

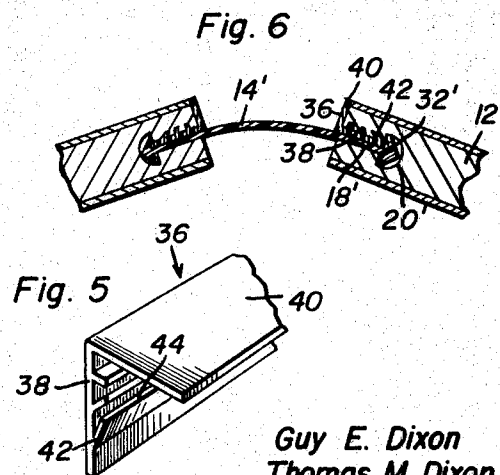
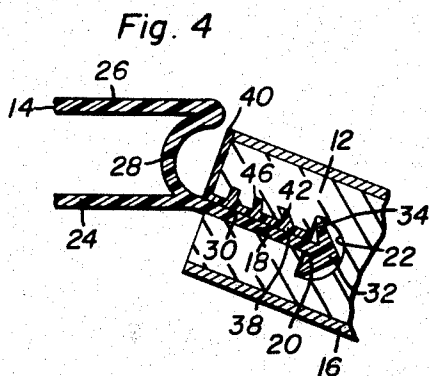
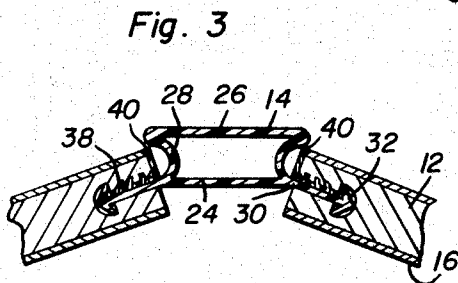
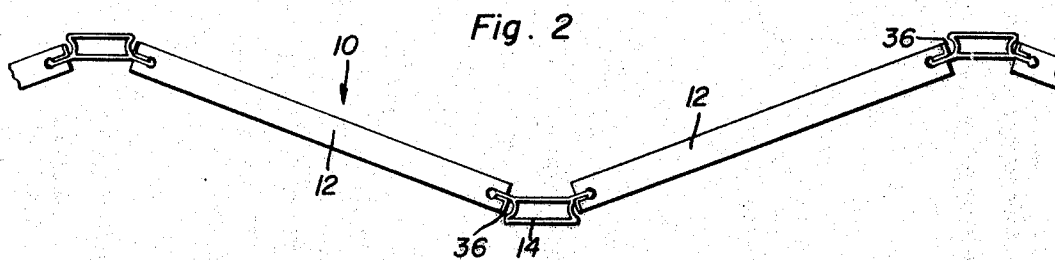
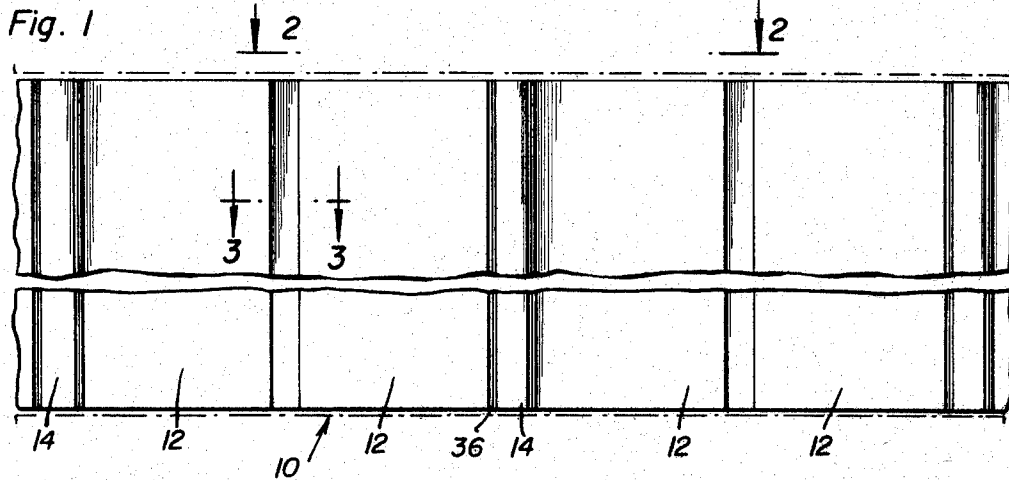
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3,361,189

