by the ceiling B. Adjacent its upper and lower ends the shaft has keyed thereto a pair of radially projecting arms 14, said upper and lower arms being respectively provided with downwardly and upwardly projecting trunnions 15. The partition includes a non-slidable swingable end or master section 16 which is provided at its upper and lower ends with trunnion bearings 17 for receiving the trunnions 15, whereby the end or master section 16 is mounted for swinging movement on the trunnion arms and for swinging movement with the trunnion arms. The said end or master section has one side edge formed with a bevel 18 corresponding to and adapted to mate with the bevel edge 11 of the jamb strip 10. The opposite side edge of the master section 16 is formed with a groove 19. Mounted in a recess in the lower edge of the master section adjacent its fulcrumed side edge is a transversely disposed supporting roller 20 which is adapted to bear on the floor A to assist in relieving the supporting arms 14 of some of the strain when the master section is swung with or relative to the arms 14. Recessed in the lower edge of the master section 16, adjacent its free side edge, is a caster roller 21 which is also designed to support said section. The partition further includes a plurality of slidable and swingable sections 25 which are of substantially identical construction and which are provided respectively at their opposite side edges with tongues 26 and grooves 27, the tongue 26 of the section 25 adjacent the master section being adapted to enter the groove 19 thereof and the tongues 26 of the remaining sections being adapted to interengage with the grooves 27 of the preceding sections. Each section 25 has recessed in its lower edge adjacent its grooved side edge, a supporting castor roller 28 which is designed during the sliding of the section to roll on a countersunk track 29, and during the swinging of the section to engage with the floor A. The track is arranged in a recess in the floor and is disposed flush therewith, and said track is formed with a longitudinal slot 30 having laterally offset portions 31 at its opposite ends for a purpose to be hereafter set forth. The floor A is formed with a groove or channel 32 which is of greater width than the narrow portion of the slot and which approximates the wider or offset end portions 31 to provide an edge 33 of the track which defines the groove 30, which edge overhangs or protrudes beyond one side of the groove or channel 32 in the floor while the opposite edge of the groove or channel is flush with the opposite edge of the slot 30. The sections 25 have recessed in the lower corner thereof adjacent the side edge provided with the tongue, a metal bearing plate 34 which is cut out or fashioned in such a manner as to provide an upper horizontal web 35 and an intermediate horizontal web 36. A bushing 37 is threaded through the intermediate web 36 to permit of vertical adjustments thereof, and said bushing is locked against vertical movement when adjusted by means of a set screw 38. A stem 39 extends upwardly and freely through the bushing 37 and through a bearing aperture 40 in the upper web 35. The lower portion of the stem is enlarged as at 41 to define a shoulder 42 against which the lower convolution of a coiled expansion spring 43 seats, the upper end of said spring engaging against the under side of the web 35. The lower end of the enlarged portion 41 of the stem is bifurcated and defines spaced parallel furcations 44 and 45, between which a roller 46 is mounted, which roller 46 is adapted to roll on the track 29. The furcation 44 is provided with a downwardly projecting hooked or angled terminal 47 which extends into the groove and engages under the protruding edge 33, said terminal being accommodated by the groove or channel 32 in the floor. Obviously, this arrangement permits of the sliding of the support for the roller 46 while allowing for relative swinging movement of the sections 25.

The upper corner of each section 25 adjacent the tongue edge has recessed thereinto a bearing plate 50 disposed flush with the upper edge for its major portion and provided with a slightly downwardly offset remaining portion 51 from which an integral sleeve 52 depends. The sleeve is provided with a bore 53 disposed in axial alignment or concentric with the axis of the stem 39, and said bore freely receives a vertical stub shaft 54 which protrudes upwardly therefrom and is swiveled as at 55 in a non-rotary carrier 56 which travels on ball bearings 57 in a channel shaped track 58 supported by the ceiling B. This arrangement, together with the lower support, allows for sliding and swinging of the sections 25. The mounting of the partition sections 25 thus described is such as to compensate for irregularities in the level of the floor and ceiling tracks resulting from settling of the building, it being obvious that if the lower or floor track 29 is uneven, the partition section moving thereover and supported by the lower support will follow the irregularities of the lower track but will be vertically guided and permitted to move with reference to the upper fulcrum means or stub shaft. If the upper or ceiling track 58 is uneven, the carrier 56 and depending stub shaft 54 following the unevenness of said overhead track 58 will be permitted to be moved vertically with reference to the partition section 25 and will be guided in said movement by the bore 53 in the sleeve 52.

