April 7, 1970 R. WARDLAW 3,504,728

SIDE COILING PARTITION

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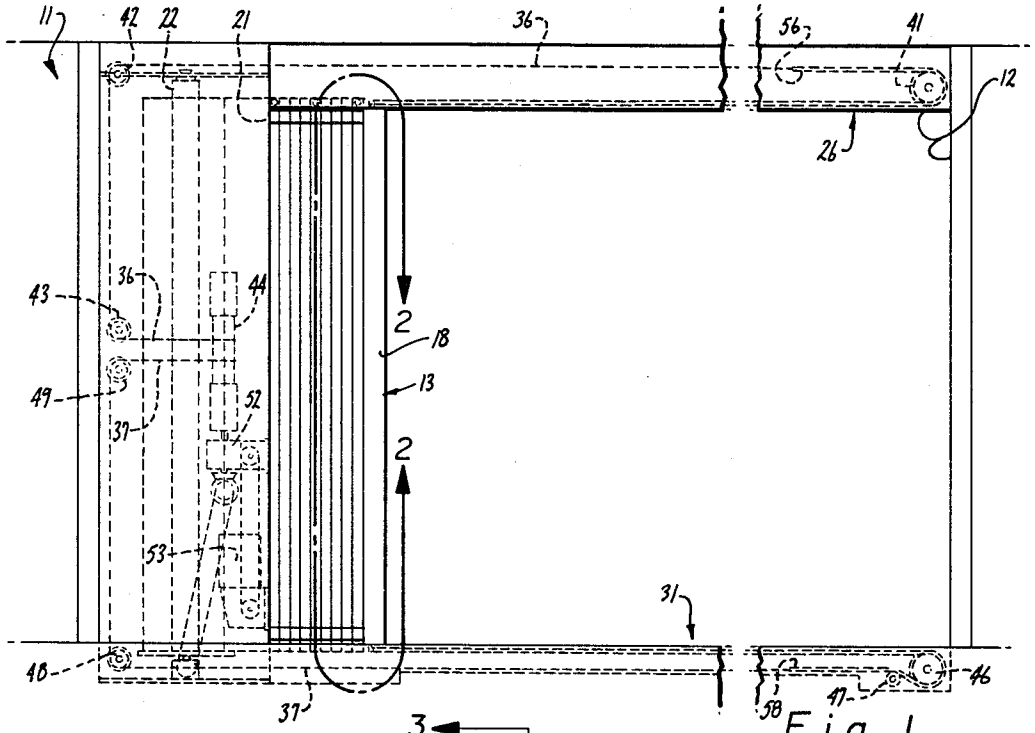