HINGE STRIP ANCHOR

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3,361,189

HINGE STRIP ANCHOR

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ABSTRACT OF THE DISCLOSURE

An anchoring device for use in securing the attaching flanges of a flexible hinge strip within grooves in adjacent edges of adjacent panels in a folding door assembly. The anchoring device is constructed of an elongated strip deformed to exhibit right angular flanges. One flange when in the affixed position, overlies the edge portion of the panel alongside the groove cut into the edge of each adjacent door panel. The second flange contains ribs which are outwardly inclined to interlock with the groove in the panel edge when the anchoring device is inserted alongside the hinge strip attaching flange.

The present invention generally relates to an anchoring device and more particularly to such a device employed in combination with a flexible hinge strip and a plurality of rigid folding panels in a folding door such as that illustrated in prior Patent No. 3,131,753, issued May 5, 1964.

In the above-mentioned prior patent and in other prior patents, a flexible hinge strip is employed for flexibly interconnecting adjacent edges of adjacent rigid panels in a folding door. The adjacent edges of the rigid panels are provided with grooves and the edges of the strips are in the form of relatively thin flanges which are received in the grooves. Additionally, the inner longitudinal edge of the groove is undercut and the free edge of the flange on the flexible strip is provided with an enlargement received in the undercut portion of the groove for locking the hinge strip flanges to the rigid panels. In order to anchor the hinge strip to the rigid panels, a suitable adhesive bonding agent has been employed in some instances but the use of such an anchoring arrangement is relatively time consuming. Additionally, inasmuch as the hinge strip flange enters the groove at the center of the edge of the rigid panel, this still left a portion of the panel exposed which was somewhat objectionable from an appearance standpoint and also renders the rigid panels susceptible to splintering or damage due to contact with rigid articles such as articles of furniture or the like. The present invention is directed to an anchor device formed from angularly disposed flanges, one of said flanges being inserted into a door edge groove to wedge in a hinge strip flange contained therein. This construction obviates the need for adhesively bonding the hinge strip flange to the door. The other angularly disposed anchor flange overlies the door edge thus improving the esthetic appearance of the door as well as protecting the edges from physical damage.

Accordingly, it is an object of the present invention to provide an anchoring device for securely anchoring the flexible hinge strip flanges in the respective grooves in the

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edges of the folding panels and at the same time cover the exposed edge portion of the panels to not only protect the edge portion of the panels but also enhance the appearance thereof.

A further object of the present invention is to provide an anchoring device in accordance with the preceding objects in the form of an elongated continuous anchoring strip having a pair of angularly disposed flanges with one flange disposed in the groove and the other flange lying against the external surface of the edge portion of the panel.

Yet another object of the present invention is to provide an anchor device in accordance with the preceding objects in which the flange inserted into the groove is provided with a plurality of longitudinally extending ribs which are inclined outwardly to serve to retain the flange of the anchoring strip in the groove in the panel.

Yet another object of the present invention is to provide an anchoring device in accordance with the preceding objects in which the flanges defining the anchoring strips are orientated normally in acute angular relation and are constructed of plastic material having memory characteristics whereby the flange engaging the exposed edge surface of the panel will be retained flexibly and resiliently against the edge of the panel for eliminating a separation of the flange of the anchoring strip and the edge portion of the panel.