In order to guide the sections 25 during their sliding movement from their active to their inactive positions and vice versa and to prevent swinging of the same during such movement except at their extreme open position for the folding nesting arrangement thereof, a channel 60 is defined at the ceiling within which the upper edges of the sections 25 engage. The channel 60 is defined by means of depending strips or moldings 61 and 62, the former also serving as an abutment for the master section 16. The latter strip or molding 62 is cut away as at 63 to allow for the swinging of the master section 16 and the remaining sections 25 to the open nested position. It will also be observed that the remaining sections 25 have the upper corners adjacent the grooved side edges formed with rabbeted or cut-away portions 64, which cut-away portions 64 vary in length to compensate for the variation in the point at which the slidable sections swing to the open nested position. In order to compensate for sagging due to settlement, each of the slidable sections is provided with an adjustable plate 65 adjacent the cut-away or rabbeted por-

tion 64 to insure the proper registry thereof with the cutaway portion 63 of the molding 62.

In order to provide means for preventing the sliding of the sections 25 after they have been opened to the point where they swing free of the guide channel 60, detent means is provided, both at the floor and ceiling, and said floor detent means consists of toe plates 70 having arcuate edges 71 intersected by a stop lug 72. Each of the sections 25 is provided with a depending finger 73 which is vertically adjustable and which is designed when the section is disposed in the proper position relative to the cut-away portion 63 of the molding 62 for swinging movement to the open nested position, to move along the arcuate edge 71 until it abuts with the stop lug 72. Obviously, this will prevent sliding of the section after it has been turned to its open nested position parallel with the master section or the preceding slidable section. The upper detent means consists of an arm 80 secured to the stub shaft 54 and projecting radially therefrom, which arm is caused to turn with the section 25 and stub shaft 54 by its keyed connection 81 with the stub shaft and the engagement of the eccentric depending pin 82 in the bore 83 of the collar 52. The free end of the arm is provided with an upturned finger 84 which corresponds to the finger 73 at the lower end of the section and which is designed to engage behind the arcuate edge 85 of the toe plate 86 which is carried by the ceiling within the guide channel 60. The toe plate 86 is similarly provided with a stop lug 87 against which the finger 84 engages.

Due to the fact that dust, dirt and other foreign matter enter the groove or channel 32 in the floor and would tend to impair the proper movement of the terminal 47 in the channel, the opposite ends of the terminal 47 are sharpened or pointed as at 90 to act as a scraper for preventing any appreciable collection of dust or dirt in the groove, it being apparent that the terminals sliding back and forth will eject the foreign matter from the offset or enlarged ends 31 of the slot 30.

In practice, the master section will preferably be provided with a lock 91, the bolt of which may be engaged in a keeper formed in the jamb strip 10, whereby all of the sections may be effectually locked by a single key. The side D of the opening is preferably framed by a jamb 93 which is grooved as at 94 to receive the free end of the endmost section 25, and said groove is sealed or filled by a filler element 95 which is forced into place by a spring 96 when the section 25 is moved to its opened position. The filler element is formed with oppositely disposed flanges 97 which prevent its displacement from the groove and dispose the same flush with the jamb element.

Due to the downwardly offset portion 51 of the bearing plate 50, it is obvious that sagging of the ceiling will be compensated for due to the fact that the arm 80 is free to move downwardly a limited distance.

I claim:

1. A mounting for independently swingable and foldable sections of a folding partition including overhead and underlying guided fulcrum means for each section, with reference to both of which means each section is vertically movable and downwardly yieldable means for supporting the sections from the underlying fulcrum means.

