

Dec. 1, 1959

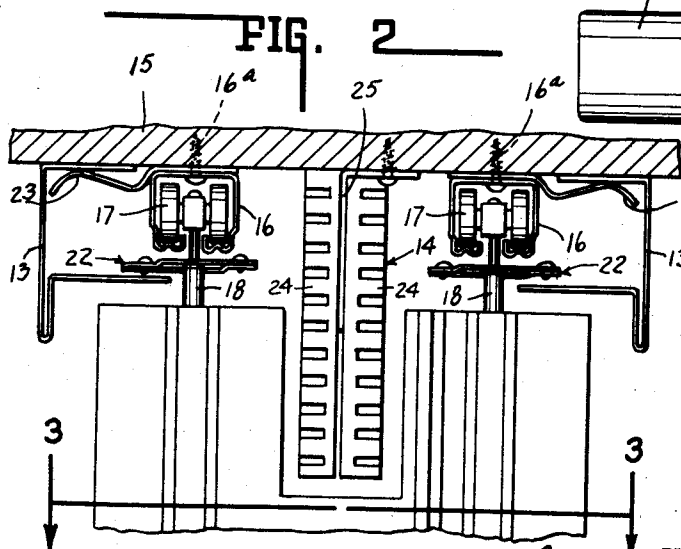
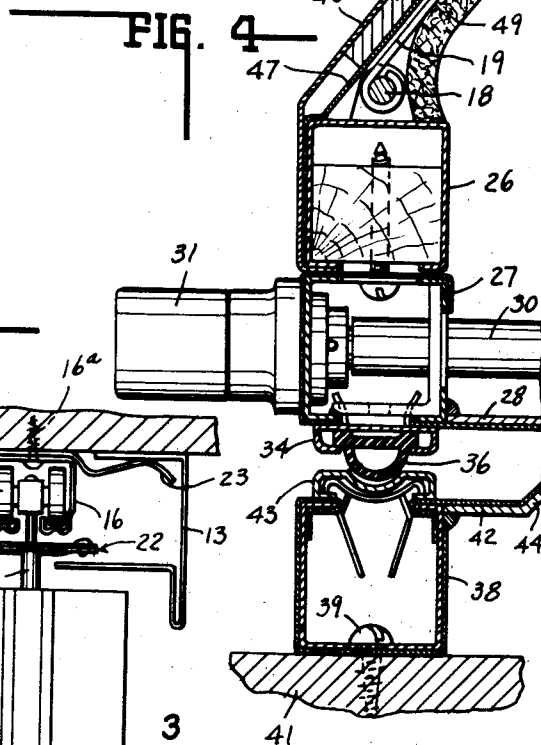
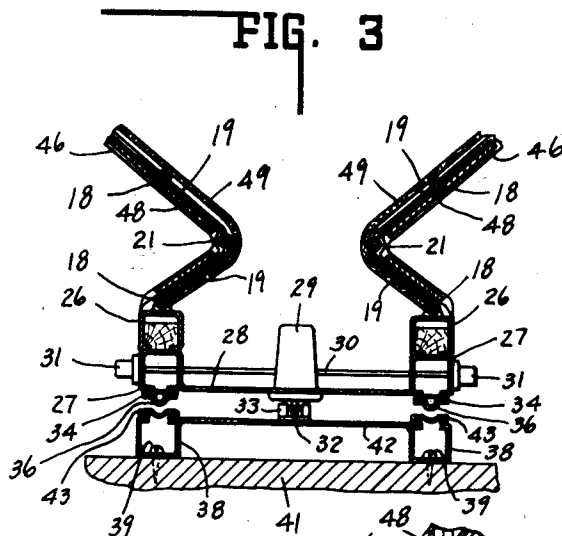
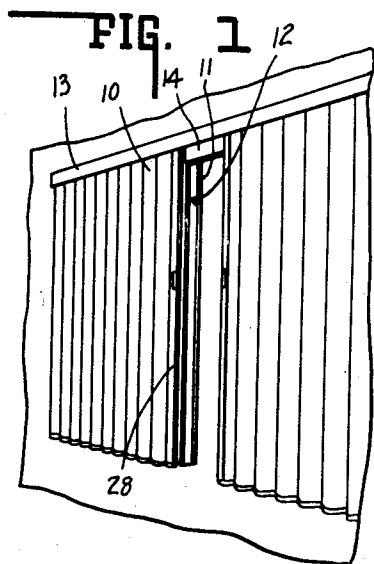
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2,915,115

