May 21, 1963 C. E. CARLO 3,090,425

MULTIPLE WALL SIGHT AND SOUND INSULATING PARTITION

Filed March 15, 1961

4 Sheets-Sheet 1

Fig. 1

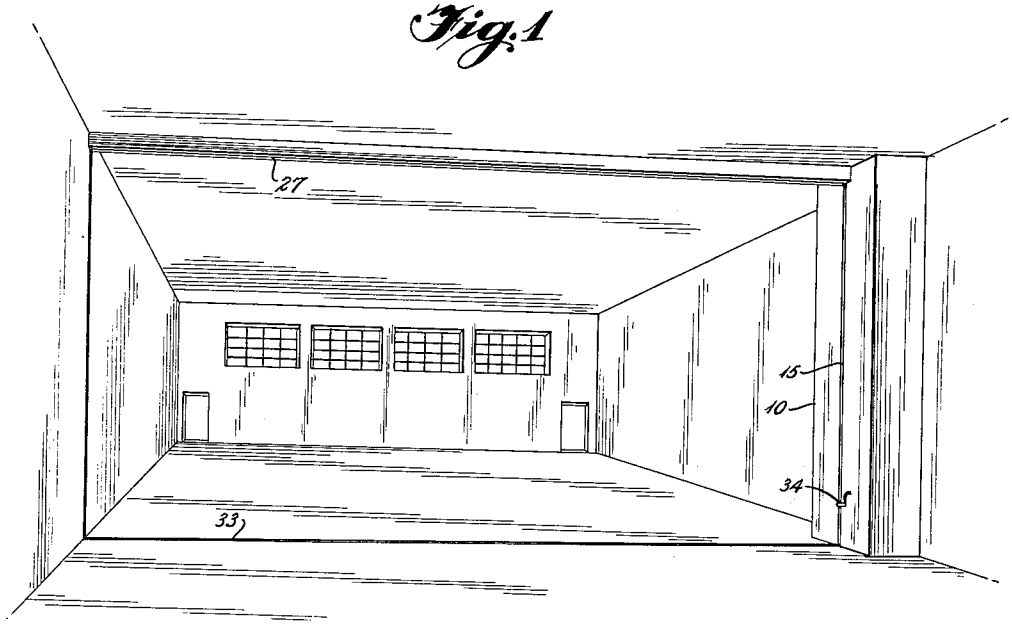
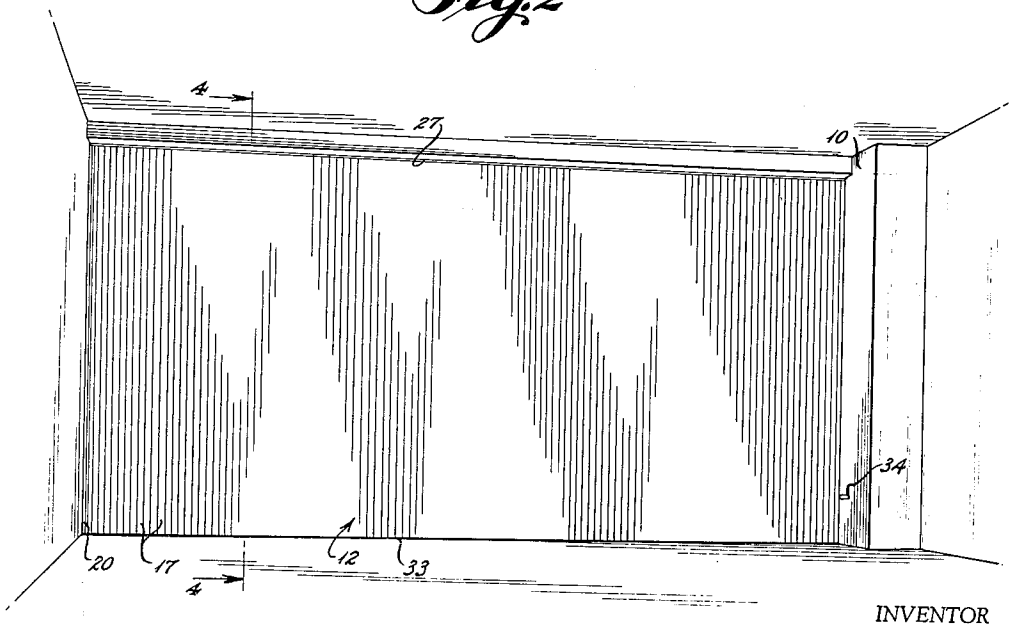