2. A mounting for independently swingable and foldable sections of a folding partition including overhead and underlying guided fulcrum means for each section, with reference to both of which means each section is vertically movable, downwardly yieldable means for supporting the sections from the underlying fulcrum means and means for limiting the downward yielding of said yieldable means.

3. A mounting for independently swingable and foldable sections of a folding partition including overhead and underlying guided fulcrum means for each section, with reference to both of which means each section is vertically movable, downwardly yieldable means for supporting the sections from the underlying fulcrum means and adjustable means for limiting the downward yielding of said yieldable means.

4. A mounting for a sliding and swingable partition section including overlying and underlying non-rotary members mounted for guided movement in a vertically parallel plane, connections between said members and the section to permit of relative swinging movement of the section and to allow for relative vertical movement of the section with respect to said members in order to compensate for irregularities in the horizontal path of movement of the members.

5. A mounting for individually slidable and swingable folding partition sections including parallel overlying and underlying guide tracks, a non-rotary member for each section mounted to slide in the overhead guide track, a fulcrum element swiveled on a vertical axis to and depending from said member, upon which fulcrum element the partition section is vertically slidable and with which said sections is turnable and a roller assemblage upon which the partition section bears and is fulcrumed at its lower end and by which said section is supported to move vertically therewith while sliding so as to compensate for irregularities in the guide tracks.

6. A mounting for individually slidable and swingable folding partition sections including parallel overlying and underlying guide tracks, a non-rotary member for each section mounted to slide in the overhead guide track, a fulcrum element swiveled on a vertical axis to and depending from said member, upon which fulcrum element the partition section is vertically slidable and with which said section is turnable, a roller assemblage upon which the partition section bears and is fulcrumed at its lower end and by which said section is supported to move vertically therewith while sliding so as to compensate for irregularities in the guide tracks and coacting means on each section and on a fixed support for holding the sections against sliding movement when moved and swung to an open position.

7. A mounting for individually slidable and swingable folding partition sections including parallel overlying and underlying guide tracks, a non-rotary member for each section mounted to slide in the overhead guide track, a fulcrum element swiveled on a vertical axis to and depending from said member, upon which fulcrum element the partition section is vertically slidable and with which said section is turnable, a roller assemblage upon which the partition section bears and is fulcrumed at its lower end and by which said section is supported to yield vertically while sliding so as to compensate for irregularities in the guide tracks and coacting means on each element and on a fixed support for holding the sections against sliding movement

when moved and swung to an open position, said latter means comprising a vertically projecting finger on each fulcrum element and a stationary plate formed with an arcuate surface and a projecting stop lug, by which arcuate surface the finger is guided and with which stop lug the finger engages.

8. A mounting for a slidable and swingable folding partition section including an overlying guide and an underlying parallel support and guide, a non-rotary member slidable in the overlying guide, a depending element swiveled in said member on a vertical axis engaging the partition section to turn therewith and with respect to which said section is capable of vertical movement, a roller rollable over the underlying support and guide and a non-rotary roller carrier engaging the support and guide having an upstanding trunnion disposed in vertical alignment with the axis of the swivel of the depending element and about which the partition section may turn.

9. A mounting for a slidable and swingable folding partition section including an overlying guide and an underlying parallel support and guide, a non-rotary member slidable in the overlying guide, a depending element swiveled in said member on a vertical axis engaging the partition section to turn therewith and with respect to which said section is capable of vertical movement, a roller rollable over the underlying support and guide, a non-rotary roller carrier engaging the support and guide having an upstanding trunnion disposed in vertical alignment with the axis of the swivel of the depending element and about which the partition section may turn and yieldable means supported by said roller carrier upon which the section rests and is yieldably supported.

10. A mounting for individually slidable and swingable sections of a folding partition including an overhead slidably guided non-rotary member for each section, an element swiveled therein on a vertical axis and depending therefrom and having a vertically slidable non-rotary bearing in the upper end of the section adjacent one edge thereof, a corresponding underlying non-rotary slidably guided member for each section having a supporting roller, an upwardly extending vertical trunnion disposed in axial alignment with the swivel of the depending element and upon which the section has rotary and axially slidable bearing and means for yieldably supporting and tensioning the section against downward movement.