SOUND RETARDANT FLEXIBLE ROOM DIVIDER

Filed July 28, 1958

2 Sheets-Sheet 1



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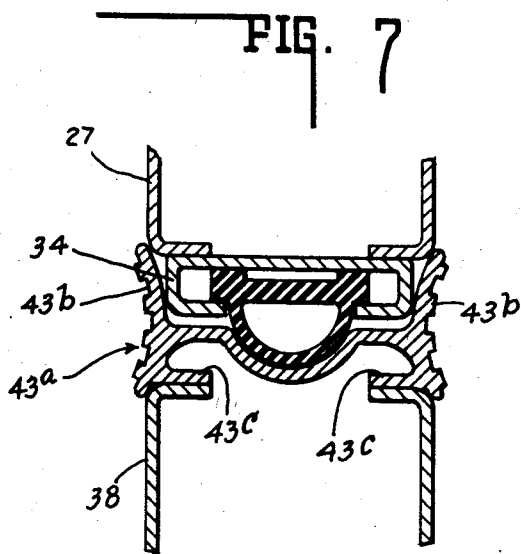
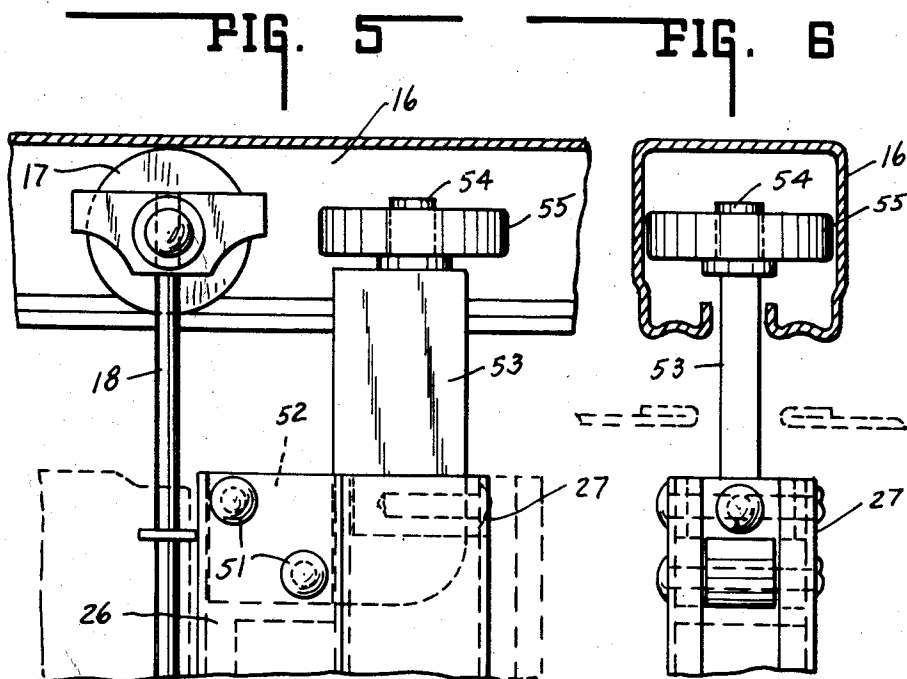
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SOUND RETARDANT FLEXIBLE ROOM DIVIDER

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2,915,115

SOUND RETARDANT FLEXIBLE ROOM DIVIDER

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Application July 28, 1958, Serial No. 751,481

3 Claims. (Cl. 160—84)

This invention relates generally to flexible room dividers or folding door structures, and in particular to a sound retarding flexible room divider.

Conventional folding door structures or room dividers are commonly utilized to visually divide or separate off portions of a room or enclosure. In the application of these conventional structures to the requirements of ballrooms, theaters, school rooms, offices and the like, it is obviously of prime importance to provide flexible room division which separates adjacent areas, both visually and as to transmission of sound therebetween. The present invention fulfills this need by providing a construction wherein dual, flexible wall structures are spaced from each other to provide a dead-air compartment bounded by a felt lining, thereby preventing or minimizing the transmission of sound waves between the outer faces of the wall structures.

The primary object of the present invention is, therefore, to provide a flexible room divider which not only visually separates adjacent areas of a room or enclosure, but also acts as an effective sound barrier therebetween.

A further object of the present invention is to provide a flexible or folding room divider which is characterized by effective sound insulation without loss in the ease and smoothness with which the divider may be extended and retracted.

A further object of the present invention is to provide a flexible, sound retarding room divider having means for minimizing the transmission of sound across the area occupied by the tracking structure mounted at the upper margin of the divider.

A further object of the present invention is to provide a flexible, sound retarding room divider utilizing a lead post assembly contoured to provide a sound baffle when in contact with the matching assembly affixed to a jamb or an opposing door.

A further object of the present invention is to provide a sound retarding room divider utilizing spaced movable wall structures and having means for stabilizing the wall structures in a plane normal to their plane of movement.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a perspective view of a room divider embodying the present invention.

