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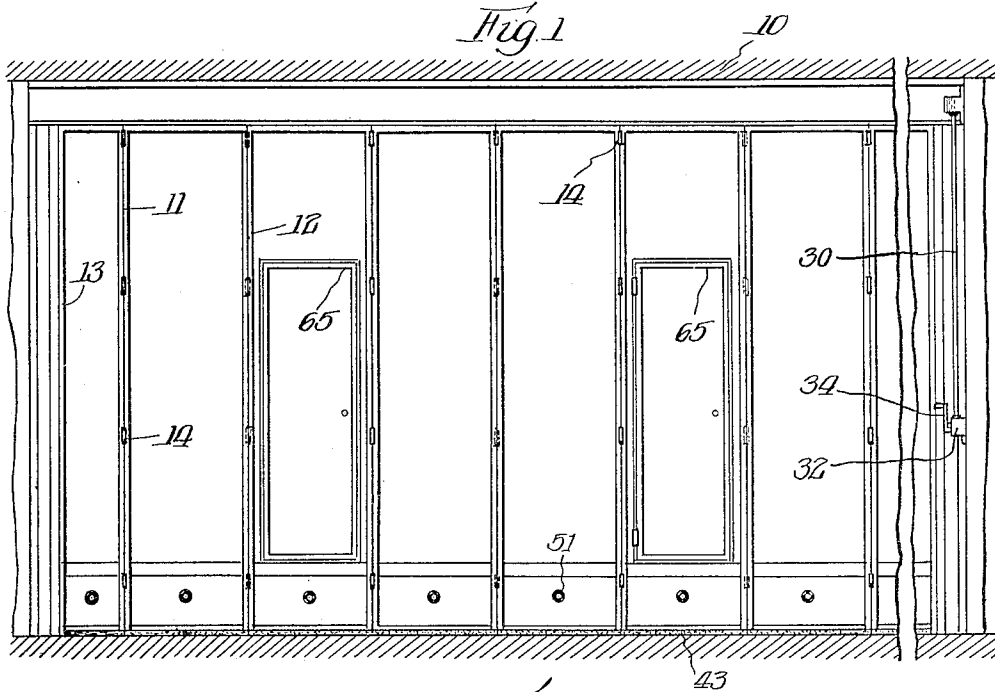
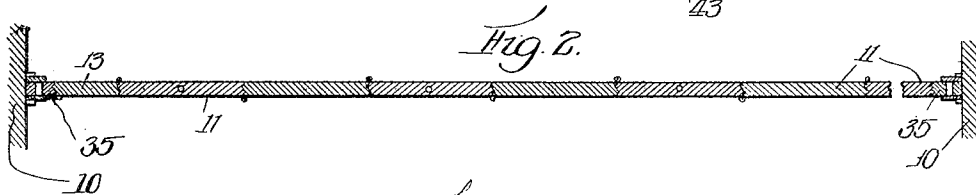
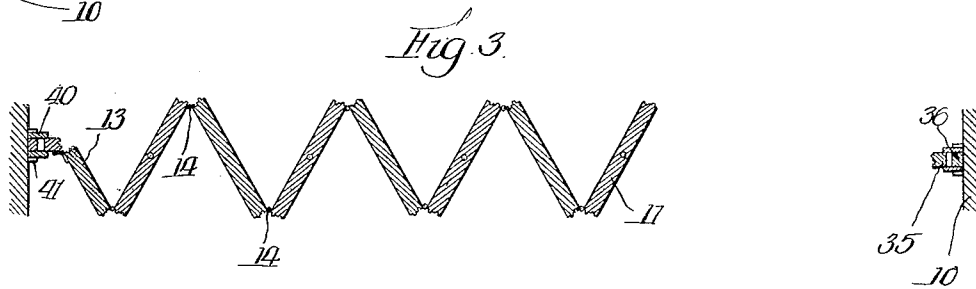
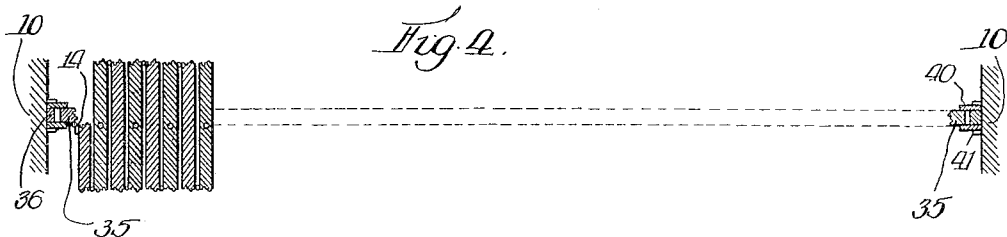
H. D. OBERDORFER ET AL

