Sept. 14, 1965 R. J. CAYTON 3,205,935

FOLDABLE TRAVERSE SCREEN

Filed May 29, 1963 2 Sheets-Sheet 1

FIG. 1.

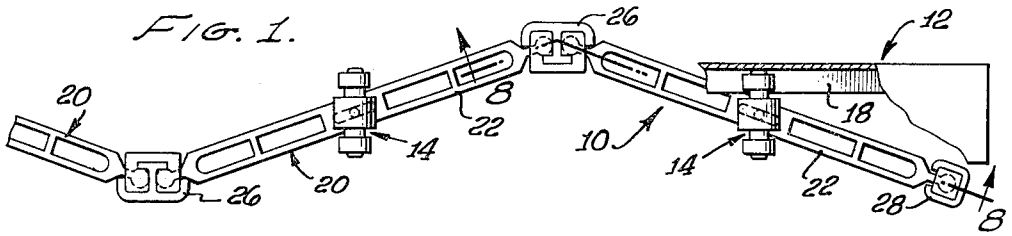
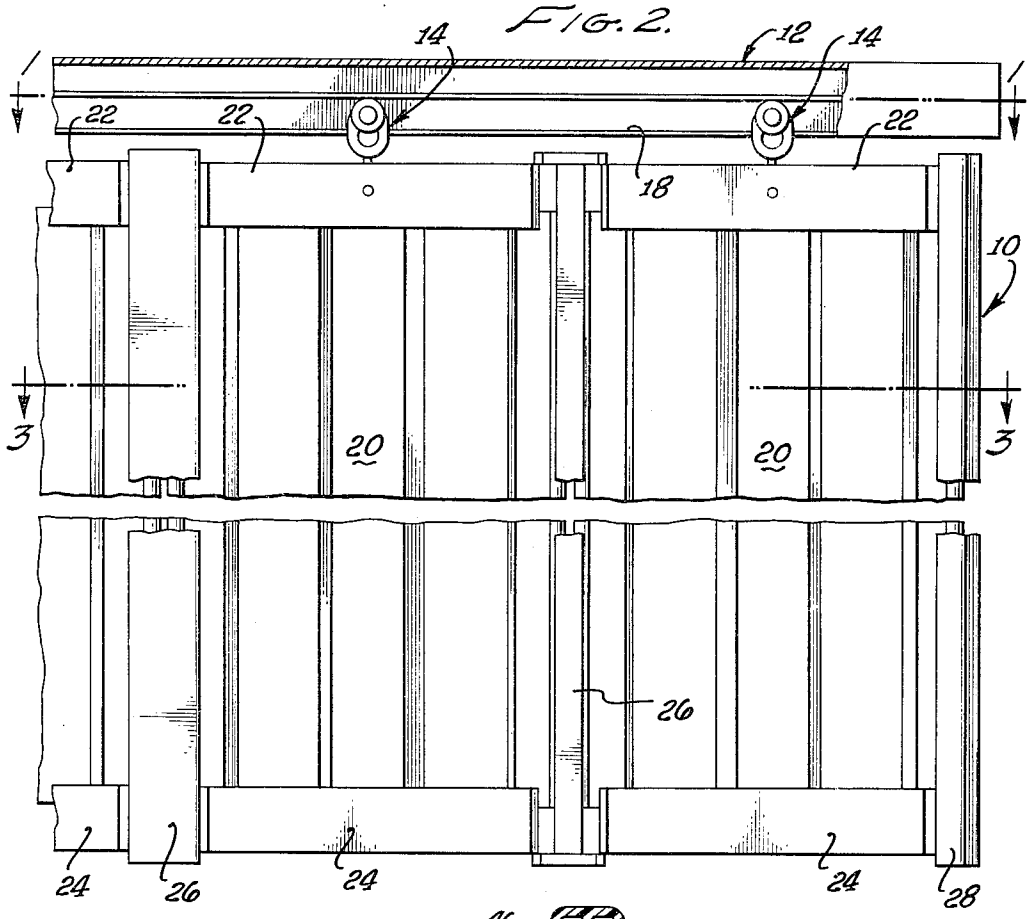


FIG. 2.



