Jan. 23, 1934. E. REICHL 1,944,696

FOLDING PANEL DEVICE

Filed Oct. 17, 1933 2 Sheets-Sheet 1

Fig. 1.

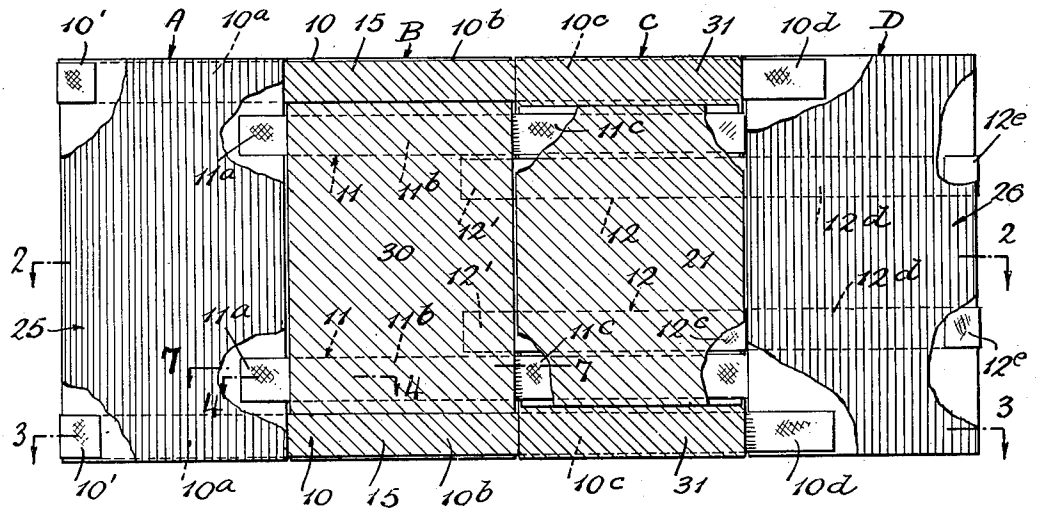


Fig. 2

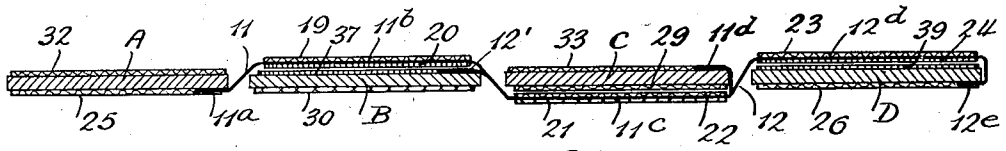


Fig. 3.

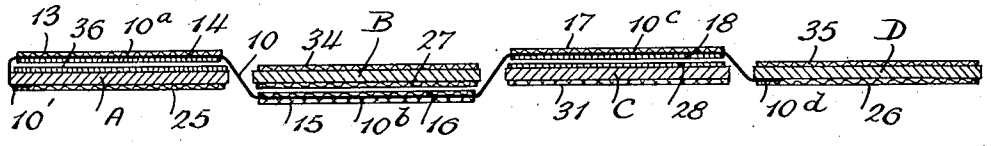


Fig. 4.

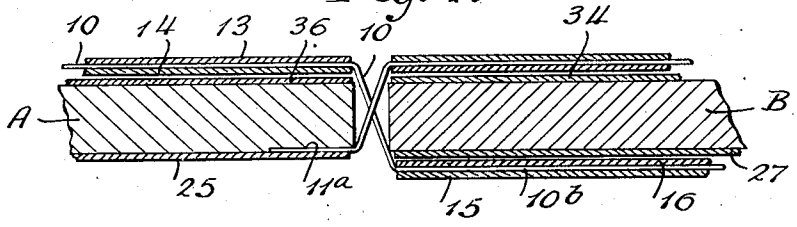
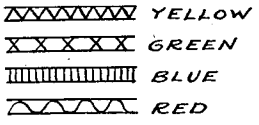


Fig. 9.



INVENTOR
ERNST REICHL
BY
ATTORNEY

Jan. 23, 1934. E. REICHL 1,944,696

FOLDING PANEL DEVICE

Filed Oct. 17, 1933 2 Sheets-Sheet 2

Fig.5.

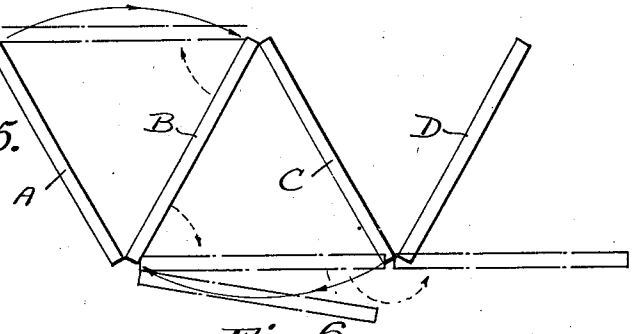


Fig.6.

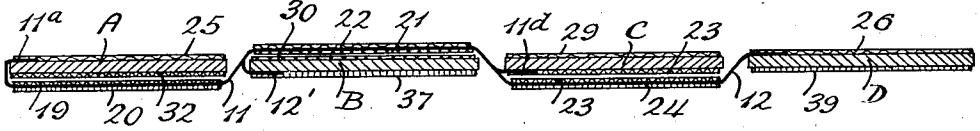


Fig.7.