1,893,147

FOLDING PARTITION

Filed Feb. 25, 1929

3 Sheets-Sheet 1



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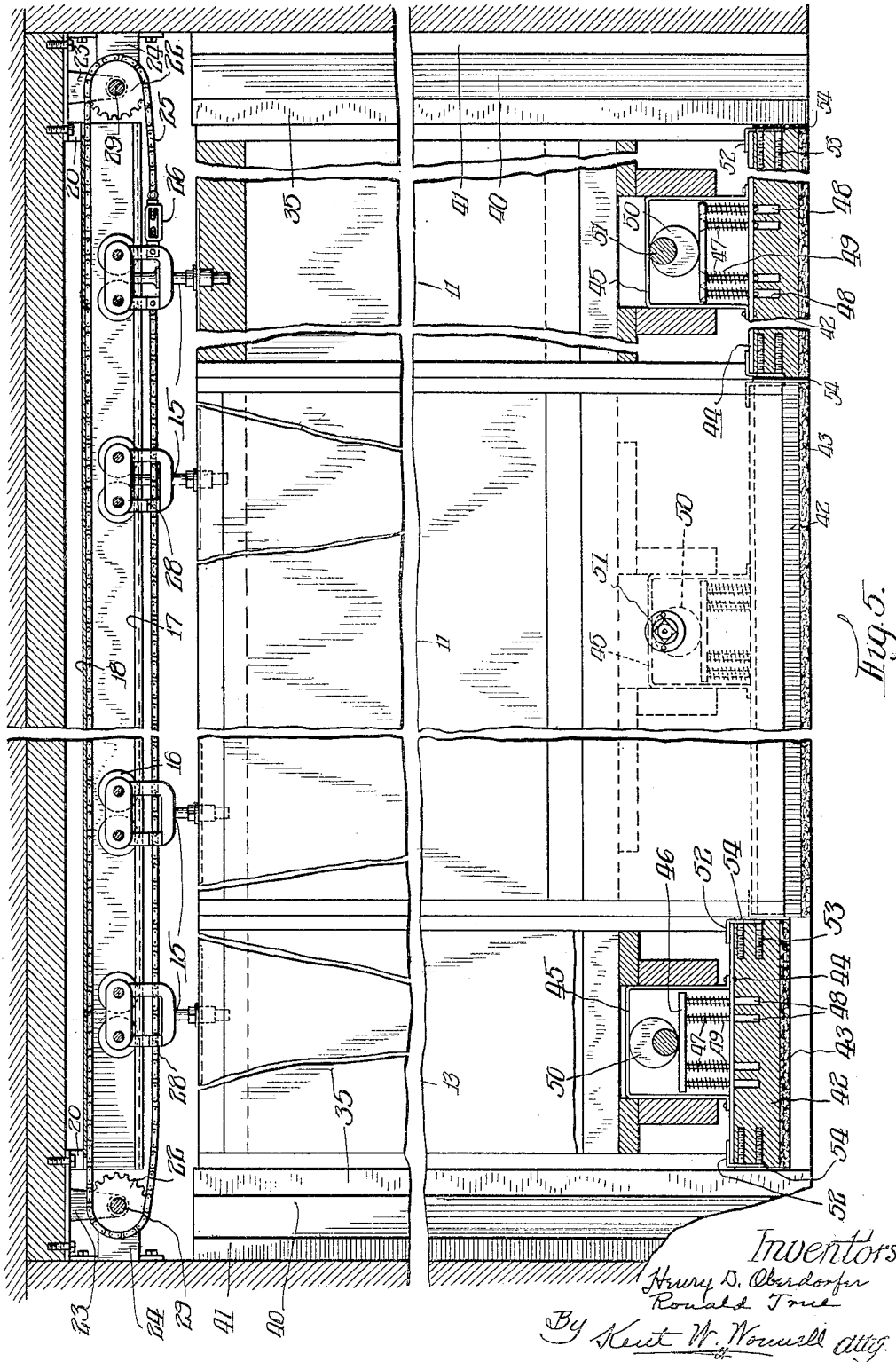
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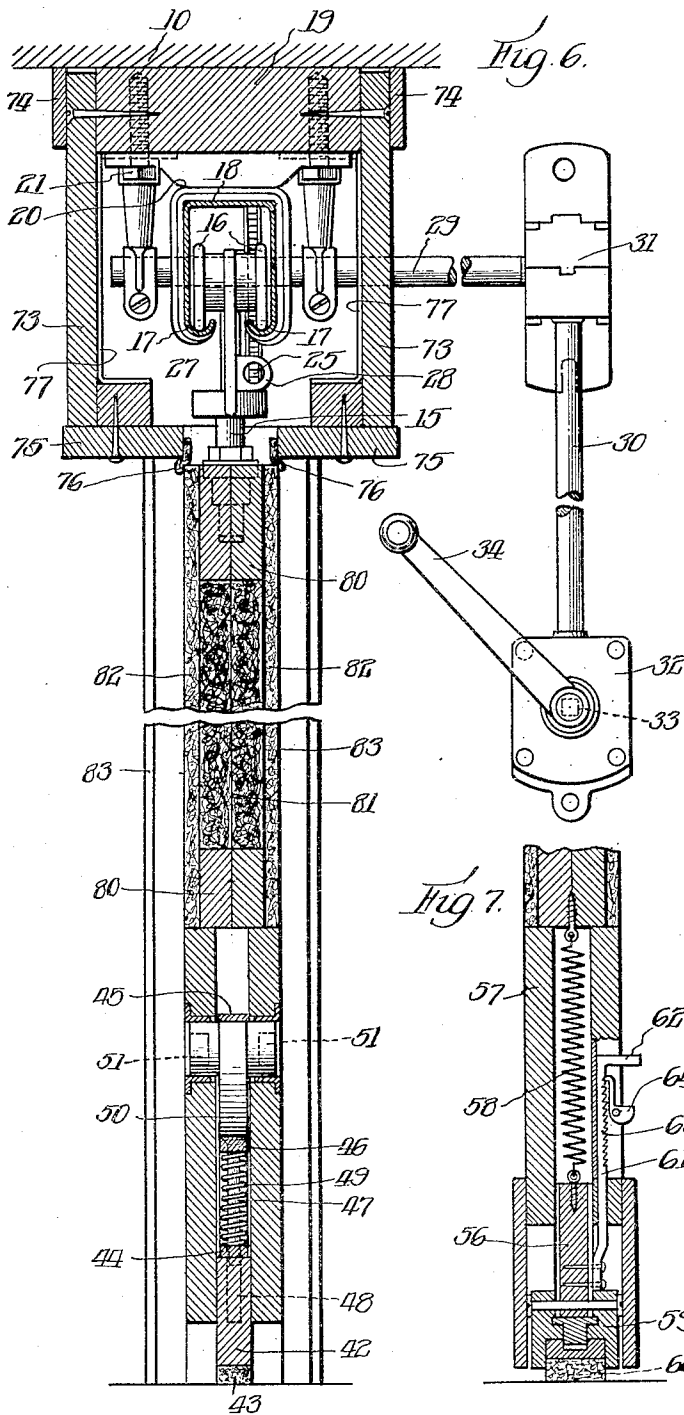
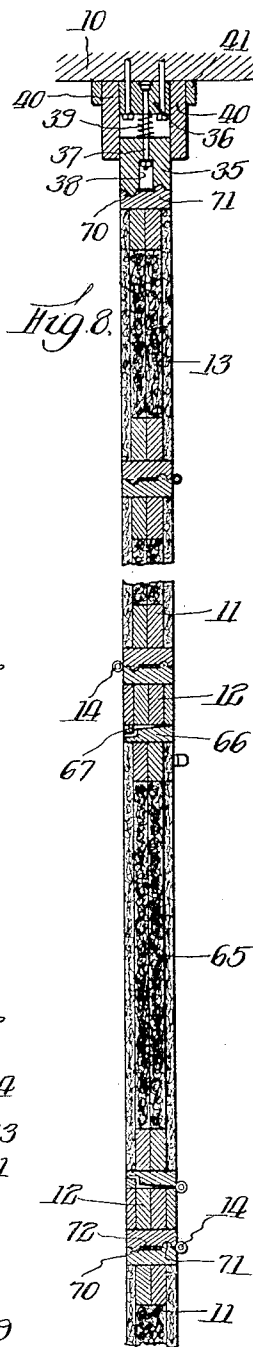
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FOLDING PARTITION

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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FOLDING PARTITION

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This invention relates in general to a folding partition and has more particular reference to a mechanically operated sound insulated structure with a bottom seal and requiring no lower track.

