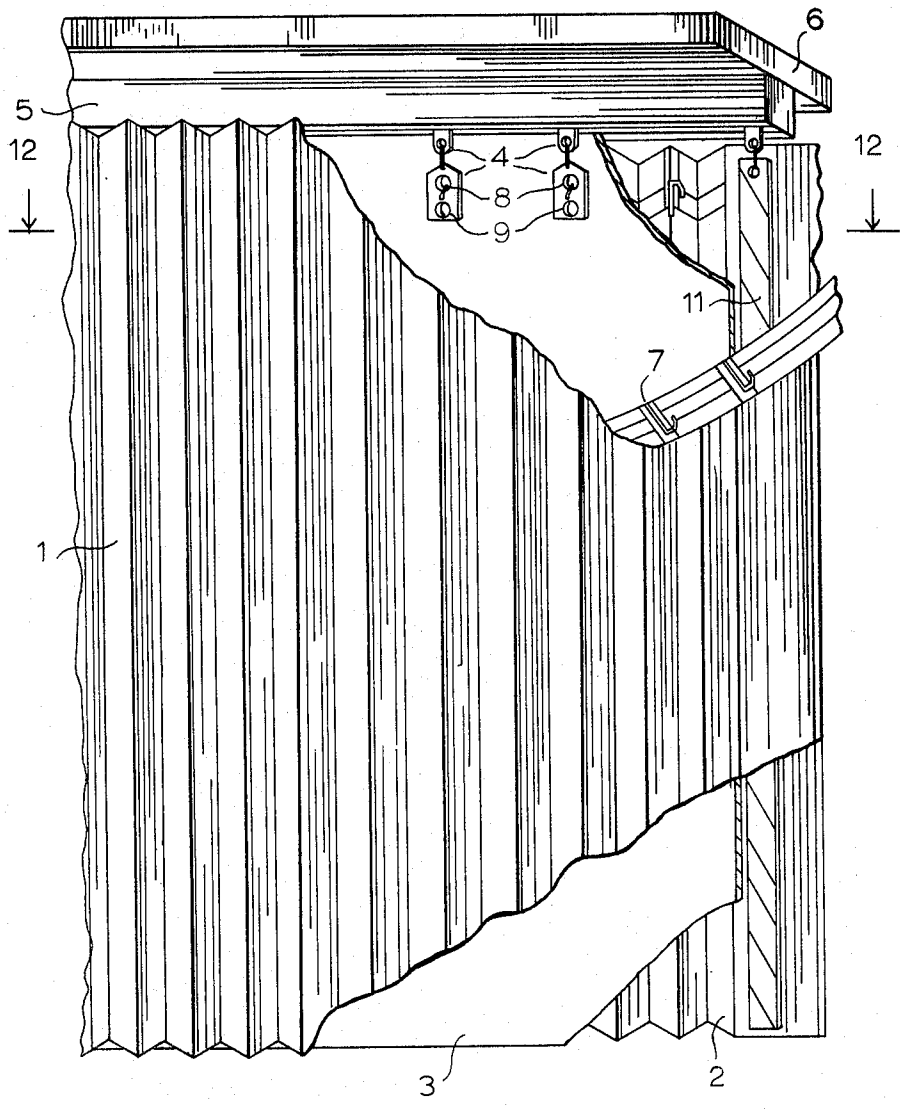
March 29, 1966 C. L. TRUESDALE 3,242,972

SOUND RETARDING DRAPERY ROOM DIVIDER

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FIG. 1



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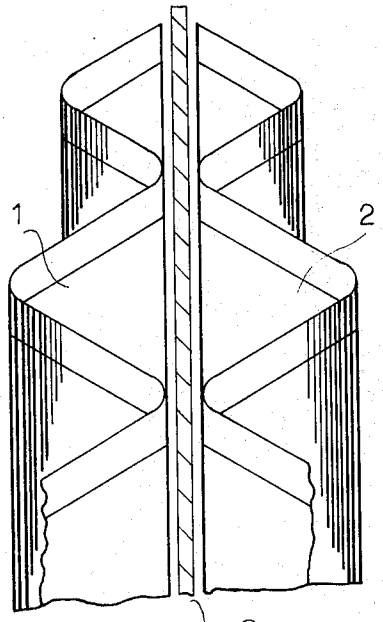