Fig. 2 is a sectional view taken through the upper intermediate portion of the divider.

Fig. 3 is a sectional plan view taken generally along the line 3—3 of Fig. 2.

Fig. 4 is an enlarged detail view of a portion of the lead post assembly and matching jamb molding assembly.

Fig. 5 is an enlarged, fragmentary, side view of a portion of the room divider.

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Fig. 6 is an end view of the portion of the room divider shown in Fig. 5.

Fig. 7 is a sectional view showing a modified form of the invention.

Referring initially to Fig. 1, there is shown a flexible room divider embodying the invention which includes spaced wall structures, indicated generally at 10 and 11. The wall structures at their leading margin are held rigidly spaced by a lead post assembly indicated generally at 12. The two wall structures are slidably supported at their upper margin on a track structure which is hidden in Fig. 1 by the cornice 13. A baffle member 14 extends from the surface supporting the track structure and into the space between the wall structures 10 and 11, the lead post assembly being slotted at its upper margin to accommodate the baffle.

The framework forming a part of each of the wall structures is not described in detail herein since it forms no part of the present invention and is clearly shown and described in Hoke et al., Patent No. 2,649,150. In general, however, referring to Fig. 2, the supporting structure includes horizontally-extending track members 16 secured by any suitable means, such as screws 16a to a supporting frame 15. Each of the track members accommodates rollers 17 rotatably mounted upon support posts 18. As may be seen in Fig. 3, the support posts extend through bearing apertures in plates 19 which are disposed just below the upper margin of the wall structures.

The plates are hingedly connected to each other at their adjacent ends by hinge rods 21. The rods 21 extend downwardly to the base area of the wall structures and also serve as hinge rods for a lower series of plates identical to the upper series of plates and lying in the same vertical plane as the upper plates. It may thus be seen that the plates, together with their common hinge rods and the supporting track and roller structure provide an extensible and retractable framework. The tracking smoothness and stability of the framework as it is retracted or extended is aided by a lazytongs assembly indicated generally at 22 and comprising a series of elongated elements pivotally joined to each other at their ends and intermediately pivoted on the posts 18. As previously mentioned, the operation of the framework assembly and the lazytongs assembly is shown and described in detail in the aforementioned Hoke et al. patent. The stability of the two adjacent frameworks is further aided by the provision of stabilizing rollers as will subsequently be described.

The tracking members 16 may be provided with a series of spring arms 23 which serve to retain in place the cornice member 13. The baffle 14, previously mentioned, is formed by securing two strips of acoustical tile 24 to a depending plate 25 secured to the support structure 15.

The spaced wall structures are moved in unison by means of the lead post assembly which includes adjacent rectangular tubes 26 and 27 which may be formed of steel or material of similar strength, the tube 26 having extending therethrough a wooden filler which provides a means for rigidly joining together the adjacent tubes. A transverse plate 28 is rigidly joined to the aligned tubes 27 and supports a latch assembly 29. The tubes 27 journal a control rod 30 which at its ends is joined to rotatable latch handles 31 positioned on the outwardly facing sides of the tubes.

The control rod extends through the latch assembly (not shown in detail) and when rotated serves to release into unlatched position a latching hook 32 which co-operates with a catch 33 stationarily mounted adjacent thereto.

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Since the wall structures 10 and 11 are separated by appreciable space, as the room divider is moved by a person standing adjacent wall structure 10 or wall structure 11, the rollers 17 tend to become cocked in the track member. To remedy this difficulty the lead post assembly is provided with a stabilizing roller structure now to be described.

Referring to Figs. 5 and 6, the upper end of each of the tubes 26 supports, by means of rivets 51, a stabilizing roller block 52. The abutting faces of the tubes 26 and 27 are slotted to accommodate a sidewardly extending, narrowed portion of the block. A further reduced shank portion 53 of the block extends upwardly into the track member 16 and accommodates a pin 54 upon which is rotatably mounted a stabilizing roller 55. As will be particularly evident from Fig. 6, the clearance between the periphery of the roller 55 and the side walls of the track member is quite close so that as the lead post assembly is moved in opening or closing the room divider, the stabilizing roller at each of the tubes 27 contacts the appropriate side of its track structure to prevent cocking or binding of the rollers 17.

The lead post assembly includes vertically extending moldings 34 which retain the bumper members 36 formed of a somewhat resilient plastic or rubber compound. The jamb molding assembly which matches and cooperates with the lead post assembly just described includes spaced tubes or posts 38 which are generally rectangular in cross section and may be secured by such means as screws 39 to a supporting vertical surface 41. A transverse plate 42 extends between the posts 38 and supports the catch member 33. The posts 38 support molding strips 43 which are provided with longitudinal depressions therein to accommodate the bumper members 36 when the divider is in full extended position and latched to the jamb. It will be understood that the jamb molding assembly might also be supported on wall structures similar to that supporting the lead post assembly in the case of double opening wall structure applications.