Fig. 2



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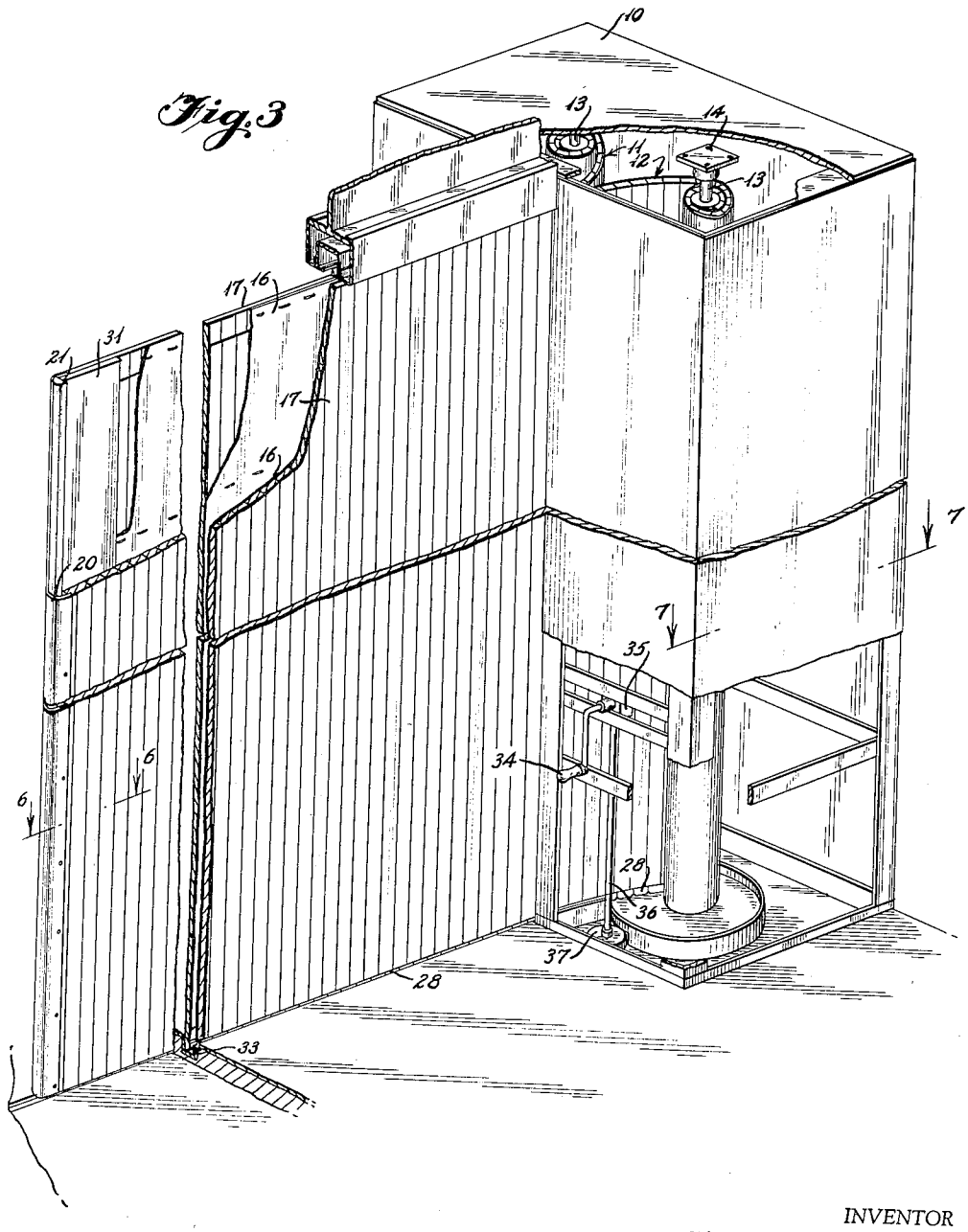
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Fig. 3