Yet another important feature of the present invention is to provide an anchoring device in accordance with the preceding objects which is simple in construction, easy to install, effective for anchoring the end strip in place, effective in protecting the edge portion of the door and enhancing the appearance thereof, and relatively inexpensive to manufacture.

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 of a portion of a folding door employing a flexible hinge strip between adjacent rigid panels;

FIGURE 2 is a plan view taken generally along section line 2—2 of FIGURE 1 illustrating the relationship of the panels, flexible hinge strips and anchoring strips;

FIGURE 3 is a sectional view, on an enlarged scale, taken along section line 3—3 of FIGURE 1 illustrating further structural details of the rigid panels, flexible hinge strip and anchoring strips;

FIGURE 4 is a further enlarged detail sectional view illustrating a portion of the structure of FIGURE 3 and illustrating in more detail the particular construction of the anchor strip;

FIGURE 5 is a fragmental perspective view of a portion of an anchor strip; and

FIGURE 6 is a sectional view similar to FIGURE 3 but illustrating the anchor strips incorporated with another type of flexible hinge strip.

Referring now specifically to the drawings, the numeral 10 generally designates a folding door assembly which includes a plurality of rigid panels 12 which are interconnected flexibly by hinge strips 14 so that the panels 12 may fold from a retracted position in which the panels

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12 are disposed alongside of and parallel to each other to an extended position where the panels are in an accordion or shallow folded position as illustrated in FIGURE 2. The specific construction of the panels as well as the specific construction of the hinge strip 14 may be as illustrated in prior Patent No. 3,131,753 as illustrated in FIGURES 1-5 or the panels and flexible hinge strip may be that construction as illustrated in prior Patent No. 2,579,910 issued Dec. 25, 1951, for Accordion Folding Door. Generally, the panels 12 are of rigid material such as laminated wood, pressed fiberboard or the like and may be provided with a veneer 16 on a single or both sides thereof which veneer may have the appearance of any desired characteristics.

The adjacent edges of the adjacent panels 12 have a groove 18 formed therein with the inner extremity of the groove 18 being undercut as at 20 with the undercut portion being rounded as at 22 if desired. The hinge strip 14 includes an inner wall 24 and an outer wall 26 in generally spaced parallel relation thereto with the inner and outer walls being interconnected at the side edges thereof by side walls 28 which are curved inwardly slightly as illustrated in FIGURES 3 and 4. Projecting outwardly from the corners of the strip defined by the inner wall 24 and a side wall 28, there is provided a projecting flange 30 that is received in the groove 18. The terminal end of the flange 30 is provided with an enlargement 32 in the form of outwardly projecting edge portions 34 which are capable of being collapsed against the surfaces of the flange 30 during insertion into the groove 18 and then expanding into the undercut portion 20 to prevent retraction of the flange 30 from the groove 18. This specific construction of the hinge strip is disclosed in prior Patent No. 3,131,753.

For securing the projecting flange 30 in the groove 18, an anchor strip 36 is provided which is in the form of an elongated continuous strip including a pair of angularly arranged flanges 38 and 40 which are normally orientated in acute angular relation to each other and are of substantially equal width and thickness with the flange 38 being of a width generally equal to the depth of the groove 18 and the flange 40 being of a width to cover the edge of the panel 12 from the groove 18 to the outer edge thereof as illustrated in FIGURE 4.

The flange 38 of the anchor strip 36 is provided with a plurality of longitudinally extending ribs of projections 42 on the inner surface thereof. The projections 42 are in the form of relatively narrow ribs which extend in an inclined relation toward the flange 40 and terminate in a beveled edge 44 thus forming a sharp corner 46 at the terminal edge thereof in which the sharp corner 46 faces the flange 40 thus causing the ribs 42 to bite into or dig into the material forming the rigid panel 12 thus securely anchoring the anchor strip in place. The ribs 42 are somewhat flexible in that they are capable of collapsing or folding downwardly against the surface of the flange 38 during insertion of the flange 38 into the groove 18 alongside of the flange 30 on the flexible hinge strip. After the flange 38 has been inserted, any effort to pull the flange back out of the groove 18 would result in the ribs 42 securely locking the flange 38 in place.