FIG. 2

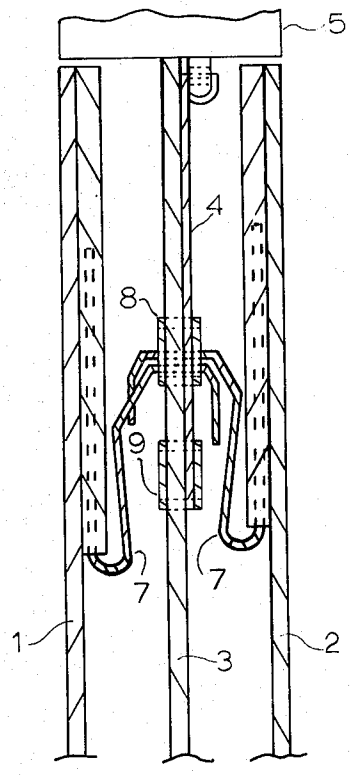


FIG. 3

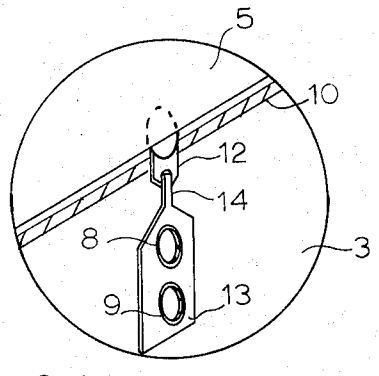


FIG. 4

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3,242,972
SOUND RETARDING DRAPERY ROOM DIVIDER

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Filed Sept. 26, 1963, Ser. No. 311,905
2 Claims. (Cl. 160—84)

This invention relates generally to an improved form of room divider and, specifically, to a simplified, inexpensive, non-rigid structure comprising a plurality of draperies combined in an unusual and highly effective fashion and hung from a single operating track which may be attached to any flat ceiling or overhead structure to subdivide floor areas in a building into smaller semi-private areas separated by a sound retarding barrier.

Conventional room dividers are semi-rigid structures of the accordion type or foldable door variety. Such semi-rigid room dividers usually comprise a considerable weight of hardware including a multiple lazy tongs frame assembly covered by fabric and adapted to expand and contract in pre-determined folds. This conventional form of room divider has proven to be costly due to the inclusion of such relatively expensive hardware as the lazy tongs structures.

In addition to the high cost of foldable doors of the conventional type, there is a serious disadvantage inherent in such room dividers relating to their sound retarding effectiveness. While sound insulating material may be incorporated within the accordion type structure, sound waves can pass unimpeded over the tops and beneath the bottoms of conventional room dividers unless these structures are provided with skirts of soft material attached along their upper and lower margins so as to be in close proximity, respectively, to the ceiling and floor of the space in which they are installed. Such skirts are essential if the room divider to to operate effectively as a sound retarding barrier. It would be manifestly impractical to permit the upper or lower margins of the conventional, foldable type of room divider to come into close proximity to the ceiling or floor. If such close proximity were maintained by a semi-rigid framework which must be expanded and contracted along a plane surface having the degree of unevenness normally encountered over any considerable span of ceiling or floors, serious difficulty with binding and cocking would occur preventing the room divider from being freely and easily opened and closed.

Furthermore, since the skirts provided on conventional room dividers usually touch the ceiling and floor, and since such moving contact involves friction and therefore inevitably produces signs of wear on the material used to maintain such contact, it is a disadvantage of conventional room dividers that the skirts used for such sound deadening purposes are attached in full view along both sides of the upper and lower margins of such room dividers bridging the gaps between the lazy tongs structure and the ceiling and floor respectively. The scuffing, accumulation of dirt, and signs of wear soon become evident and such visible skirts soon present an unsightly appearance.