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MULTIPLE WALL SIGHT AND SOUND INSULATING PARTITION

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Fig. 4

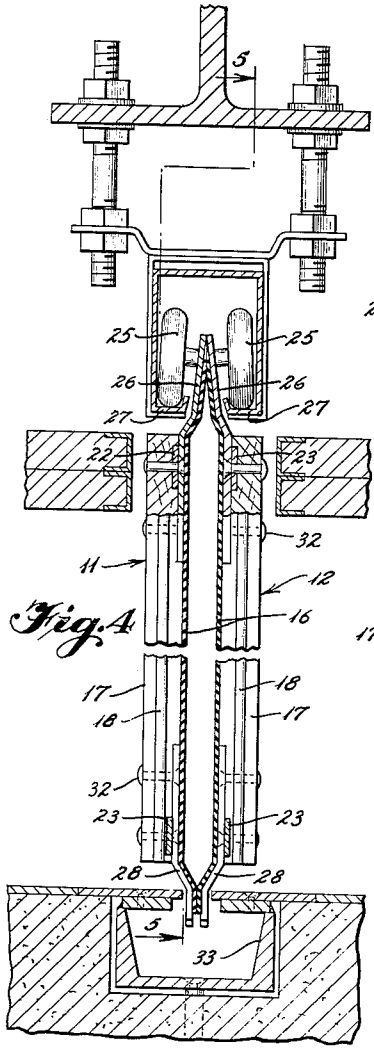


Fig. 5

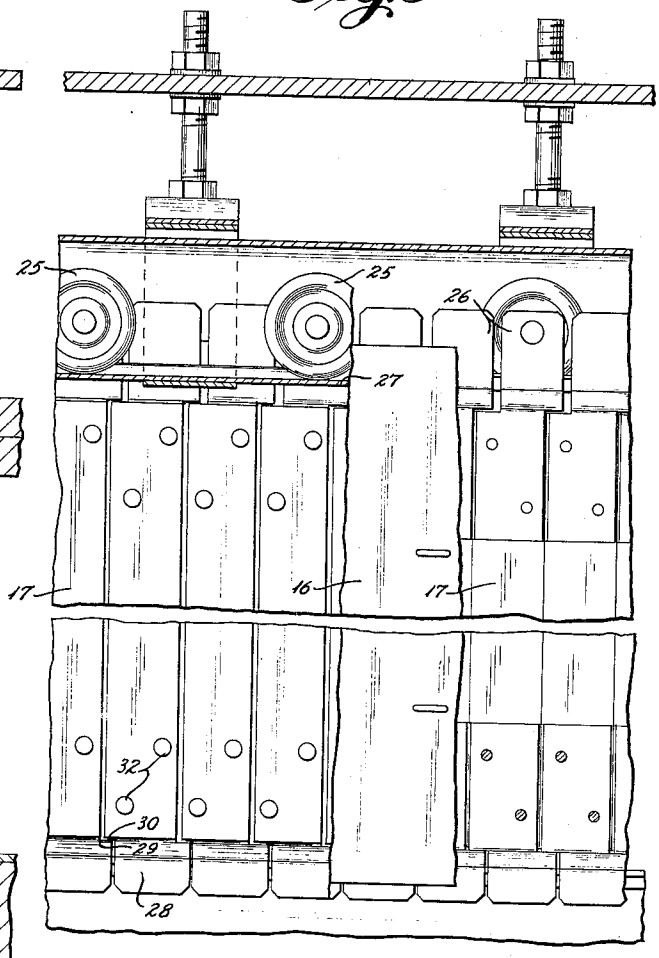
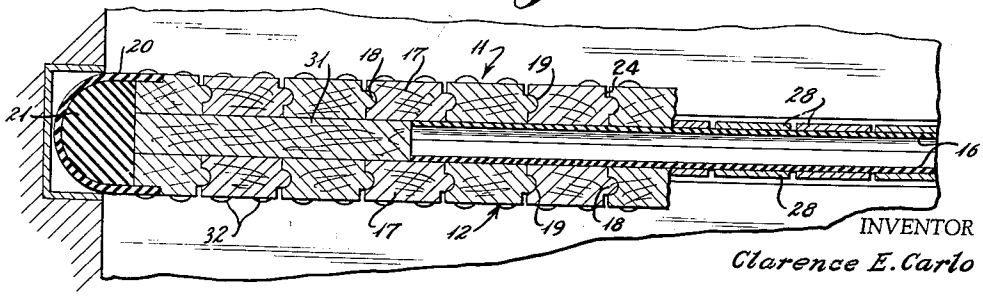


