

Oct. 30, 1956

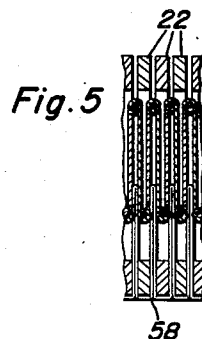
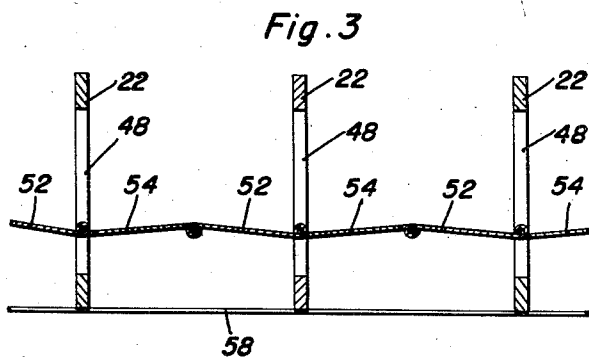
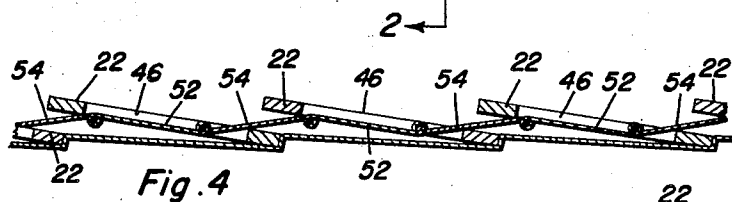
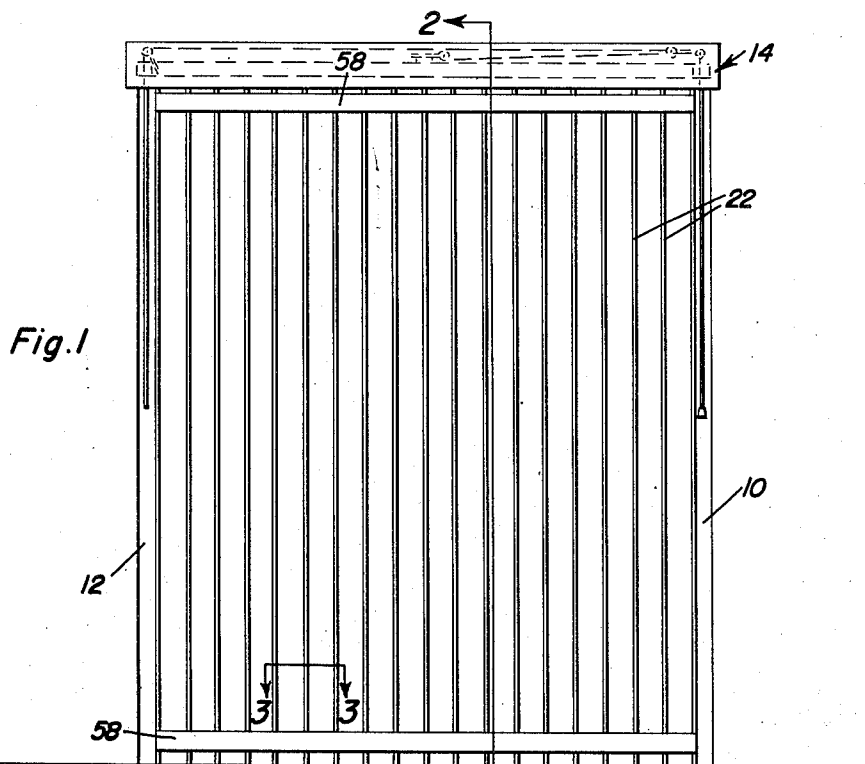
W. D. SEYMOUR

2,768,680

DOOR WITH VERTICAL LOUVERS

Filed May 25, 1954 .