The bulkiness and weight of conventional foldable door type room dividers also present disadvantages, causing them to be cumbersome to expand and contract. Furthermore, the accordion-like appearance of conventional foldable door room dividers falls far short in beauty and ability to augment interior decor compared to the graceful pleats and full folds characteristic of the sound retarding drapery room divider of this invention.

Heretofore, there has been no known way to employ two or more draperies in a unitary structure supported by a single operating track to provide an effective sound retarding room divider. Two draperies hung back-to-back from a single track do not provide sufficient sound

attenuation to meet the needs of privacy in most situations where room dividers are used. The mere aggregation of a plurality of draperies hung from a plurality of parallel operating tracks to provide multiple thicknesses of material to deaden sound is a very poor solution to the problem for several reasons.

Such mere aggregation of draperies results in a non-unitary structure which is cumbersome to expand and contract. When multiple operating tracks for hanging more than two draperies are considered, the bulkiness of the structure and the difficulties encountered in pulling all the draperies in unison represent real disadvantages. More important, however, is the fact that the sound retarding qualities which insure privacy are not provided by any structure which does not include a means for impeding the passage of sound over the tops of the draperies. When hung from a non-recessed operating track, the very stiff, reinforced headings on the draperies which would be needed to allow such headings to extend above the track would present the same disadvantages relating to contact with the ceiling as were discussed above for semi-rigid foldable door type room dividers.

When two draperies are hung back-to-back from a single operating track, to be effective as a sound retarding room divider several conditions must be met as follows: (1) There must be folds in the draperies and there must be "dead-air" spaces between the draperies so that sound waves are broken up by the folds, and are attenuated by passing through the "dead-air" spaces. (2) The folds in the draperies should preferably be in a pre-determined pattern so that those in one drapery lie opposite those in the other drapery. Without this provision, considerable areas of both draperies may lie against one another, thus failing to provide the necessary "dead-air" spaces. (3) There must be a sound retarding barrier between the draperies which impedes the passage of sound over the tops of the draperies and prevents sound from "tunneling" over the tops of the folds of one drapery, under the operating track and out the other side over the tops of the folds in the opposing drapery. This sound retarding barrier must be disposed between the draperies near their upper margins and must extend upward to touch or to come into close proximity to the operating track. This sound retarding barrier must be attached to the same pendants associated with the operating track which supports the two draperies. It is an added advantage if the sound retarding barrier extends or is adapted to support a panel which extends downward between the two draperies and touches or comes into close proximity to the floor. By this means, the aforementioned "dead-air" spaces are themselves partitioned into twice as many "dead-air" spaces and the sound retarding efficiency of the composite structure is markedly increased.

Further increases in sound attenuation can be achieved by multiplying the number of such sound retarding barriers or extensions thereof disposed between the two draperies. If such additional sound retarding barriers are themselves pleated or if the extensions thereof are attached so as to incorporate folds therein, the number of "dead-air" spaces between the draperies will be multiplied and the sound retarding efficiency of the composite structure will be multiplied.

The present invention is a novel composite structure in which two draperies and a sound retarding barrier are combined to meet the requirements discussed under (1), (2), and (3) above.

The combination of the sound retarding barrier with the two draperies in this invention provides a highly efficient, beautiful, and useful room divider having much greater effectiveness than the mere aggregation of the parts could ever have if this particular combination were

not known. This combination determines the pattern of the folds in the draperies creating effective sound attenuating "dead-air" spaces between the draperies while, at the same time, providing a concealed interior barrier against sound "tunneling" over the folds at the tops of the draperies and passing beneath the operating track.

Additional features of this invention include provisions for attaching a plurality of extensions to the sound retarding barrier so arranged as to hang in folds or ripples thereby multiplying the number of sound attenuating "dead-air" spaces between the draperies. Furthermore, the sound retarding barrier, or an extension thereof, may touch or come into close proximity to the floor between the two draperies, thereby providing a concealed barrier against sound passing beneath the draperies, thus making it feasible to preserve sound retarding effectiveness while still hanging these draperies so that their lower margins do not sweep the floor and accumulate dirt and signs of wear.