11. A mounting for individually slidable and swingable sections of folding partitions including an overhead slidably guided non-rotary member for each section, to which the section is fulcrumed for swinging movement on a vertical axis and with reference to which the section is vertically slidable, a corresponding underlying non-rotary slidably guided member for each section having a supporting roller, means for preventing upward movement of said underlying member, an upwardly extending vertical trunnion on said underlying member disposed in axial alignment with the upper fulcrum point of the section and upon which the section has rotary and axially slidable bearing and means for yieldably supporting and tensioning the section against downward movement upon said trunnion.

12. In a foldable partition which includes a plurality of individually swingable and slidable sections, means for mounting said sections including parallel overlying and underlying guide tracks, a pair of non-rotary members for each section respectively supported by and mounted to slide in said tracks, a connection between each pair of members and each section to permit of relative swinging movement of said section and to allow for the relative vertical movements between the section and said members.

13. In a foldable partition which includes a plurality of individually swingable and slidable sections, means for mounting said sections including parallel overlying and underlying guide tracks, a pair of non-rotary members for each section respectively supported by and mounted to slide in said tracks, a connection between each pair of members and each section to permit of relative swinging movement of said section, guides engaging the upper sides of the sections and terminating at a point adjacent one end of the partition, said sections having progressively longer cut-away portions at the upper free corners thereof to permit each section to be released at a relatively different point adjacent one end of the partition to swing out of their normal sliding plane.

14. In a folding partition including guided slidable and swingable sections and a non-slidable swingable master section; a mounting for said master section comprising a link fulcrumed at one end to the master section adjacent one end thereof and fulcrumed at the other end to a fixed support to permit the free end of the master section to initially engage with the adjacent slidable section before the linked end of said master section is swung into the plane of sliding movement of the slidable sections.

15. A mounting for individually slidable and swingable folding partition sections including in combination with the overhead rail of the partition frame, an overhead guide carried thereby, a non-rotary member for each section mounted to slide in said overhead guide and a trunnion swiveled on a vertical axis in said member, depending therefrom and having keyed vertically slidable engagement with the partition section to turn with said section.

16. A mounting for individually slidable and swingable folding partition sections including in combination with the overhead rail of the partition frame, an overhead guide carried thereby, a non-rotary member for each section mounted to slide in said overhead guide and a trunnion swiveled on a vertical axis in said member, depending therefrom and having keyed vertically slidable engagement with the partition section to turn with said section and coacting means carried respectively to each trunnion and said overhead frame rail for locking the sections against sliding movement when shifted and swung to an open position.

17. A mounting for individually slidable and swingable folding partition sections including in combination with the overhead rail of the partition frame, an overhead guide carried thereby, a non-rotary member for each section mounted to slide in said overhead guide and a trunnion swiveled on a vertical axis in said member, depending therefrom and having keyed vertically slidable engagement with the partition section to turn with said section and coacting means carried respectively by each trunnion and said overhead frame rail for locking the sections against sliding movement when shifted and swung to an open position, said means comprising a vertically projecting finger disposed eccen-

tric to the axis of the trunnion and a stationary plate on the overhead frame rail, said plate having an arcuate finger guiding edge and a stop lug intersecting said arcuate surface.

18. A mounting for independently swingable and foldable sections of a folding partition including overhead and underlying guided fulcrum means for each section, means for supporting each section from the underlying fulcrum means and said upper fulcrum means being so constructed and arranged that each section is vertically movable with reference to said upper fulcrum means and each upper fulcrum means is vertically movable with reference to its partition section.

19. A mounting for a sliding and swingable partition section including overlying and underlying non-rotary members mounted for guided movement in vertically spaced substantially parallel planes, means for supporting the partition section from the underlying member to permit of relatively swinging movement of the section with reference thereto and a connection between said partition section and the overlying member to permit of relative swinging movement of the section and to allow for relative vertical movements between the partition section and said upper member in order to compensate for irregularities in the horizontal path of movement of the member.

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