One of the principal objects of the invention is in the provision of a mechanically operated folding partition in which the doors are locked in open and closed position and are positively extended and folded by the operating mechanism.

Other and further objects of the invention are in the provision of a bottom seal for each door section separately operable to engage the floor and close the space between the bottom of the door and the floor; a sound insulated and fire-proofed door having air spaces or spaces filled with sound-deadening material; a spring jamb to take up expansion or contraction at the end of the partition; an overhead guideway with no bottom guide rail; and any other novel features of construction herein shown and described.

Other folding partitions are objectionable because they tend to bind when the sections are folded or unfolded or fail to operate properly with a floor track which has vertical irregularities. Floor tracks are objectionable because they provide an obstruction which becomes clogged with dirt and mars the appearance of the floor. If a floor is slightly uneven, it is practically impossible to make a tight fit between the track and partition sections with the result that no matter how sound-proof the body of the door may be, sound will pass to some extent through the space at the bottom of the door.

The present invention overcomes these objections and makes a partition which is easy to move from open to closed position by providing a mechanism which positively engages the leading section, extending and folding the sections and preventing their movement except by the proper operation of the mechanism. An individual bottom seal is provided for each section which is operated resiliently to close the space between the floor and the section, holding the partition in place and forming practically a solid wall.

In the accompanying drawings, Fig. 1 is a

side elevation of a folding partition constructed in accordance with the principles of this invention; Fig. 2 is a sectional view of the partition; Fig. 3 is a sectional view of the partition partially folded; Fig. 4 is a sectional view of a partition in its folded position; Fig. 5 is a sectional elevation of a partition with parts broken away illustrating the operating mechanism; Fig. 6 is a cross sectional view illustrating the operating mechanism; Fig. 7 is a sectional view showing a modification of the bottom seal; and Fig. 8 is an enlarged sectional view showing a spring jamb and the insulating structure of the sections and that of a door.

Folding partitions having hinged fan or zig-zag folding doors have been used with upper and lower supporting structures, usually in connection with a lower track or guideway and usually locked in place at the top and bottom. In the present invention an operating mechanism is provided at one end of the partition which has a sprocket and chain connection secured to one of the partition supports and the chain guided in other supports for positively extending and folding the partition sections and locking them in adjusted position by removing an operating crank.

Referring more particularly to the drawings, a preferred form of the folding partition of this invention is shown as applied to a framed opening designated generally with the reference numeral 10. The partition comprises a number of door sections 11, 12, and 13 connected by hinges 14 to fold oppositely in fan-like or zig-zag formation, as indicated in Fig. 3, and one of the end door sections 13 is hinged to the side of the framed opening.

The door sections are supported at the tops only by hangers 15, and the hangers are located upon each full door section or upon various or alternate sections. The hangers 15 are placed at the center of the door sections and to support the hangers, each one has opposite rollers 16 to engage in depending tracks 17 of a supporting channel rail 18 attached to a header 19 positioned in the frame opening 10, by means of supporting brackets 20 and

fastening bolts 21 engaging the brackets and extending into the header.

At each end of the track 18 is a sprocket 22 mounted on hangers 23 and 24 secured to the header 19 and to the end of the opening frame 10, respectively, and extending around the opposite sprockets is a chain 25 with its ends secured to the opposite sides of the door hanger. A tightening link 26 may be interposed between one end of the chain and the hanger for varying the length of the chain. The lower run of the chain extends loosely through an opening 27 in a projection 28 at the sides of all of the hangers except the one to which the ends of the chain are attached so that it moves without undue sagging and without engaging any of the door sections to obstruct their movement.

One of the sprockets 22 is mounted upon a shaft 29 which extends from the side of the partition and is connected with a vertical shaft 30 by means of gearing (not shown) in a gear housing 31. At the lower end of the shaft 30 is a gear box 32 having an operating stud 33 engageable by a removable crank handle 34 so that the operation of the sprockets and chain is effected by rotation of the handle 34, and the partition remains in any position to which it is moved by the handle.