Fig. 1

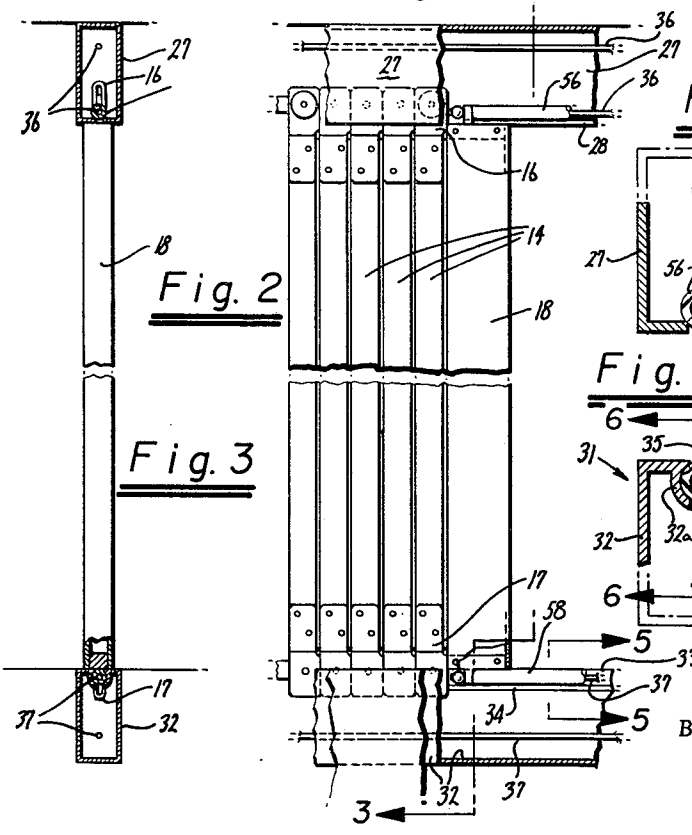


Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

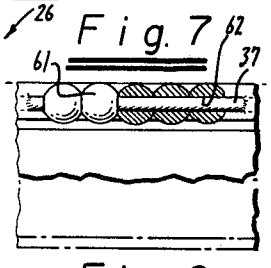
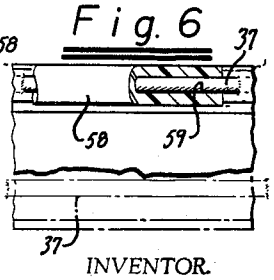


Fig. 7



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SIDE COILING PARTITION

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ABSTRACT OF THE DISCLOSURE

Side coiling partition having cables travelling in upper and lower tracks for advancing the partition and having means for preventing the cable from dropping out of the upper track and means for filling the lower track.

BACKGROUND OF THE INVENTION

In Patent No. 2,934,139 there is disclosed a side coiling partition with cables for advancing and retracting the partition. However, in such a side coiling partition, it has been found that there is a tendency for the cable in the upper track to drop through the slot which is provided in the upper track. In addition, it has been found that there is a tendency for women's heels to become caught and dust and debris to collect in the slots which are provided in the lower track for the side coiling partition. There is therefore a need for a new and improved side coiling partition.

SUMMARY OF THE INVENTION AND OBJECTS

The side coiling partition is utilized for closing and opening. It consists of a rotatable barrel. A movable partition has one end secured to the rotatable barrel. An upper elongate track is provided which is adapted to receive the upper extremity of the partition and to permit the partition to travel longitudinally of the same. Similarly, a lower track is provided which also has a slot which is adapted to receive the lower extremity of the partition to permit the partition to travel longitudinally of the same. Upper and lower cables are secured to the outermost extremity of the partition and are disposed in the upper and lower tracks. Operating means is provided which engages the cables and the rotatable barrel for extending and retracting the partition. Means is provided on the upper cable to prevent it from dropping through the slot in the upper track. Means is also provided on the lower cable for filling the slot in the lower track. The means which is provided in the upper track and the means which is provided in the lower track both travel on the cables in the tracks.

In general it is an object of the invention to provide a side coiling partition in which particularly novel means engaging the upper cable is utilized for preventing the upper cable from dropping out of the top track and for engaging the lower cable to fill the slot in the lower track.

Another object of the invention is to provide a side coiling partition of the above character in which the means engaging the upper and lower cables can be readily installed.

Another object of the invention is to provide a side coiling partition of the above character in which the means mounted on the upper and lower cables is relatively inexpensive.

Additional objects and features of the invention will appear from the following description in which the preferred embodiment is set forth in detail in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWING

FIGURE 1 is a front elevational view of a side coiling partition incorporating the present invention.

FIGURE 2 is an enlarged detailed view with certain parts broken away of the portions circled by the line 2—2 in FIGURE 1.

FIGURE 3 is a cross-sectional view taken along the line 3—3 of FIGURE 2.

FIGURE 4 is a partial cross-sectional view taken along the line 4—4 of FIGURE 2.

FIGURE 5 is a partial cross-sectional view taken along the line 5—5 of FIGURE 2.

FIGURE 6 is a cross-sectional view taken along the line 6—6 of FIGURE 5.

FIGURE 7 is a cross-sectional view similar to FIGURE 6 but showing an alternative embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The side coiling partition which is shown in FIGURES 1 through 6 is mounted in a wall structure **11** which is provided with an opening **12**. The side coiling partition is provided for closing and opening. The side coiling partition consists of a movable partition **13** of a conventional type. Thus as shown the movable partition is comprised of a plurality of slats **14** which are connected together in the manner disclosed in United States Letters Patent 2,934,139. The slats are provided with upper and lower shoes **16** and **17** mounted on the upper and lower extremities thereof.