Fig. 6



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MULTIPLE WALL SIGHT AND SOUND INSULATING PARTITION

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Fig. 7

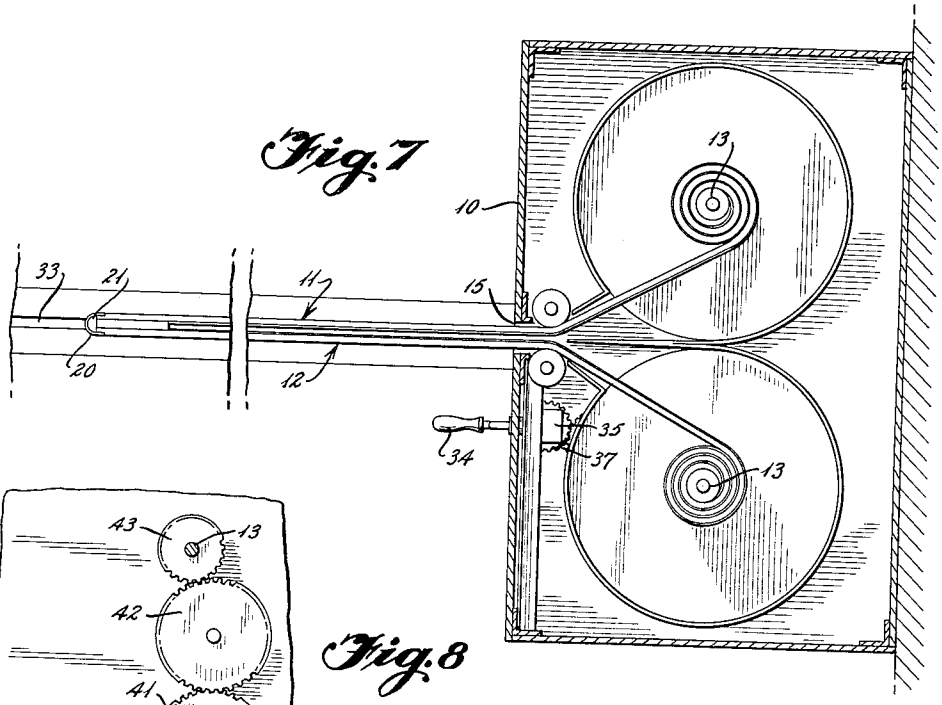


Fig. 8

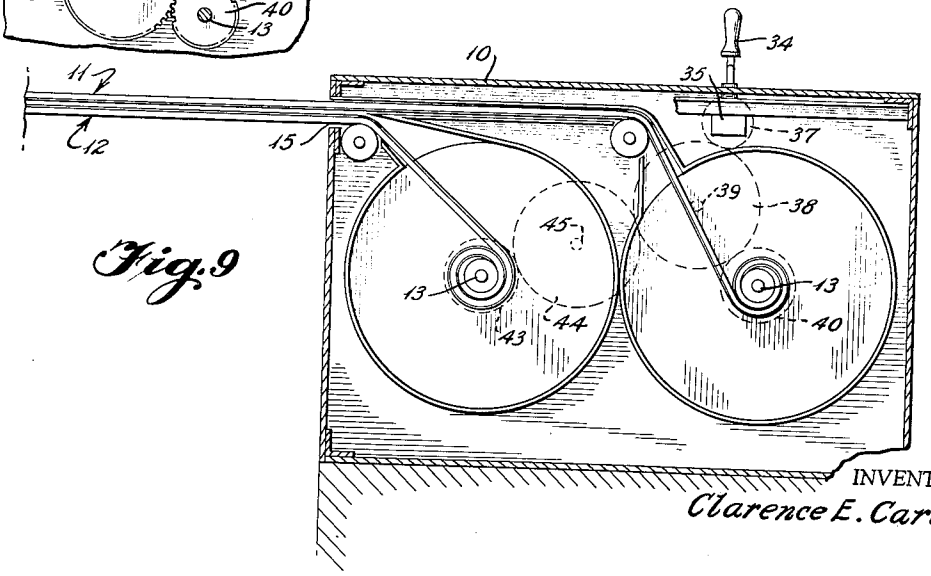


Fig. 9

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United States Patent Office 3,090,425 Patented May 21, 1963

3,090,425

MULTIPLE WALL SIGHT AND SOUND INSULATING PARTITION

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Filed Mar. 15, 1961, Ser. No. 95,951
6 Claims. (Cl. 160—25)

This invention relates to buildings of various kinds and to the construction of the same including the structure and arrangement of the walls which subdivide the interior of the building into rooms or areas of appropriate size for desired uses.

The invention relates particularly to building structures having upright walls or partitions capable of being changed or modified for a different use in a minimum of time and with little effort, and after the need for the modified structure has expired the building again can be restored to its original condition.

Buildings of various sizes and materials have been provided having walls or partitions that could be moved to provide modified areas and facilities. However, as stated in my copending application 76,212 such movable walls have been expensive, massive, heavy and unwieldy and did not provide a solid or satisfactory bearing, their use has been difficult and has involved too much time and effort or did not provide a solid wall but one with light and sight spaces and prior walls have failed satisfactorily to insulate against sound.