To make a close fit with the side wall, a wall jamb 35 is yieldingly secured to a wall plate 36 by means of bolts 37 movable loosely in a slot 38 in the jamb and having a spring 39 interposed between the jamb and the plate tending to press the jamb outwardly. Side boards 40 and molding trim 41 cover and partially enclose the wall plate and door jamb 35 and make a neat connection for the end of the partition.

At the bottom of each door section is a slide 42 having a felt strip 43 secured thereto by pasting or other means and removable with the slide for renewing it without dismantling the door. Each slide is mounted centrally in its door section and extends the full width thereof. At the upper end of each slide is a supporting bar 44 with a centrally disposed upwardly extending yoke 45. A pressure plate 46 is disposed within the yoke and held in place at the sides by the structure of the door in which are secured a number of bolts or screws 47 which extend through holes in the bar 44 and may be depressed into openings 48 in the slide 42 against the pressure of springs 49 which surround the screws 47 and are interposed between the top bar 44 and the pressure plate 46. To apply yielding pressure to the bottom slide, an eccentric 50 is mounted in each door and has studs or sockets 51 projecting to the opposite outer faces of the door and accessible from either side thereof. Preferably the socket or stud is the same size as that engaged by the crank handle 34 in operating the partition so that the slides can be operated at will with the same

handle. If the rotation of the eccentric causes the felt strip 43 to engage the floor before the eccentric is turned to its maximum pressure applying position, the pressure plate 46 may be depressed, thrusting the screws 47 into the openings 48 against the pressure of the springs 49.

To make the slide easily removable, an angle bracket 52 is secured at each end of the bar 44, overlapping the end of the slide 42 and inserted through the brackets into the ends of the slide are removable fastening screws 53. Thin strips of felt or other suitable material 54 are applied over the ends of the slide and the brackets 52.

The fastening screws 53 at the ends of the slide are accessible when the partition is partially folded, as shown for example by Figure 3, and by removing the slide a new felt is easily applied at the bottom.

By making the slides 42 separately operable, this partition will take up irregularities in the floor, the partition will be held tightly but yieldingly in place, and any opening below the doors is effectively closed to prevent transference of sound and heat through the partition.

A modified form of bottom slide is shown in Figure 7 in which a slide member 56 is mounted in the center of a door 57 and is movable downwardly against the tension of a spring 58. At the bottom it carries a removable foot piece 59 and a felt strip 60 for engaging the floor. The slide is pressed downwardly by means of a bar 61 secured thereto and having a projecting end 62 for engagement manually or by the foot of an operator. This bar has teeth 63 engaged by a pawl 64 pivoted on the door 57, the pawl having a projecting part for engagement manually or by the foot of an operator to release the toothed bar 61, allowing the slide 56 to be raised by the spring 58.

The door sections may be of uniform width, or one of the sections, as 13, may be narrow to fit tightly in any opening, and one or more of the sections may be provided with a shuttle 65. The shuttle door is preferably disposed above the slide lowering mechanism, as clearly shown in Figure 1; and if it extends to the bottom of the section, the slide may be located in the shuttle door. To make the shuttle door fit closely, its side and end frames 66 (see Figure 8) are bevelled and the door section 12 in which it is mounted has a marginal molding 67 of fibrous or sound insulating material for engaging the shuttle door 65 and holding it tightly in its closed position.

In the door edges and in the jambs are cooperating recesses 70 and projections 71 with a flat space between for seating a thin pad 72 of felt or other insulating material. These recesses and projections cooperate to make a more nearly tight joint between the door sec-

tions and between the partition and the yielding end jambs.

At the top of the partition is an enclosure for the supporting rail and the operating mechanism comprising side plates 73 secured to the sides of the header 19 and extending below the rail 18 with a molding 74 at the top against the ceiling. Bottom plates 75 are secured to the lower edges of the side plates 73 and extend above or adjacent to the upper ends of the door sections. A fabric strip 76 is secured to the inner edge of each bottom plate 75 and overlaps the sides of the upper ends of the sections, making a tight joint. If desired, the inner surface of the housing thus produced may be provided with a lining 77 of felt or other insulating material.