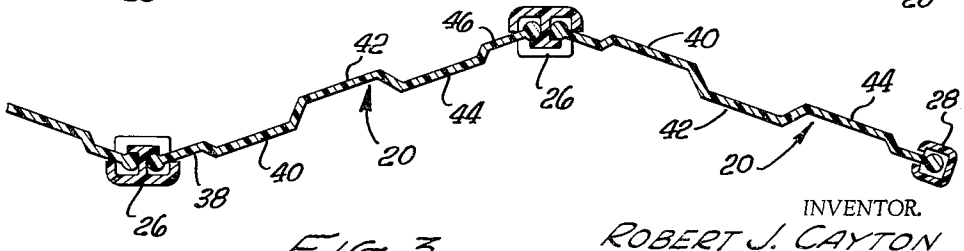


FIG. 3.

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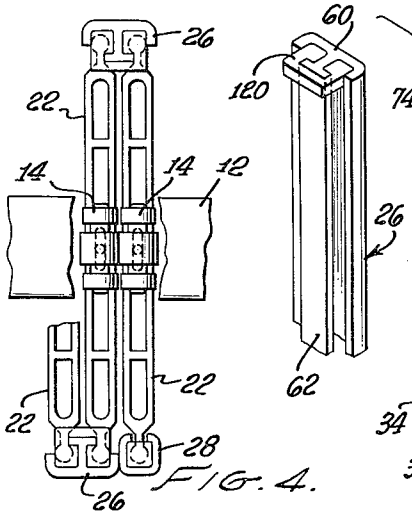


FIG. 4.

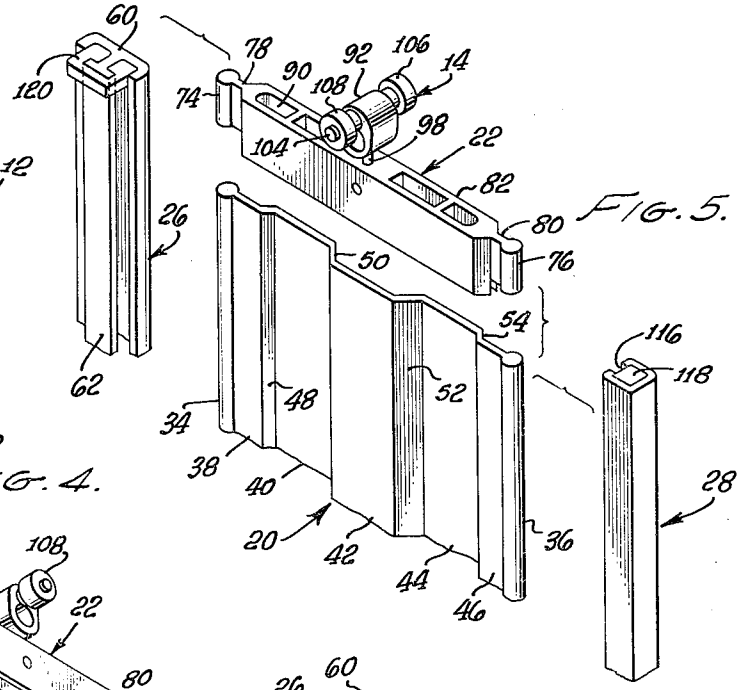


FIG. 5.

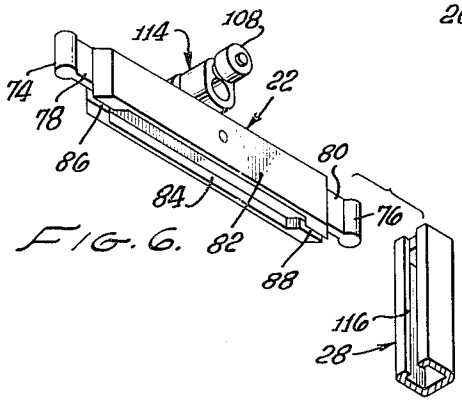


FIG. 6.