It is an object of the invention to overcome the difficulties enumerated and to provide a relatively inexpensive, simple and practical wall or partition, of light weight, which can be easily and readily manufactured, at relatively small cost, can be readily installed, used and operated, or projected or retracted, in a minimum of time, with minimum effort and expense, and which wall or partition will provide adequate insulation between adjoining areas.

Another object of the invention is to provide a wall of the character indicated which can be coiled and uncoiled, which is of double thickness, having insulating sheets or layers between the double wall and providing an air space to form a solid barrier including for light, sight and sound, constructed so that a single crank or motor can be employed for winding and unwinding both portions of the partition.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing wherein:

FIG. 1 is a perspective of a structure to which one embodiment of the invention has been applied;

FIG. 2, a similar view with the partition fully extended;

FIG. 3, an enlarged detail perspective of the double wall partition and the holder for the two reels which hold the same and are employed for the coiling and uncoiling of the partition;

FIG. 4, an enlarged fragmentary vertical section on the line 4—4 of FIG. 2;

FIG. 5, a vertical section on the line 5—5 of FIG. 4;

FIG. 6, a horizontal section on the line 6—6 of FIG.3;

FIG. 7, a horizontal section on the line 7—7 of FIG.3;

FIG. 8, a detail of the gearing used in the winding and unwinding of the reels; and

FIG. 9, a horizontal section similar to that of FIG. 7 of a slightly modified form of the invention.