A modified form of molding strip, accommodating the bumper members 36 is shown in Fig. 7. The modified strip is indicated generally at 43a and includes outwardly flared side flanges 43b which enclose the molding 34 when the room divider is latched closed. The molding strip is preferably formed of extruded aluminum and is provided with inwardly extending flanges 43c which are suitably bonded to the post 38.

The material supported on the framework of each of the wall structures will now be described with reference to Fig. 4. The framework provided by the hinged plates and their hinge rods has an outer covering 46 of a decorative flexible material such as sheet vinyl or the like which at its vertical margins is clamped between the tubes 26 and 27 and is suitably secured to the upper and lower series of plates 19. The framework further supports a membrane 47 on which are mounted panels 48 of laminated fibreboard. The inside surface of each framework is covered by a flexible material having appreciable thickness such as the felt sheet or panel 49, the felt panel being suitably secured to the inner faces of the plates 19. Both wall structures are identically covered with the fibreboard panels on the outer side of the framework and the felt covering disposed on the inner face of the framework.

With the room divider extended and latched against its matching jamb, sound originating on one side of the room divider will have its low frequency components damped by the relatively high mass of the fibreboard panels. Those high frequency components which penetrate the fibreboard panels will be absorbed by the inner felt covering. Any sound waves penetrating the near wall structure and crossing the dead-air space between the wall structures will be further absorbed and damped by the insulating elements of the far door structure.

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The vertical baffle 14 depending between the parallel track structures serves to retard the passage of sound over the top of the door, the resilient bumpers or moldings also serving to reduce sound transmission in the area of junction between the lead post and jamb.

While the invention has been disclosed and described in some detail in the drawings and foregoing description, they are to be considered as illustrative and not restrictive in character, as other modifications may readily suggest themselves to persons skilled in this art and within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. A flexible room divider adapted to retard the transfer of sound, said divider including two spaced, generally parallel wall structures, each of said wall structures including an upper series of plates hingedly connected to each other at their adjacent ends and a lower series of plates similarly connected, said upper and lower plates having common hinge rods thereby forming a framework, means including stationary spaced tracks for slidably supporting said wall structures, a lead post assembly including a plate spanning the space between said wall structures and carried on the free margins thereof whereby both of said frameworks may be extended and retracted in unison along said tracks, a jamb assembly cooperating with said lead post assembly, sound insulating means covering each of said frameworks comprising an outer membrane supporting vertical rigid panels, and a covering of flexible material having appreciable thickness disposed on the inner side of each of said frameworks, whereby sound waves are damped by said rigid panels and absorbed by said flexible covering, said flexible coverings serving to further absorb any sound transmitted across the space between said wall structures.

2. A flexible room divider adapted to retard the transfer of sound, said divider including two spaced, generally parallel wall structures, each of said wall structures including an upper series of plates hingedly connected to each other at their adjacent ends and a lower series of plates similarly connected, said upper and lower plates having common hinge rods thereby forming a framework, means including stationary spaced tracks for slidably supporting said wall structures, a lead post assembly including a member spanning the space between said wall structures and carried on the free margins thereof whereby both of said frame works may be extended and retracted in unison along said tracks, a jamb assembly cooperating with said lead post assembly, sound insulating means covering each of said frameworks comprising a membrane on one side thereof and supporting vertical rigid panels, and a covering of flexible material having appreciable thickness disposed on the other side of each of said frameworks, whereby sound waves are damped by said rigid panels and absorbed by said flexible covering, said flexible coverings serving to further absorb any sound transmitted across the space between said wall structures.

3. A flexible room divider adapted to retard the transfer of sound, said divider including two spaced, generally parallel wall structures, each of said wall structures including a framework adapted to fold upon itself when in retracted position and to be extensible from retracted position, means including stationary spaced tracks for slidably supporting said wall structures, a lead post assembly including a member spanning the space between said wall structures and carried on the free margins thereof whereby both of said frameworks may be extended and retracted in unison along said tracks, a jamb assembly cooperating with said lead post assembly, sound insulating means covering each of said frameworks comprising a membrane on one side thereof and supporting vertical rigid panels, and a covering of flexible material having appreciable thickness dis-

posed on the other side of each of said frameworks, whereby sound waves are damped by said rigid panels and absorbed by said flexible covering, said flexible coverings serving to further absorb any sound transmitted across the space between said wall structures.

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