2 Sheets-Sheet 1



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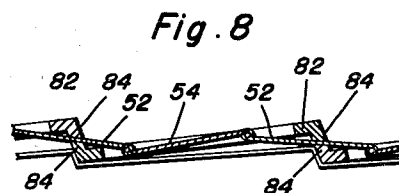
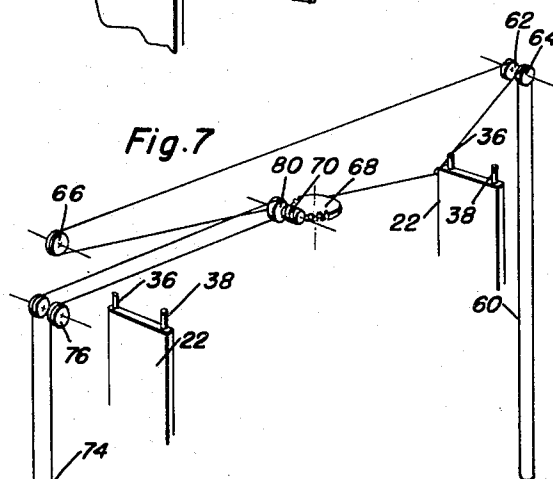
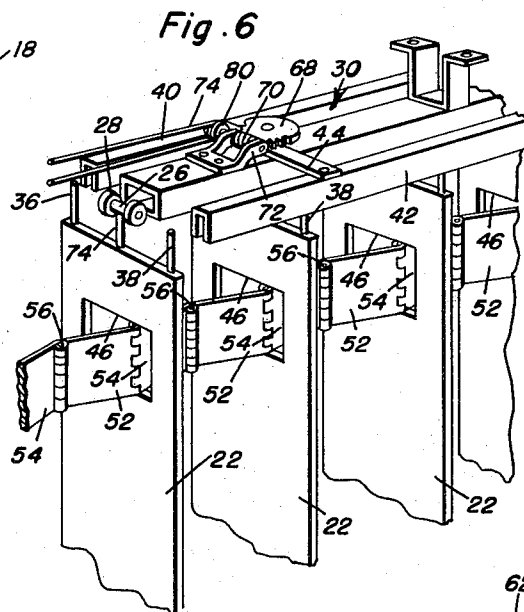
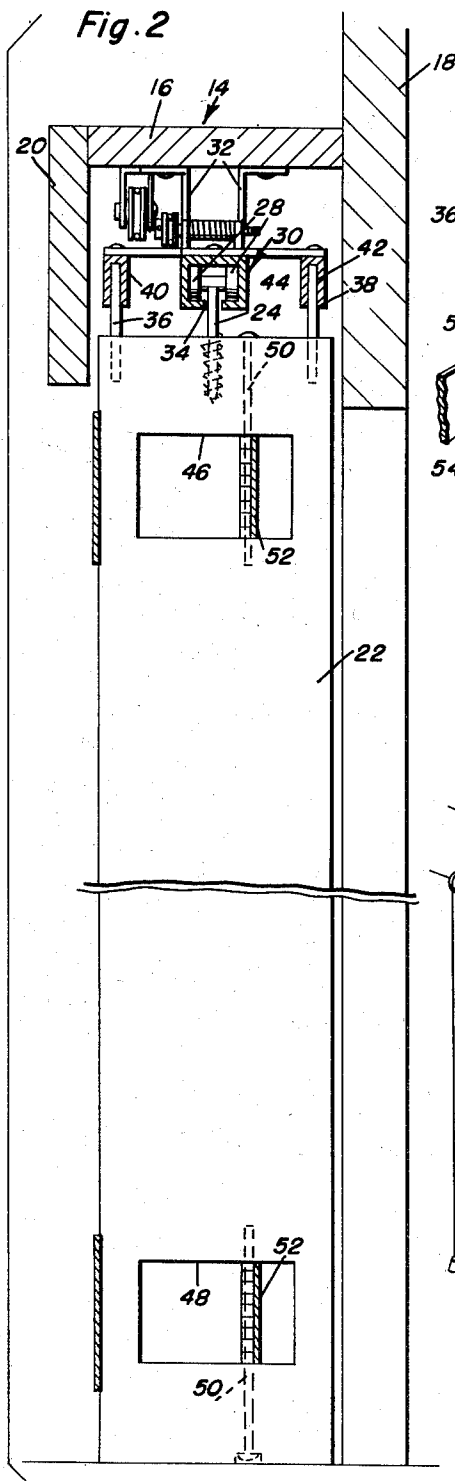
W. D. SEYMOUR

