Feb. 26, 1957 W. E. JOHNSON 2,782,845

ACCORDION DOORS

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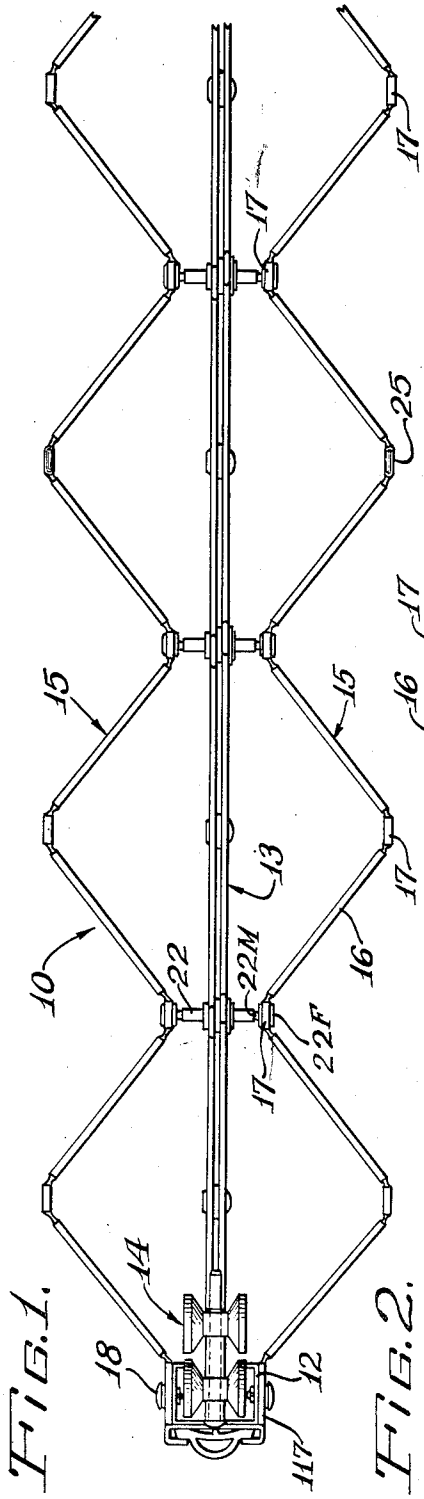


Fig. 1.

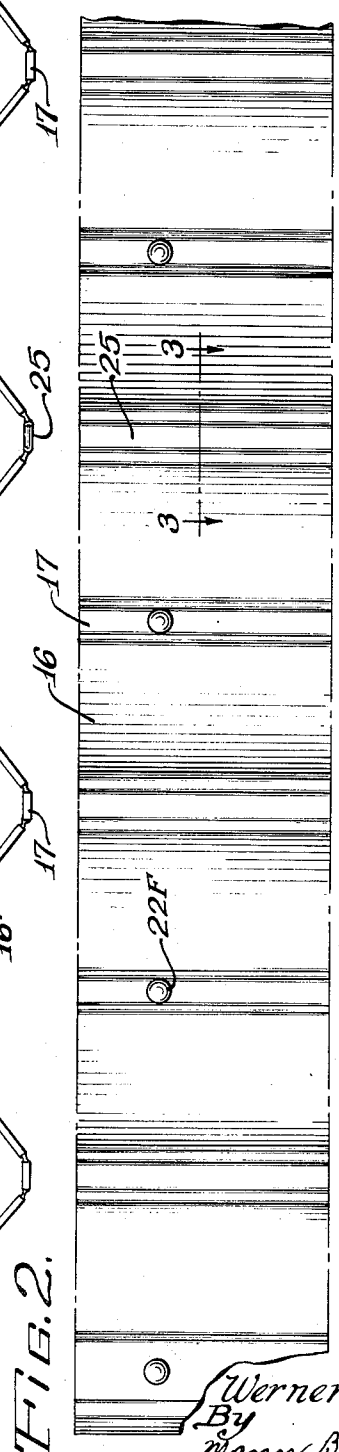


Fig. 2.