Briefly stated, the invention is a coilable partition of multiple wall construction including a casing containing a pair of reels, each of which has a curtain attached thereto and with the two curtains constructed to move outwardly and inwardly in parallel relation and form a

partition with sight and sound insulating sheets or membranes therebetween.

With continued reference to the drawings, a coil box or holder **10** may be provided for containing a pair of partition forming walls or curtains **11** and **12** mounted upon reels or rotatable members **13** having their extremities journaled in thrust bearings **14** at the top and bottom of the coil box **10**.

The curtains **11** and **12** extend through an opening **15** in the housing **10** and beyond the housing they are in side by side relation. Curtains **11** and **12** are provided on their inner contiguous surfaces with light and sight obstructing and sound insulating sheets or membranes **16** to improve the value of the device as a barrier and these sheets may be stapled in place to the inner surfaces of the walls or curtains **11** and **12**.

The walls or curtains **11** and **12** may be formed of a series of flexible interfitting slats or elements **17** and each of which may have a tongue **18** along one edge and a cooperating groove along an opposite edge so that the groove **19** in one slot may receive the tongue **18** of the contiguous slat.

The slats **17** at the outer or free edge of each of the walls are connected by a flexible bumper sheet **20** bent into U-shape and having incorporated therein a resilient cushion **21**. The flexible sheet **20** and cushion **21** provide a shock-absorbing bumper or buffer along the outer edge of the partition so that when the partition is fully extended with the sudden movement the shock will be absorbed by such bumper or buffer.

The slats **17** are connected and held together in assembled relation by generally horizontally disposed tapes or ribbons **22** received in openings **23** in the slats. These cables connect the outermost slats **17** or end portions of the curtains with the reels **13** and allow each curtain to be coiled with the slats in contact one with the other and without their being disconnected or separated sufficiently to allow the passage of light.

To facilitate coiling the outer edge of each of the slats **17** may have a recessed shoulder **24** adjacent to the tongue **18** and this produces the space required for such coiling.

The curtains **11** and **12** are suspended from overhead and are provided with a plurality of supporting rollers **25** rotatably mounted on offset hanger brackets **26** and independently carried in an inverted channel defining double tracks **27** as described in said copending application. Offset guides **28** are provided one for each of the slats **17** at the lower extremity of each slat for cooperation with an adjacent guide. Each of the guides **28** is adapted to have a shoulder **29** at one of its edges and a notch **30** at an opposite edge as described and illustrated in the aforesaid copending application.

By having offsets in the hanger brackets **26** and lower guides **28** an air space between the curtains and insulating sheets **11** and **12** is provided. This air space is desirable to prevent transfer of sound vibrations from one curtain to the other as would be the case in the lower frequency range if the curtains were allowed to come in contact with one another.

A spacer **31** the same thickness as the air space is interposed between the free ends of the curtains **11** and **12** and is connected thereto by any desired means as for example by rivets or other fasteners **32**. A floor channel guide **33** may be employed for the lower end of the coilable partition and such floor channel may be countersunk in the floor.

In order to extend and retract the coilable partition forming curtain, drive mechanism may be provided of the kind illustrated in copending application 783,295,

now Patent No. 2,978,019, issued April 4, 1961, or if preferred the partition may be extended by pulling the same manually from the coil box and a hand crank 34 may be provided by which the partition may be recoiled (FIG. 7). The hand crank 34 may be connected to a right angle gear box 35 having a shaft 36 depending therefrom with the lower end of such shaft terminating in a gear 37 (FIG. 8). The gear 37 may mesh with a reducing gear 38 mounted on a shaft 39 and such reducing gear drives a gear 40 mounted on the reel 13 to retract one of the components of the partition such as the member 12 and in order to retract the curtain or component 11 a gear 40 meshes with an idler gear 41 which in turn drives a second idler gear 42 meshing with a gear 43 on the other reel 13.