2,768,680

DOOR WITH VERTICAL LOUVERS

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2 Sheets-Sheet 2



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2,768,680

DOOR WITH VERTICAL LOUVERS

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2 Claims. (Cl. 160—172)

This invention relates generally to collapsible doors, and pertains more particularly to an improved door construction of the type utilizing vertical louvers or panels.

A primary object of this invention is to provide an improved collapsible door structure wherein the vertical panels may be positioned in a collapsed state such that they occupy less room than is normally required for doors of this type.

Another object of this invention is to provide an improved collapsible door in accordance with the preceding object wherein the means for interconnecting the various panels of the door are nested within the panels themselves when the door is in the collapsed state.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is an elevational view showing a door constructed in accordance with this invention in doorway closing position with the louvers disposed in such a manner as to allow free circulation of air;

Figure 2 is a vertical section taken substantially along the plane of section line 2—2 in Figure 1;

Figure 3 is a horizontal section taken substantially along the plane of section line 3—3 in Figure 1;

Figure 4 is a view similar to Figure 3 but showing the louvers in position for preventing visual access through the door;

Figure 5 is a horizontal sectional view showing the disposition of the panels when the door is in the collapsed state;

Figure 6 is a perspective view of a portion of the door showing the panel operating means;

Figure 7 is a diagrammatic perspective showing the door operating means; and

Figure 8 is a view similar to Figure 4, but showing a modified form of construction.

Referring now more particularly to the drawing, a doorway is indicated by the vertical side pieces 10 and 12, and the header piece 14 which, as will be seen most clearly in Figure 2, consists of a horizontal member 16 secured to and extending laterally from the wall 18 and a depending front piece 20 forming with the wall and the horizontal piece 16 an enclosure for the operating means of the door hereinafter described.

The door proper consists of a plurality of vertical louvers or panels 22, one of which is rigidly fastened to either of the side members 10 or 12 and the remainder of the panels are connected to this end panel which acts, in effect, as an anchor for the door assembly.

As will be seen most clearly in Figures 2 and 6, any specified or desired number of the panels 22 may be provided at their upper ends with a roller assembly which is comprised of a vertical screw 24 having a horizontal cross-piece 26 at its upper end which journals at its opposite ends the roller members 28 which are received in a

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horizontal track member 30 secured in spaced relation below the horizontal header piece 16 by suitable brackets 32. The track is substantially rectangular in configuration and has a longitudinal slot or opening 34 on its undersurface which receives the screw 24 such that the rollers 28 engage upon the lower horizontal track portions of this member.

Each of the panels has a pair of spaced pin members 36 and 38 secured to its upper end and these pin members are all received in one or the other of the horizontal channel pieces 40 and 42 which are pivotally carried at opposite ends of the horizontal transverse strap members 44. These strap members are pivoted at their midsections to the top of the track member 30, and, as will be readily apparent, as the straps 44 are rotated from the position shown in Figure 6, the channel pieces 40 and 42 will move toward engagement with the opposite sides of the track 30 and carry the pins 36 and 38 with them to move the panels from the position shown in Figure 3 to the position shown in Figure 4.