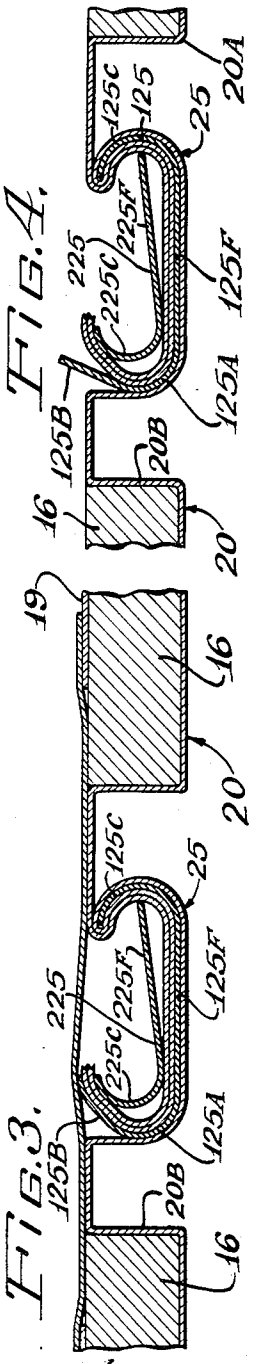


Fig. 4.

Fig. 3.

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ACCORDION DOORS

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6 Claims. (Cl. 160—84)

This invention relates to accordion doors and particularly to the foldable covers employed on such doors.

Accordance doors of the kind of which this invention relates ordinarily comprise a pair of vertical end posts interconnected by lazytong means for relative approaching and separating movements of the post, and the sides of the end posts and the interconnecting lazytongs are concealed by covers that extend between the posts and are supported at intermediate points on the lazytongs so that the covers will fold uniformly as the door is opened and closed.

In one form of accordion type folding door the covers are formed from a plurality of alternate wide and narrow slats that are pivotally connected together by inner and outer cover sheets that are adhesively secured to the respective slats, and the present invention is particularly related to folding covers of this character. While most accordion type doors of the aforesaid character are relatively narrow with one such door serving to close an ordinary door opening, or two of such doors being utilized in some instances for wider doors, it has been found that many folding door installations require that the folding doors be relatively wide. When such a relatively wide folding door is to be constructed, it has been found that the outer cover sheets for the door covers require splicing, this necessity arising because of the relatively limited width of the sheet material such as fabric or plastic that is conventionally utilized for such outer cover sheets. In the past it has been the practice merely to sew two sheets of material together, and then to apply the connected sheets to the cover. This, however, has resulted in an unsightly appearance in the door covers, and in view of this it is the primary object of the present invention to enable separately formed outer cover sheets for such door covers to be spliced together in such a manner that the splice is concealed and a uniform appearance is produced in the outer surfaces of the door covers. A more specific object of the present invention is to accomplish the splicing of separate outer cover sheets in a specially formed slat that corresponds in shape and size with certain other slats of a cover of the aforesaid character, and to accomplish this in such a way that the ends or edges of the adjacent outer cover sheets are concealed and the sheets are associated with the splicing slat in such a way that this splicing slat has the same finished appearance as the other slats of the cover.

Other and further objects of the present invention will be apparent from the following description and claims, and are illustrated in the accompanying drawings, which by way of illustration, show a preferred embodiment of the present invention and the principles thereof, and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the invention.

In the drawings:

Fig. 1 is a top plan view of a portion of an accordion door embodying the invention;

Fig. 2 is a fragmental outside elevational view of one of the door covers shown in Fig. 1;

Fig. 3 is an enlarged horizontal cross sectional view illustrating the concealed splice for the outer cover sheets; and

Fig. 4 is a view similar to Fig. 3 and showing the parts of the splice slat prior to the clamping thereof upon the edges of the connected outer cover sheets.

For purposes of disclosure the invention has been illustrated herein as embodied in an accordion type folding door 10 of the general type and construction illustrated and claimed in the application of Robert H. Ensign and Don C. Holloway, Serial Number 556,272, filed December 29, 1955, and reference is made specifically to the aforesaid copending application for details of the specific door that is illustrated herein. The door 10 comprises a pair of vertical posts 12, only one of which is shown herein, and these posts are interconnected by lazytongs 13 so that the posts will be maintained substantially parallel during opening and closing of the door. As described in detail in the aforesaid copending application, the door 10 is suspended from an overhead track by means including a wheeled carriage 14.

The lazytongs 13 and the sides of the edges posts 12 are concealed by a pair of similar covers 15 which comprise alternate wide and narrow slats 16 and 17 and end slats 117, such end slats 117 being secured to the sides of the edge posts by detachable fastening devices 18 as described in the aforesaid copending application.