A meeting or front stile **18** is mounted on the outermost extremity of the partition **13** and also is of a conventional type. The innermost end of the partition extends into a coil box **21** mounted in the structure **11** at one side of the opening **12**. The coil box is provided with a slot (not shown) through which the partition extends. The partition is secured to a barrel **22** rotatably mounted within the coil box.

Upper track means **26** is provided in the wall structure **11** at the upper side of the opening **12** and consists of an elongate channel **27** which is generally rectangular in cross-section as shown in FIGURE 4 but which has a slot **28** in the lowermost wall thereof which is adapted to receive the upper extremities of the movable partition which are the shoes **16** mounted upon the slats **14**. Lower track means **31** is also provided at the lower side of opening **12** and consists of an elongate channel member **32** which is generally rectangular in cross-section as shown in FIGURE 5 and which is provided with a slot **33** in the upper wall thereof. In addition, arcuate portions **32***a* are formed as a part of the channel **32** and provide a cylindrical passage **35** extending longitudinally of the channel **32**. An additional slot **34** is provided below the slot **33** in alignment therewith so that the lowermost extremity of the movable partition **13** i.e. the shoes **17** can travel in the lower track means.

Means is provided for advancing and retracting the movable partition with respect to the opening **12** and consists of an upper cable **36** and a lower cable **37**. The upper cable **36** has one end fastened to the upper foremost extremity of the movable partition **13** and the lower cable **37** also has one end secured to the lower foremost extremity of the partition **13** as shown in FIGURE 2. The upper cable **36** is disposed in the upper track means **26** and as shown particularly in FIGURE 4 travels within the channel **27** to the right hand side of the opening **12** and passes over a sheave **41** and then rearwardly

through the channel 27 over another sheave 42 and then forwardly again over a sheave 43 where it is secured to a drum 44 provided within the coil box 21. The lower cable 37 is reaved in a similar manner and extends forwardly in the cylindrical passage 35 and then over a sheave 46, and an idler roller 47 to the rear and then over and upwardly over a sheave 48 and then inwardly over a sheave 49 where it is attached to the drum 44. The drum 44 is driven by a gear unit 52 driven by a motor 53. The motor 53 drives the barrel 22 in the manner described in the United States Letters Patent No. 2,934,139.

Means is mounted upon the upper cable 36 for preventing the upper cable from dropping through the slot 28 provided in the channel 27 of the upper track means 26. This means consists of a flexible tube 56 formed of a suitable material such as plastic. As can be seen from FIGURE 4, the tube is circular in cross-section and is provided with a central passage 57 which is also circular in cross-section extending the length of the tube. The passage 57 is of such a size that the tube 56 can be readily slipped onto the cable 36. The tube 56 has an outer diameter which is at least slightly greater than the width of the slot 28 to prevent the cable 36 from falling through the slot 28. The tube 56 preferably extends from the front or meeting stile 18 when the movable partition is in an open position and throughout the entire length of the opening and over the sheave 41 so that along the entire length of the channel 27, the cable 36 is supported by the tubing and is prevented from dropping through the slot 28.

Means is provided for filling the slot 33 and the cylindrical passage 35 in the lower track means 31 and consits of a flexible tube 58 also formed of a suitable material such as plastic and which is also circular in cross-section. The tube is provided with a central passage 59 which is also circular in cross-section and which is of a size adapted to accommodate the lower cable 37. The tube 58 has a wall thickness such that the outer diameter of the tube is only slightly less than the diameter of the passage 35 so that the passage 35 is filled and that the slot 33 and the channel 32 is also substantially filled. The tube 58 has a length similar to the length of the tube 56 and extends from the front stile when the partition is in the open position over the sheave 46 so that the slot 33 is filled throughout its entire length.