Each panel is provided with an opening at its upper end, as indicated by the reference character 46, and is also provided with an opening 48 in its lower end. These openings provide space within which the hinge means for interconnecting the several panels may nest when the panels are in the collapsed state as shown in Figure 5. The hinge means is identical for the upper and lower ends of the panels, and hence, only one assembly will be described. A pivot pin 50 projects longitudinally through each of the panel members through a corresponding opening 46 or 48 and this pin 50 pivotally or hingedly interconnects the interlocked hinge ends of a pair of plate members 52 and 54 associated with each opening. The free ends of each of the plate members 52 and 54 are provided with hinge ends which mate with and interfit with the ends of the next corresponding pairs of plate members at opposite sides thereof, the connection being completed by a pintle or hinge pin 56 as indicated most clearly in Figure 6. It will thus be seen that when the panels 22 are in the collapsed state as shown in Figure 5, the hinge means will be nested within the openings within the panels to permit these panels to be disposed in very closely spaced relation or in actual face-to-face contact, dependent upon the relative thicknesses of the panels and the hinge means. Of course, flexible masking strips 58 may be provided for hiding the hinge means. These masking strips can, of course, be made of suitable material or plastic, decorated as desired.

The operating means for the door assembly is shown diagrammatically in Figure 7 wherein it will be noted that an endless pull cord 60 is provided which extends over a pair of pulleys 62 and 64 at one side of the doorway and over a pulley 66 at the opposite side of the doorway and is connected at its opposite ends to the movable end panel, as illustrated. Thus, manipulation of this pull cord will move the panels from the collapsed to the extended position.

For the purpose of pivoting the panels 22 about their centers to permit or prevent visual access through the door, a gear sector 68 is secured rigidly to one of the cross-straps 44 and a worm gear 70, journaled by a suitable bracket 72 on the top side of the track 30, is engaged with this gear sector for imparting the desired rotation to the cross-straps 44. To effect this, a further pull cord 74 is trained about a pair of pulleys 76 and 78 at one side of the doorway and over a pulley 80 rigid with the worm shaft 70 in the manner illustrated. Accordingly, pulling downwardly on one or the other of the ends of the pull cord 74 will effect rotation of the gear 68 and consequent opening or closing of the panels.

Referring now more particularly to Figure 8 wherein a modified form of the assembly is shown, it will be seen

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that the panels 82 illustrated have lateral lips 84 formed at their opposite vertical side edges such that when the panels are in the position, absolutely no visual access through the door can be had. In this respect, it is to be noted that the portions of the lips 84 which engage the hinge members 52 may be notched away in these regions to permit a very snug and close contact engagement between the remaining portions of the lips 84.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A folding door comprising a plurality of vertically disposed panels, each of said panels having an opening in its upper and lower ends, hinge means for interconnecting said panels for movement between a collapsed position in which the panels are disposed in closely spaced relation and an expanded position in which the panels are spaced relatively far apart, said hinge means being nested within said openings when the panels are in the collapsed position, means for moving said panels between a collapsed position permitting entrance through a doorway and an extended position filling a doorway including a track member, rollers movable in said track member, said rollers being attached to said panels, and means for selectively pivoting said panels about their vertical center lines, the last mentioned means including a pair of spaced pins pro-

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jecting from the upper end of said panel, a pair of channel members receiving said pins, a plurality of cross-straps pivotally connected at their opposite ends to said channel members, and means for pivoting said cross-straps about their centers.

2. A folding door comprising a plurality of vertically disposed panels, each of said panels having an opening adjacent its upper end and an opening adjacent its lower end, a pair of plate members associated with each of said openings, a vertical pivot pin carried by said panels within each of said openings, the plate members in each pair having portions rotatably receiving an associated pin whereby the plate members in each pair are hinged together, and means hingedly interconnecting each plate member of one pair with one of the plate members of the next two adjacent pairs, means for moving said panels between a collapsed position permitting entrance through a doorway and an extended position filling a doorway including a track member, rollers movable in said track member, said rollers being attached to said panels, and means for selectively pivoting said panels about their vertical center lines, the last mentioned means including a pair of spaced pins projecting from the upper end of each panel, a pair of channel members receiving said pins, a plurality of cross-straps pivotally connected at their opposite ends to said channel members, and means for pivoting said cross-straps about their centers.

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