The slats 16, 17 and 117 are effectually interconnected by inner and outer cover sheets 19 and 20 which are adhered to the slats, and to each other in the spaces between the slats, so that a vertical pivot is in effect provided between the adjacent edges of the respective slats. Alternate ones of the narrow slats 17 are supported on the lazytongs by means of snap fastener devices, the female elements 22F of which are mounted in alternate ones of the narrow or pivot slats 17, and these female snap fastener elements are opertatively engaged with male snap fastener elements 22M that are formed on the oppositely projecting ends of certain pivot or support pins 22 of the lazytongs 13.

Where the width of the covers 15 exceeds the greatest available width of outer covering sheets 20, such outer covering sheets may under the present invention be spliced from two pieces of such material in such a way that the splice is concealed and a uniform outer appearance is imparted to the cover 15. This is accomplished under the present invention by providing a splicing slat 25 that is shown in particular in Figs. 1 and 3, and this splicing slat 25 as shown herein so formed that its general size and cross sectional configuration are substantially the same as the narrow or pivot slats 17. Thus, as shown in Fig. 4 this splicing slat 25 comprises a pair of sheet metal members 125 and 225 that may be formed as by rolling from elongated strips of a metal such as aluminum. The outer strip 125 has a flat outer face 125F with one edge shaped to a semi-circular form as indicated at 125C thus to provide what amounts to a curved flange along one edge. At its other edge the outer member 125 has an arcuate flange 125A that extends for an arcuate distance of slightly over 90 degrees and then has a relatively flat flange portion 125B that extends away from the main flat portion of the member 125 for a distance somewhat greater than the flange 125C. The other or inner member 225 comprises a flat portion 225F having a semi-circular flange 225C at one edge thereof.

The relative widths of the two members 125 and 225 are such that by bending the straight flange 125B downwardly onto and against the curved flange 225C, the inner

member 225 may be held in position and a clamping action may be attained whereby the adjacent edges of two separate pieces of outer cover sheet material may be clamped together and concealed within the outer metal member 125. Thus, as will be evident in Fig. 4 of the drawings, two separately formed pieces of outer cover sheet material 20A and 20B are associated with the two metal parts of the splicing slat 25. Such association is effected by laying the two edges of the sheets 20A and 20B in position across the open back face of the outer member 125 with the extreme edges of the two sheets 20A and 20B located adjacent to the edge of the flange 125B. When this has been done, the inner member 225 is inserted on top of the two sheets of cover material 20A and 20B with the curved flange 225C adjacent to the flange 125B and with the straight or right-hand edge of the member 225 located against the two sheets 20A and 20B and within the curve defined by the curved flange 125C. When this has been done it will be evident that the two extreme edge portions of the sheets 20A and 20B will be located on top of the edge portion of the curved flange 225C, and the edges of the sheets may be trimmed at this time if required. With the parts in this relationship the flange 125B is bent downwardly from the position shown in Fig. 4 to the position shown in Fig. 3 of the drawings. This results in clamping of the two extreme edges of the sheets 20A and 20B between the flanges 125B and 225C, and it also forces the other or right-hand edges of the inner member 225 to the right so as to clamp the two sheets 20A and 20B against the internal surfaces of the curved flange 125C. The foregoing assembly and forming operations may be performed through the use of suitable fixtures including rolling means for bending the edge 125B to its clamping position.

The two pieces of sheet material 20A and 20B are thus effectually connected to each other within the hollow splicing slat 25, and this has been accomplished in such a way that the sheet 20A may extend to the right from the rear right-hand portion of the splicing slat 25, while the other sheet 20B may be wrapped around the right-hand edge of the splicing slat, across the flat forward face 125F thereof, and then rearwardly along the arcuate left-hand edge thereof as shown in Figs. 3 and 4 of the drawings. The sheet 20B is preferably adhesively secured to the engaged surfaces of the splicing slat 25 so that it will bear the same relation to the splicing slat as other portions of the outer cover sheet bear to the other slats of the cover 15. After the parts have been associated in the manner thus described, the inside cover sheet 19 may be adhesively applied so as to adhere to the rear portions of the slat 25 and to intermediate portions of the cover 20, and this inner cover sheet may of course take the form of several independent sheets as shown in Fig. 3.