Accordingly, it is an object of the present invention to provide, at relatively low cost, a new and improved lightweight sound retarding drapery-type room divider capable of being expanded and contracted in a pre-determined fold pattern without the use of any lazy-tongs structure whatever.

It is also an object of this invention to provide a new and improved room divider comprising a sound retarding barrier in combination with two draperies capable of being expanded and contracted freely and easily on a single operating track without any binding or cocking while said barrier is running in close proximity to or actually touching said operating track, thus effectively retarding the passage of sound over the top of said divider and beneath said track, said sound retarding barrier being substantially concealed from view at normal eye level by users of the space partitioned by the room divider.

It is also an object of this invention to provide a new and useful room divider comprising a sound retarding barrier in combination with two draperies associated with a single operating track, said barrier functioning as a fold determining means for both draperies while, at the same time, forming additional sound attenuating "dead-air" spaces between the draperies.

It is another object of this invention to provide a new and improved room divider having high efficiency as a sound retarding barrier and comprising handsome draperies capable of being hung in graceful pleats and folds which add greatly to interior decor.

Referring now to the drawings:

FIGURE 1 is a fragmentary perspective view of the sound retarding room divider of the present invention incorporating two cut-away sections to illustrate the interior constructions at the top and bottom of the structure.

FIGURE 2 is a perspective view of an enlarged fragmentary section of the room divider taken along line 12—12 of FIGURE 1 illustrating the position of the sound retarding barrier in relation to the folds of the enclosing draperies.

FIGURE 3 is a schematic diagram illustrating how a representative pendant is attached to the sound retarding barrier by grommets, showing how the draperies are hung back-to-back by drapery supporting hooks which are inserted through the grommets from opposite sides of the said barrier.

FIGURE 4 is an enlarged perspective view of a portion of the operating track and the sound retarding barrier showing how a single representative pendant is attached to the said barrier by grommets which penetrate the barrier.

In the dawings, FIGURE 1 shows a first drapery 1, and a second drapery 2, hung back-to-back enclosing a flexible sound retarding barrier 3. The two draperies 1 and 2 and the barrier 3 cooperate with one another to form a composite structure which is a highly functional and efficient sound retarding room divider.

Barrier 3 is attached to the lower portions 13 of pendants 4 by grommets 8, 9 which penetrate barrier 3 and which are accessible from both sides of barrier 3, said pendants 4 being associated with operating track 5 attached to overhead structure 6. Barrier 3 may be a panel of almost any flexible material sufficiently dense to impede the passage of sound coming over the tops of the draperies. The top of barrier 3 must be sufficiently stiff to prevent sagging between pendants 4 when the room divider is fully extended. Some heavy bodied materials will be sufficiently non-sagging over short spans between pendants 4 to obviate any need for stiffening or reinforcement of the top of barrier 3, while thinner, lighter weight materials may require stiffening.

Barrier 3 may extend all the way from the operating track to the floor, or, alternatively, barrier 3 may extend from the operating track, or a line in close proximity thereto, through a line intersecting the points of attachment to the pendants 4 and may terminate there. As a still further modification, barrier 3 may terminate at or below the points of attachment to the pendants 4, but may be provided with grommets or other means to which another sound retarding panel may be attached, thus extending barrier 3 to the floor or to any desirable distance below the pendants 4.

In FIGURE 2, barrier 3 is shown from above in fully extended condition to illustrate the manner in which barrier 3 cooperates with draperies 1 and 2 to maintain pre-determined folds in these draperies so that the folds in drapery 1 lie opposite the folds in drapery 2, thus providing the sound attenuating "dead-air" spaces between the draperies and breaking up the sound waves by virtue of the multiple sound reflecting surfaces provided within the folds.