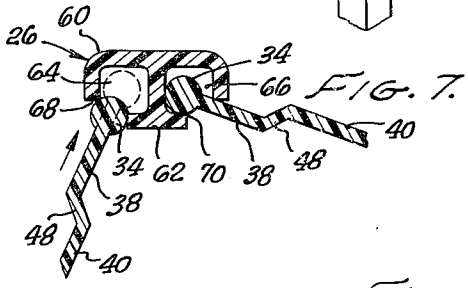


FIG. 7.

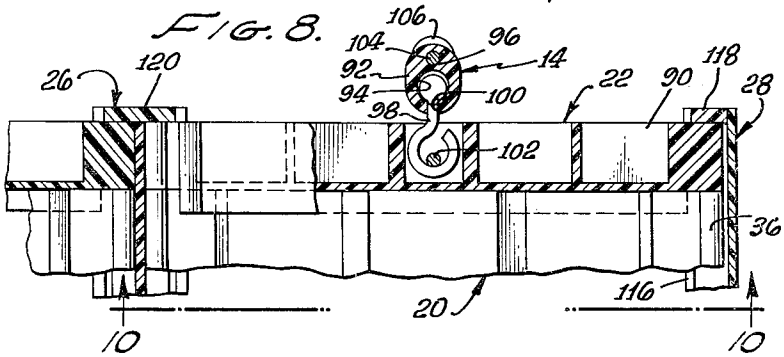


FIG. 8.

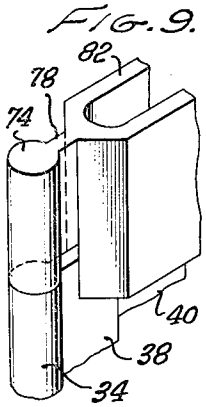


FIG. 9.

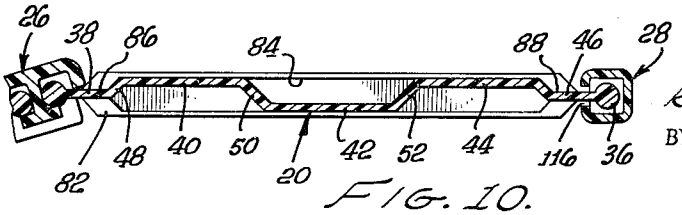


FIG. 10.

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FOLDABLE TRAVERSE SCREEN

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Filed May 29, 1963, Ser. No. 284,150
6 Claims. (Cl. 160—183)

The present invention relates to a foldable traverse screen or curtain and more particularly relates to a foldable traverse screen which may be easily assembled and installed.

It is often desired to provide screens or curtains for doors or windows, or as room dividers, which are pleasing to the eye and which can be folded into a very compact space when not in use. In order to add to the versatility of such screens and curtains, it is desirable that they be capable of being constructed of a plurality of individual parts which may easily be connected and disconnected to form a screen of any desired size for a particular installation. It is also necessary that the screens be so constructed that they can easily be mounted on an overhead track and arranged so that they do not completely block the circulation of air through the room in which they are installed.

It is therefore an object of the present invention to provide a foldable traverse screen or curtain which may be easily assembled and installed and which folds into a compact area.

It is also an object of the present invention to provide such a screen constructed of a plurality of cooperating parts which may be fastened together without the use of tools of any kind.

It is another object of the present invention to provide a foldable traverse screen constructed of a plurality of panels connected together and to suitable trolleys by novel connecting devices.

These and other objects and advantages of the present invention will become more apparent upon reference to the accompanying description and drawings, in which:

FIGURE 1 is a fragmentary top plan view of the screen of the present invention taken substantially along lines 1—1 of FIGURE 2;

FIGURE 2 is an elevation view, partly broken away, of a screen constructed according to the present invention;

FIGURE 3 is a horizontal section taken substantially along lines 3—3 of FIGURE 2;

FIGURE 4 is a top plan view, partly broken away, of a screen constructed according to the present invention in its folded position;

FIGURE 5 is an exploded perspective view of some various components which make up a screen according to the present invention;

FIGURE 6 is an exploded perspective view of some of the components of the screen according to the present invention;

FIGURE 7 is a sectional detail showing the manner in which the panels of the screen are connected together;

FIGURE 8 is a vertical section taken along lines 8—8 of FIGURE 1;

FIGURE 9 is a perspective view showing some of the screen components in cooperating relationship; and

FIGURE 10 is a horizontal section taken along lines 10—10 of FIGURE 8.