When the spliced cover 15 has been thus produced, it may be associated with a door 10, and when so associated the splice of the outer cover sheet material 20 is concealed in such a way that it is not readily apparent to the ordinary observer. It should be observed that in the present instance the splicing slat 25 has been illustrated as being located between two of the pivot slats 17 that are connected to the support pins 22, but it will be recognized that the splicing slat may, if desired, be utilized as one of the pivot slats that is to be connected directly to the support pins 22 of the door.

From the foregoing description it will be apparent that the present invention enables wide accordion type doors to be produced with two-piece outer cover sheets that are spliced in an effective manner so that the splice is fully concealed. It will also be evident that the concealed splice of the present invention enables a uniform and attractive appearance to be attained in accordion type folding door covers even where such door covers are made in extremely great widths.

Thus, while I have illustrated and described a preferred embodiment of the invention, it will be recognized that this may be varied by those skilled in the art without departing from the spirit and scope of the invention.

I claim:

1. In an accordion door cover, a plurality of wide slats and alternate narrow pivot slats, inner and outer flexible covering sheets over slats adhesively secured in the inner and outer faces of said slats to pivotally interconnect the adjacent edges thereof, one of said pivot slats comprising a hollow sheet metal member of substantially the same size and configuration as the other pivot slats and into which adjacent edges of separately formed outer covering sheets are extended, and means within said hollow member for anchoring said edges in said hollow member.

2. A two-piece outer covering sheet for use in accordion door covers of the type in which alternate wide and narrow slats are pivotally connected together by inner and outer covering sheets adhesively secured to the inner and outer faces of the slats, said two-piece outer covering sheet comprising two separate pieces of sheet material having adjacent edges, an elongated connecting member of a cross sectional size and external form approximating the cross sectional size and external form of one of the narrow slats with which the covering sheet is to be used, said connecting member having both of said edges of said pieces fixed thereto so that one of said pieces extends freely in a lateral direction from one edge of said member at the rear face thereof, and the other of said pieces extends from the said edge of said member and about the forward face thereof and then rearwardly along the other edge of said member to the rear face of said member.

3. A two-piece outer covering sheet for accordion door covers of the type in which a series of slats are pivotally connected by inner and outer flexible covering sheets secured adhesively to the inner and outer faces of the slats, said two-piece outer covering sheet comprising a pair of individual pieces having adjacent edges, a connecting member of a cross sectional size and form substantially corresponding to the size and form of one of the slats with which the cover sheet is to be used, means securing said adjacent edges of both of said adjacent edges of said individual pieces to said connecting member near an inner corner of one edge thereof, one of said pieces being extended about and adhesively secured to said member from said one edge thereof across the outer face of said member and toward the inner corner of the other edge so that said two pieces extend in opposite directions from the two edges of said member.

4. In a cover for an accordion door, a plurality of wide slats and a plurality of narrow pivot slats disposed between and alternately with respect to said wide slats, an inner cover sheet adhered to inner faces of said slats, a pair of outer cover sheets adhered to said slats and arranged with meeting edges disposed at a selected one of said pivot slats, said selected one of said pivot slats comprising an elongated metal strip having return bends along its edges, and said meeting edge of one of said outer cover sheets being extended over the outer face of said metal strip and both of said meeting edges being extended about and beneath one of the return bends of said strip to be clamped thereby in a concealed relation.

5. In an accordion door cover, a plurality of wide slats and alternate narrow pivot slats, inner and outer flexible covering sheets adhesively secured on the innner and outer faces of said slats to pivotally interconnect the adjacent edges thereof, one of said pivot slats constituting a splicing slat of substantially the same size and configuration as the other pivot slats, said outer covering sheet comprising separate pieces of sheet material meeting at said splicing slat, one of said pieces extending from one side of said splicing slat across the outer face of said splicing slat and around the remote edge thereof and across the back thereof, the other of said pieces extending across the back of said splicing slat, and means anchoring said edges on the back of said splicing slat.

6. In an accordion door cover, a plurality of wide slats and alternate narrow pivot slats, one of said pivot slats constituting a splicing slat of substantially the same size and configuration as the other pivot slats, a pair of flexible outer covering sheets adhesively secured on the outer faces of said slats to pivotally interconnect the adjacent edges thereof, said outer covering sheets meeting at said splicing slat with one of said sheets extending across the outer face of said splicing slat and around such splicing slat, the other of said pieces extending across the back of said splicing slat, and means connecting said pieces together and to said splicing slat at the back of said splicing slat.

No references cited.