All of the door sections are preferably of fire-proof sound insulating construction. The doors are built in layers with strengthening ribs 80 and interior spaces filled with deadening or sound-absorbing material which is slow burning. The outer layers 82 may be of laminated panelling or fibrous insulating material with an outer exposed coating 83 of decorators, cloth or asbestos cloth which is fire proofed. Even the thin rails on the outside edges of the doors may be made of fire-proof wood. Thus, the entire door structure is as nearly fire-proof and sound-deadening or absorbing as it is possible to make it. The exterior layer depends upon the type of the door which is used. By having the air spaces filled with sound-deadening material, the doors are made light and they do not transmit sound.

When this partition is installed, it is a simple matter to open and close it by operating the handle 34; the partition is locked in any position against unauthorized movement or adjustment by simply removing the handle; and any expansion or contraction of the partition is taken up by the yielding jambs at the ends thereof. The positive movement of one of the hangers leads and guides all the other ones in folding and unfolding the partition, and after the partition is extended the bottom slides are operated by means of the handle 34 to fill the space between the bottoms of the door sections to make the partition more rigid, and to hold it in place against the floor without the necessity of having a bottom guide track.

We claim:

1. A folding partition having a plurality of hinged sections connected together for approximately closing and opening, a flexible packing at the top of the sections, extensible means at the bottom of the section for engaging the floor and completing a sound-proof partition between the floor and housing and operating means in each door above the bottom for separately and positively actuating said extensible means.

2. A folding partition for an established opening, comprising a plurality of sections hinged together for approximately fitting the opening, means forming a flexible closure between the top of the sections and the opening, yielding wall plates for engaging the ends of the partition in the opening when the partition is closed, extensible slides in the bottom of the sections to fill up the spaces between the lower edges of the door sections and the floor supporting the sections and holding them firmly in place, and means in each section above the bottom for raising and lowering the slides.

3. A folding partition comprising sections hinged together for approximately fitting an opening, packing means between the opening and the upper portions of the sections when they are extended, means forming a sound-proof packing between the hinged edges of the sections, and slides at the bottoms of the sections separately movable for engagement with the floor to take up any inequalities in the floor and to make a tight connection between the bottoms of the section and the floor.

4. In a folding partition of the class described, a plurality of sections hinged together, and a bottom slide for each section comprising a removable slide member, means for resiliently pressing it downward from the bottom of the section, and cam operated means in each door for moving the slide upwardly and downwardly.

5. In a folding partition, a door section movable to partially fill a door opening, a slide carried by the door at the bottom, and separate eccentric operated means in each door above the bottom thereof for pressing the slide from the bottom of the door into engagement with the floor, the slide being removable without affecting the mounting of the door.

6. In a folding partition, a door mounted for movement to partially fill an opening, a slidable section at the bottom, and means including an independently operated eccentric in each door for pressing the slide resiliently against the floor.

7. A bottom slide for a door comprising a slide member having a supporting yoke, and means including an eccentric manually operated cam in each door for engaging the yoke to raise and lower the slide.

8. A bottom closure for a door comprising a slide mounted in the door for vertical movement, a yoke attached to the top of the slide, an eccentric manually operated cam in each door for positively engaging in the yoke and having studs extending to opposite sides of the door for positively moving the cam, and resilient means also engaging the cam within the yoke for pressing the slide resiliently downward when the yoke is not in engagement with the cam.

9. A removable bottom slide for doors, comprising a slide member extending the full width of the door and centrally located therein, a supporting bar for the member having an upwardly extending yoke and end brackets, eccentric means in each door for actuating the bar, and fastening means extending through the end brackets into the ends of the slide member and removable from the edges of the door to release the member for renewal and repair.

10. A door and a bottom closure therefor comprising a slide extending the full width of the door and centrally mounted to slide vertically at the bottom thereof, means including a bar with an upwardly extending yoke for supporting the rod, an eccentric cam engaging the yoke and having portions extending to opposite sides of the door for manually and positively moving the cam, and resilient means disposed within the yoke bearing against the cam and projecting within the slide for applying pressure to the slide when the cam is turned.

11. A removable pressure bottom closing slide for doors comprising a slide member adapted to extend the full width of a door and having renewable insulation along its bottom and ends, a supporting bar for the top of the member having an upwardly extending yoke and end extensions to which the ends of the member are removably secured, an operating cam to engage the yoke having portions to extend at opposite sides of a door for separate manual engagement therewith, and a pressure plate disposed within the yoke and engaged by the cam having guiding pins extending therefrom through the supporting bar and into openings provided at the top of the member with coil springs surrounding the guide members between the bars for applying the pressure of the cam to the slide.

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