Briefly, the present invention envisions the construction of a foldable traverse screen of a plurality of panels, the panels being joined together by quick connecting hinge joints. The hinge joints are also used to join the panels with trolley supporting members, the trolleys thereof being installed in an overhead track.

Referring now to the several figures, there is shown a screen 10 constructed according to the teachings of the

present invention and mounted in a track 12 by means of suitable trolleys 14 which run along rails 18. The screen 10 is constructed of a plurality of panels 20, lateral trolley supporting members 22 and lateral bottom members 24, all of the foregoing being joined together by elongated hinge joints 26. The ends of the screen are provided with elongated closure members 28.

The nature of these various components can best be seen by reference to FIGURES 5, 6, and 7. As can be seen from these figures, each of the panels 20 includes spaced parallel cylindrical end strips 34 and 36. The body of the panel includes five web portions 38, 40, 42, 44 and 46, the web portions 38 and 46 lying in the plane joining the centers of the parallel end strips 34 and 36, the web portions 40 and 44 lying on one side of this plane and the web portion 42 lying on the other side of the plane. The various web portions 38, 40, 42, 44 and 46 are joined by web portions 48, 50, 52, and 54 which extend at an angle to the plane joining the centers of the end strips 34 and 36.

Each of the elongated hinge joints 26 comprises a U-shaped member 60 from the base of which extends a T-shaped protrusion 62. As can be seen from FIGURE 7, the member 60 and protrusion 62 form a pair of rectangular channels 64 and 66 having access slots 68 and 70 into which the cylindrical end strips 34 and 36 can be forcibly inserted. The hinge joints are made of a semi-resilient material such as plastic so that the slots can be made narrower than the diameter of the end strips. Once the end strips have been so inserted, the panels can pivot through an angle of almost 90 degrees so that two adjacent panels can be folded in parallel relationship.

The horizontal trolley supporting members 22 include a pair of spaced parallel cylindrical end strips 74 and 76 which are of the same diameter and adapted for alignment with the end strips 34 and 36 of the panel 20. The end strips 74 and 76 are joined by a pair of web portions 78 and 80 and a central body portion 82. The web portions 78 and 80 are of approximately the same thickness as the web portions 38 and 46 so that the member 22 may also be mounted for pivotal movement in the elongated hinge joint 26. The bottom of the member 82 is provided with a recess 84 which is adapted to receive the upper portion of the panel 20 as can be seen in FIGURE 10. The undersurface of the member 22 is also provided with channels 86 and 88 for receiving the web portions 38 and 46 of the panel 20. The manner in which the panel 20 and member 26 fit together is clearly shown in FIGURE 9. If desired, the member 22 may be provided with recesses 90 in the upper portion thereof in order to decrease the amount of material necessary in its manufacture.

As can be seen from FIGURE 8, the trolley 14 includes a generally oval shaped body 92 having first and second passageways 94 and 96 extending therethrough. The passageway 94 serves to hold the upper end of an eyelet 98 which extends downwardly through a passageway 100 in the body 92. The curved portion of the eyelet 98 engages a pin 102 supported in the member 22. The passageway 96 supports an axle 104 on which is mounted a pair of wheels 106 and 108. Preferably, this whole assembly, except for the eyelet 98 and axle 104, are made of plastic, as are all the other components of the screen.

At either end of the screen, there is provided an elongated closure member 28 which is generally C-shaped and which is provided with an access slot 116 for receiving one of the end strips 34 or 36 together with the corresponding end strip 74 or 76. As was the case with the hinge joint 26, the access slot is narrower than the diameter of the end strips so that once they are forcibly inserted they are retained in place. The top and bottom

of these closure members **28** are provided with end plates **118** which prevent the closure members from sliding off the end strips. In a similar manner, the hinge joints **26** are also provided with end plates **120** for the same purpose. It should be noted that the horizontal bottom members **24** are generally similar to the trolley supporting members **22** with the sole difference being that they do not support a trolley.