Operation of the side coiling partition may now be briefly described as follows. Let it be assumed that the side coiling partition is in the position shown in FIGURE 1 and that it is desired to close the opening 12. When this is the case, an electric motor 53 is operated to wind the upper and lower cables 36 and 37 onto the drum 44. If this occurs, the cables pull the partition to the right as viewed in FIGURE 1. At the same time, the flexible tubes 56 and 58 which are provided on the cables 36 and 37 travel over the sheaves 41 and 46 to the rear within the channels 37 and 32. The flexible tubes 56 and 58 in no way impede or hinder the operation of the side coiling partition. In fact, if the tubes 56 and 58 are formed of a suitable material such as plastic, they in fact can reduce the friction and facilitate the opening and closing of the movable partition. It can be seen that since the channels 27 and 32 are relatively long that even when the partition is in a closed position, the tubes 56 and 58 will be lying within the channels 27 and 32 above and below the partition.

When it is desired to open the movable partition, the motor 53 is reversed and the motor drives the barrel 22 as described in United States Letters Patent 2,934,139 to wrap the partition onto the barrel and to permit the cables to travel back over the sheaves 41 and 46. The tubes 56 and 58 are fixed with respect to the cables and travel with the cables. Thus, as soon as the door is moved to the open position, the tubes 56 and 58 move into positions in which they serve their designated functions. The tube 56 serves to prevent the upper cables from dropping out through the slot 28. The lower tube 58 completely fills the cylindrical passage 34 and generally fills the slot 33 as can be seen particularly in FIGURE 5 so that if the lower track means is on the floor there is a substantially uninterrupted surface provided for the floor. Thus, debris and the like will not drop into the slot 33. Also since the slot 33 is filled, there will be no tendency for women's heels and the like to become caught in the slot.

Another embodiment of the invention is shown in FIGURE 7 in which a plurality of balls 61 having holes 62 therein are provided and are mounted upon the cables, as for example, on the lower cable 37 or the upper cable 36. The balls 61 can be formed of any suitable material such as plastic and are mounted on the cables and will serve the same functions as the tubes 56 and 57. Although the balls 61 do not completely fill the space provided by the slot 33, they substantially do and certainly would prevent a woman's heel or the like from coming into the slot 33.

It therefore can be seen that other configurations can be utilized if desired in place of the tubes 56 and 58. It is only necessary that the articles which are used have a size for the upper track means which is greater than the width of the slots 38 and which is of a size to substantially fill the space in the slot 33 in the lower track means.

It is apparent from the foregoing that there has been provided a side coiling partition which has particularly novel means for retaining the upper cable within the upper track means and also for filling the slot which is provided in the lower track means. This means is relatively inexpensive and can be readily installed. In addition, it does not interfere with the proper operation of the partition and in fact may aid in the opening and closing of the partition.

I claim:

1. In a side coiling partition for closing an opening in a walled structure, a partition moveable between open and closed positions with respect to said opening, means forming upper track means having a slot therein extending longitudinally thereof and adapted to receive the upper extremities of the side coiling partition, means forming lower track means and having a slot extending longitudinally thereof for receiving the lower extremities of the side coiling partition to permit the same to travel longitudinally of the lower track means, an upper cable secured to the partition and disposed within the upper track means proximate said slot therein, a lower cable secured to the partition and disposed within the lower track means proximate said slot therein, and means connected to the upper and lower cables for moving said side coiling partition between open and closed positions with respect to said opening, elongate flexible tubular means having a passage therein receiving said upper cable, said tubular means having an outer diameter which is greater than the width of the slot in said supper track means, and a length greater than the length of the opening closed by the partition, said tubular means serving to be supported by said upper track means alongside the slot therein during the time that the side coiling partition is being moved to an open position and when the side coiling partition is in the open position.

2. The side coiling partition as in claim 1 wherein said lower track means includes a longitudinally extending compartment therein having a generally cylindrical configuration and opening onto said slot, said lower cable extending through said compartment, and means circular in cross-section enclosing said lower cable and moveable therewith, substantially filling said compartment and substantially filling the slot in the lower track means.

3. A side coiling partition as in claim 2 wherein said means mounted on the lower cable is in the form of an elongate flexible tube having a passage therein adapted to receive the lower cable, said flexible tube having a length which is greater than the length of the opening closed by said partition.

4. A side coiling partition as in claim 2 wherein said means mounted on the lower cable comprises a plurality of spheres mounted on said cable.

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J. KARL BELL, Primary Examiner

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