As shown in FIGURE 1, draperies 1 and 2 may be provided with drapery hooks 7 which are inserted through grommets 8 in pendants 4 from opposite sides of barrier 3. The hooks 7 may be set in the draperies 1 and 2 on eight-inch centers, while the points of attachment of barrier 3 to pendants 4 may be on four-inch centers. Thus, when barrier 3 is fully extended, as when the room divider is in fully expanded position, there will be deep folds in draperies 1 and 2. Grommets 9 may be provided below grommets 8 so that two additional draperies (not shown) may be attached to barrier 3 below and inside of draperies 1 and 2 by hooks set on six-inch centers so that the folds in these additional draperies will lie within the folds in draperies 1 and 2, thereby multiplying the number of "dead-air" spaces between the draperies and increasing the sound retarding efficiency of the composite structure. The choice of span length between the points of attachment of barrier 3 to pendants 4 and the span length between hooks in draperies 1 and 2 and in the additional draperies hung inside draperies 1 and 2 is purely arbitrary and is used only to illustrate the principle whereby a given spacing of pendants along barrier 3 may be combined with longer spacing between points of support for each succeeding overlying drapery attached to barrier 3 so as to provide a predetermined fold pattern with discretely formed sound deadening "dead-air" spaces between the draperies employed.

FIGURE 3 ilustrates in greater detail how sound retarding barrier 3 is attached to pendants 4. In the case illustrated, attachment is by means of rows of grommets 8 and 9. These grommets 8, 9 penetrate barrier 3 and are employed to secure the lower portion 13 of the pendant 4 to one side of barrier 3 so that the upper margin of barrier 3 extends upward alongside pendant 4. There may be provided additional rows of grommets below grommets 9 for hanging a multiplicity of draperies from barrier 3 inside of outer draperies 1 and 2. Note that barrier 3 extends upward alongside pendants 4 to line 10 which abuts the lower part of operating track 5, thereby impeding the passage of sound over the top of drapery 1 beneath track 5 and out over the top of drapery 2 or

vice versa. In FIGURE 1, the folds at the top of the left-hand portion of drapery **1** are exaggerated to show the position of the heading of barrier **3** as it lies in contact with or in close proximity to the bottom of operating track **5**. Actually, from eye level, barrier **3** is substantially concealed from view. An end post **11** is shown in FIGURE 1 illustrating one way in which draperies **1** and **2** may be joined around a rigid member designed to support door handles and latch means.

FIGURE 4 shows in enlarged detail exactly how pendant **4** has an upper portion **12** which rides in the operating track **5**, and a lower portion **13** through which grommets **8** and **9** are fastened to secure the portion **13** to the sound retarding barrier **3**. These grommets **8**, **9** penetrate the barrier **3** and they are accessible from both sides of the barrier **3**. The strap portion **14** connects portions **12** and **13** of pendant **4**.

Means other than grommets may be employed to attach barrier **3** to pendants **4**. For example, barrier **3** may be secured to pendants **4** by rivets, and pockets or eyelets may be provided on each side of barrier **3** where the pendants are attached to receive the supporting hooks for draperies **1** and **2** plus any additional draperies to be included between draperies **1** and **2** to multiply the number of sound deadening "dead-air" spaces in the interior of the composite structure.

What I claim is:

1. A room divider in the form of an expandable partition for subdividing a space comprising the combination with an operating track for retaining movable pendants and a plurality of pendants slidably mounted in said track for suspending a structure therefrom, of a sound retarding barrier of foldable fabric secured to said pendants by a plurality of attachment means, said attachment means connecting said pendants to said barrier at intervals along a line spaced far enough below the top edge of said barrier to allow said top edge to sweep said operating track; said pendants including hook-receiving means for receiving drapery supporting hooks, and first and second draperies provided with a plurality of drapery hooks and hung back-to-back against opposite sides of said sound retarding barrier, said drapery hooks cooperating with said pendants; the total length of material in each drapery between a sequential pair of drapery hooks being greater than the linear distance along said barrier betwen a corresponding pair of sequential hook-receiving means, thereby maintaining each drapery in a pattern comprising a series of predetermined folds when said barrier is in a fully expanded position.

2. A room divider according to claim **1** in which said barrier extends from said operating track to the floor of said space.

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