In assemblying the screen of the present invention, each alternate panel may be positioned in the reverse order to the one preceding and following it. This can be seen from FIGURES 3 and 7 in which the web portions **40**, **42** and **44** are on different sides of the plane joining the centers of the end strips of the respective panels. This is not necessary however as the panels may be arranged in any order which is aesthetically pleasing to the assembler.

As can be seen from the several figures, and in particular FIGURES 1, 3 and 7, access slots of the hinge joints are dimensioned in such a manner that the various panels when assembled are never parallel to each other in the open position but rather extend at angles from the hinge joints. Such an arrangement is necessary in order that air circulation through the room in which screen is located is not completely blocked. This manner of assembling allows air to circulate freely up along the panels and thence between the panel and the track **12** and the wall on which the track is supported. If the panels could become parallel with each other, such circulation would not be possible. As can be seen from FIGURE 4, the use of the hinge joints and panel assembly of the present invention enable the panels to be folded into a compact area when they are not in use, the panels and trolley supporting members being parallel and in abutting relationship.

From the foregoing description, it can be seen that a folding traverse screen or curtain has been provided which is easily assembled and installed and which can be folded into a compact area when not in use. The various panels and joints can be made in elongated sections and cut to fit any particular application. All of the members may be easily put together or taken apart by hand and thus the size of the screen can be changed very quickly and easily. This contributes greatly to the versatility of the screen. The entire screen can be made of inexpensive plastic materials formed by suitable molding or extruding processes to the required shape, the screen as a whole having a decorative and aesthetically pleasing appearance.

The invention may be embodied in other specific forms not departing from the spirit or central characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

I claim:

1. A foldable screen comprising in combination:
- a plurality of panels, each of said panels having a pair of spaced parallel cylindrical end strips and a rigid web portion extending between said end strips;
- a plurality of end members corresponding in number to the number of panels, each of said end members having a pair of spaced parallel cylindrical end strips, a body portion and web portions joining said end strips with said body portion, said body portion having a recess therein receiving a portion of one of said panels whereby the end strips of said end member and the end strips of said panel are in alignment; and
- a plurality of elongated joint members hingedly connecting each of said panels and its corresponding end member with another panel and end member,

each of said joint members having a pair of channels therein for receiving the end strips of a panel and end member, said joint members having an access slot for each of said channels, said access slots being narrower than the diameter of said end strips, said end strips being inserted into said channels and retained therein.

2. A foldable screen comprising in combination:
- a plurality of panels, each of said panels having a pair of spaced parallel cylindrical end strips and a rigid web portion extending between said end strips and connected thereto;
- a plurality of lateral end members cooperating with said panels, an end member being provided for each end of each of said panels, each of said end members having a pair of spaced parallel cylindrical end strips, a body portion and web portions joining said end strips with said body portion, said body portion having a recess therein receiving one end of one of said panels whereby the end strips of said panel and the end strips of said end members are in alignment;
- a plurality of elongated joint members hingedly connecting each of said panels and its associated end members with another panel and its end members, each of said joint members having a pair of longitudinal channels therein receiving the end strips of a panel and its associated end members, said joint members having an access slot for each of said channels, said access slots being narrower than the diameter of said end strips, said end strips being inserted into said channels and retained therein; and
- trolley means mounted on the end members at one end of said panels, said trolley means being adapted to engage an overhead track.