In some cases it may be necessary to have the opening 15 through which curtains 11 and 12 extend in the side of the coil box or holder 10 instead of the front, this being shown in FIG. 9, in such cases the gearing to recoil the curtains 11 and 12 has to be modified wherein the shaft 36 terminating in gear 37 may mesh with reducing gear 38 mounted on shaft 39 and such reducing gear drives a gear 40 mounted on the lower end of one of the reels 13 to retract the curtain 12. In order to retract the curtain 11 at the same time as curtain 12 an idler gear 44 on shaft 45 meshes with gear 38 which in turn drives the gear 43 on the second reel 13.

It will be apparent from the foregoing that a relatively simple and inexpensive multiple wall, light and sight obstructing and sound insulating partition is provided which is relatively simple to install, that such multiple wall structure extends into the overhead track forming channel and into the countersunk floor guide as well as having overlapping portions and being of double thickness so that there will be no openings or spaces through which light or sound can travel. Also due to the fact that the coilable members are formed of flexible components with overlapping portions, the partition will be of sufficient thickness to dampen vibrations and insulate against the passage of sound but at the same time the structure will be of relatively light weight and easy to operate.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A coilable wall of the character described comprising the combination of a housing having an opening, a pair of reels journaled in said housing, a jointed curtain attached to each of said reels for winding and unwinding, said curtains extending through the opening in said housing into side by side relation and providing an air space therebetween, at least one of said curtains having a light and sight obstructing and sound insulating sheet attached thereto and disposed between said curtains when they are extended, said jointed curtains having overlapping portions at the joints thereby preventing vision and obstructing passage of light therethrough, a buffer connected to the ends of said curtains remote from said reels, an overhead track, said curtains being individually suspended from said track, guiding means for the lower edges of said curtains, and means for imparting rotary motion to said reels to wind said curtains thereon.

2. A coilable wall of the character described comprising a pair of reels, a jointed curtain attached to each of said reels for winding and unwinding, said curtains when extended being in side by side relation and providing an air space therebetween, at least one of said curtains having a light and sight obstructing and sound insulating sheet attached thereto and disposed between said curtains when they are extended, said jointed curtains having overlapping portions at the joints thereby preventing vision and obstructing passage of light therethrough, means connecting the ends of said curtains remote from said reels, an overhead track, said curtains being individually suspended from said track, guiding means for the lower edges of said curtains, and means for imparting rotary motion to said reels to wind said curtains thereon.

3. A coilable wall of the character described comprising a pair of reels, a jointed curtain attached to each of said reels for winding and unwinding, said curtain when extended being in side by side relation and providing an air space therebetween, at least one of said curtains having a light and sight obstructing and sound insulating sheet attached thereto and disposed between said curtains when they are extended, said jointed curtains having overlapping portions at the joints thereby preventing vision and obstructing passage of light therethrough.

4. A coilable multiple wall comprising a pair of partitions constructed of interfitting slats, a housing having an opening through which said partitions extend, a pair of spaced reels journaled in said housing, one of said partitions connected to each of said reels for winding and unwinding, an overhead track extending outwardly from said housing, a plurality of offset supporting brackets having rollers engageable with said track and mounted on each of said partitions, said rollers being movable along said track to independently support said partitions in spaced relation to each other, light and sight obstructing and sound insulating sheets mounted on the inner contiguous surface of each partition whereby when said partitions are extended light and sound are prevented from passing therethrough while preserving the appearance of said partitions.

5. A coilable wall for a building having a ceiling and a floor comprising a pair of extendable and retractable partitions, said partitions being generally parallel when extended, means connecting the free ends of said partitions, each partition including a series of slat-like members having cooperating portions, means for connecting said members in assembled relation, a track mounted on said ceiling, means for movably supporting both of said partitions from said track, a guide channel recessed in said floor, guide means having one end attached to each of said partitions and the opposite end disposed within said channel, a light and sound insulating membrane attached to at least one of said partitions and covering substantially the entire length and width thereof, said membrane extending upwardly into said track between said supporting means and downwardly into said channel between said guide means.

6. The structure of claim 5 in which a membrane is attached to each of said partitions.

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