Due to the acute angular relation of the flanges 40 and 38 on the anchoring strip 36, the flange 40 will be biased to a position generally perpendicular to the flange 38 when the flange 38 is inserted completely into the groove 18 which serves to not only secure the flange 40 flat and tight against the edge portion of the panel 12 but also serves to tend to withdraw the flange 38 thereby further securely anchoring the ribs 42 in interlocking engagement with the material forming the panel 12. Thus, the anchoring strip not only serves to securely anchor the hinge strip to the rigid panels by filling the groove 18 and preventing withdrawal of the projecting flange 30 therefrom but also covers the exposed portion of the edge of the panel 12 to enhance the appearance characteristics thereof

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and at the same time protect the edge portion of the panel from damage due to contact of chairs, tables or other articles of furniture or the like therewith. The anchoring strip is constructed preferably of a substantially rigid but yet flexible plastic material having any suitable color characteristics compatible with the finish provided on the panels and also the color of the flexible hinge strip.

FIGURE 6 illustrates another form of the invention in which the panels 12' are interconnected by a hinge strip 14' in the form of a simple hinge strip having projecting end portions forming flanges received in grooves 18' and provided with an enlarged end portion 32' received in an undercut portion 20' in the groove 18'. In this construction also, the anchoring strip 36 is the same in that it employs a flange 38 and a flange 40 with the flange 38 having ribs 42 thereon for association with the groove 18' in exactly the same manner. This illustration indicates that the anchor strip of the present invention may also be employed with prior Patent No. 2,579,910.

While the anchoring strip has been illustrated in combination with two types of flexible hinge strips, it is pointed out that the anchoring strip may be employed in conjunction with various types of folding doors and hinge strips associated therewith.

The foregoing is considered as illustrative only of the principles of the invention. Further, 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 and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A folding door construction comprising a plurality of adjacent door panels containing grooves in adjacent edges thereof, a plurality of flexible hinge strips characterized by attaching flanges, a plurality of anchoring strips securing each of said flexible hinge flanges within a groove in an adjacent edge of said adjacent panels, said anchoring strip characterized by an elongated strip having first and second continuous flanges thereon with said first flange overlying the edge portion of the panel alongside of the groove, said second flange inserted into the groove in said panel, said second flange including a plurality of ribs projecting from the surface thereof and facing the wall of the groove, said ribs being inclined outwardly for interlocking engagement with the wall of the groove.

2. The structure as defined in claim 1 wherein said ribs and anchoring strip are constructed of substantially a rigid but flexible material to enable the ribs to collapse against the surface of the anchoring strip flange when it is inserted into the groove and subsequently interlocking with the wall of the groove in the event outward force is exerted on the anchoring strip.

3. The structure as defined in claim 2 wherein the width of the anchoring strip flange is substantially equal to the depth of the groove and the other flange on the anchoring strip being substantially equal to the width of the edge portion of the panel outwardly of the groove so that when the anchoring strip flange with the ribs thereon is completely inserted into the groove, the two flanges of the anchoring strip will be orientated generally in perpendicular relation with the other flange of the anchoring strip concealing and protecting the edge portion of the panel outwardly of the groove.

4. The structure as defined in claim 3 wherein said hinge strip projecting flange is provided with an enlargement on the free edge thereof, said groove in a panel having an undercut inner edge portion receiving the enlargement on the hinge strip flange, said anchoring strip flange serving to fill the area of the groove which prevents passage of the enlarged edge portion of the hinge strip flange to prevent retraction thereof through the groove.

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5. The anchoring device as defined in claim 1 wherein said second surface of the flange on the anchor strip engaging the flange on the hinge strip within the groove in the panel and being smooth for easy sliding movement in relation to the flange on the hinge strip.

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