3. A foldable traverse screen for mounting on an overhead track, comprising in combination:
- a plurality of panels, each of said panels having a pair of spaced parallel cylindrical end strips and a rigid web portion extending between said end strips and connected thereto, said web portion having a plurality of sections lying in parallel but displaced planes;
- a plurality of lateral end members cooperating with said panels, an end member being provided for each end of each of said panels, each of said end members having a pair of spaced parallel cylindrical end strips, a body portion and web portions joining said end strips with said body portion, said body portion having a recess therein receiving one end of one of said panels whereby the end strips of said panel and the end strips of said end members are in alignment;
- a plurality of elongated joint members hingedly connecting each of said panels and its associated end members with another panel and its end members, each of said joint members having a pair of longitudinal channels therein for receiving the end strips of a panel and its associated end members, said joint members having an access slot for each of said channels, said access slots being narrower than the diameter of said end strips, said end strips being inserted into said channels and retained therein;
- a pair of longitudinal end members connected to the first and last panels and their associated lateral end members, each of said longitudinal end members having a channel formed therein for receiving the end strips of said panels and end members and an access slot for said channel, said access slot being narrower than the diameter of said end strips, said end strips being inserted into said channels and retained therein; and
- trolley means mounted on the end members at one end of said panels, said trolley means being adapted to rollably engage said overhead track.

4. A foldable traverse screen for mounting on an overhead track, comprising in combination:

a plurality of panels, each of said panels having a pair of spaced parallel cylindrical end strips and a rigid web portion extending between said end strips and connected thereto;

a plurality of lateral end members cooperating with said panels, an end member being provided for each end of each of said panels, each of said end members having a pair of spaced parallel cylindrical end strips, a body portion and web portions joining said end strips with said body portion, said body portion having a recess therein receiving one end of one of said panels whereby the end strips of said panel and the end strips of said members are in alignment;

a plurality of elongated joint members hingedly connecting each of said panels and its associated end members with another panel and its end members, each of said joint members having a generally U-shaped portion and a T-shaped portion protruding from the center of the base of the U-shaped portion, said U-shaped portion and said T-shaped portion forming a pair of channels, the ends of the upstanding legs of the U-shaped portion and the ends of the cross bar of the T-shaped portion forming a pair of access slots for said channels, the distance between the ends of said upstanding legs and the end of said cross bar being less than the diameter of said end strips of said panel, said joint members being constructed of a material permitting said end strips to be forced through said access slots into said channels and then retaining said end strips in said channels, said end strips being inserted into said channels; and

trolley means mounted on the end members at one end of said panels, said trolley means being adapted to engage said overhead track.

5. A foldable traverse screen for mounting on an overhead track, comprising in combination:

a plurality of panels, each of said panels having a pair of spaced parallel cylindrical end strips and a rigid web portion extending between said end strips and connected thereto, said web portions having a plurality of sections lying in parallel but displaced planes;

a plurality of lateral end members cooperating with said panels, an end member being provided for each end of each of said panels, each of said end members having a pair of spaced parallel cylindrical end strips, a body portion and web portions joining said end strips with said body portion, said body portion having a recess therein receiving one end of one of said panels whereby the end strips of said panel

and the end strips of said end members are in alignment;

a plurality of elongated joint members hingedly connecting each of said panels and its associated end members with another panel and its end members, each of said joint members having a generally U-shaped portion and a T-shaped portion protruding from the center of the base of the U-shaped portion, said U-shaped portion and said T-shaped portion forming a pair of channels, the ends of the upstanding legs of the U-shaped portion and the ends of the cross bar of the T-shaped portion forming a pair of access slots for said channels, the distance between the ends of the upstanding legs and the ends of the cross bar being less than the diameter of said end strips of said panel and end members, said joint members being constructed of a material permitting said end strips to be forced through said access slots into said channels and then retaining said end strips in said channels, said end strips being inserted into said channels;

a pair of longitudinal end members connected to the first and last panels and their associated lateral end members, each of said longitudinal end members having a channel formed therein receiving the end strips of said panels and lateral end members and an access slot for said channel, said access slot being narrower than the diameter of said end strips, said longitudinal end member being constructed of a material permitting said end strips to be forced through said slot into said channel and then retaining said end strips in said channel; and

trolley means mounted on the end members at one end of said panels, said trolley means being adapted to rollably engage said overhead track.

6. The screen of claim 5 wherein said ends of said upstanding legs of said U-shaped portion and the ends of said cross bar of said T-shaped portion are dimensioned to permit said panels to assume a parallel relationship with said upstanding legs of said U-shaped portion but not with said cross bar of said T-shaped portion.

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