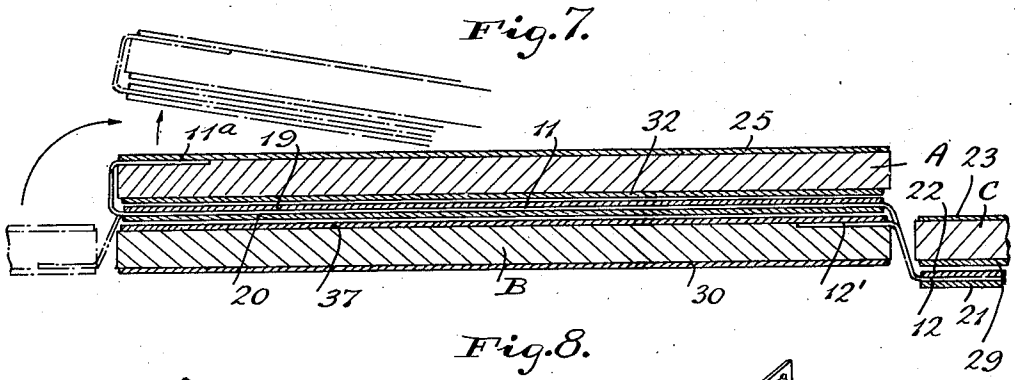
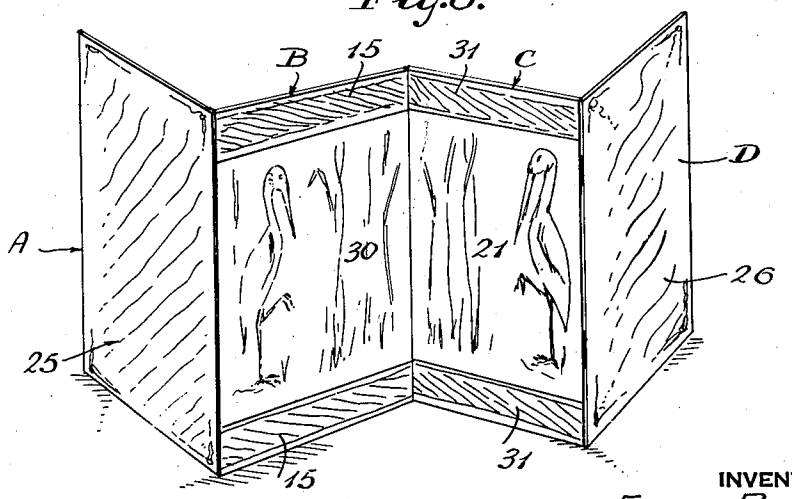


Fig.8.



INVENTOR
ERNST REICHL
BY
ATTORNEY

Patented Jan. 23, 1934 1,944,696

UNITED STATES PATENT OFFICE

1,944,696

FOLDING PANEL DEVICE

Ernst Reichl, New York, N. Y.

Application October 17, 1933. Serial No. 693,901

8 Claims. (Cl. 45—106)

This invention relates to a foldable panel device for use, for example, as a portable shield or screen or as part of a stage scene or setting or the like, and has generally in view to provide a foldable panel device embodying a novel construction whereby the panels may be folded or collapsed into compact superimposed relationship for convenience in moving or storing the device, and whereby the panels may be unfolded in one way to exhibit two different designs at opposite sides of the device, respectively, and in another way to exhibit two other designs, different from the first mentioned designs and from each other, at opposite sides of the device, respectively.

With the foregoing general object in view and also with a view to providing a folding panel device which is capable of manipulation in the manner mentioned and which is of simple, inexpensive, practical construction, the invention consists in the novel manner of foldably connecting the panels with each other and in the provision for obtaining different designs at the opposite sides of the panels by selectively unfolding the panels in either of two similar but different ways, as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is an elevation of one side of the device unfolded.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is an enlarged detail section on the line 4—4 of Figure 1.

Figure 5 is a diagrammatic view illustrating the two ways in which the panels may be unfolded to exhibit different designs at opposite sides of the panels.

Figure 6 is a view similar to Figure 2 illustrating an unfolded condition of the panels which is the alternative of the unfolded condition illustrated in Figures 1 to 3.

Figure 7 is an enlarged detail section on the line 7—7 of Figure 1 illustrating two of the panels folded into superimposed relationship.

Figure 8 is a perspective view of the device unfolded for use; and

Figure 9 is a chart of the colors employed to illustrate in the sectional views how different designs may be produced by unfolding the device in different ways.

Referring to the drawings in detail, it will be observed that the device is illustrated in the present instance as comprising four panels designated as A, B, C and D, respectively. This is a practical and convenient number of panels, but, as will hereinafter appear, the number of panels comprising the device is arbitrary.

The panels may be constructed in any suitable manner and preferably are of substantially flat, vertically elongated rectangular form and possess sufficient stiffness or rigidity to be self-sustaining. They may, for example, simply comprise sheets of heavy cardboard, wood or the like.

Now, in accordance with the specific embodiment of the invention illustrated in the present instance and assuming an unfolded condition of the panels in which they are disposed in edge to edge relationship as shown in Figures 1 to 3, the left hand panel A has glued or otherwise suitably secured to what will be termed its front face, at the left hand side thereof, the left hand terminal ends 10′ of upper and lower companion tapes or straps 10, 10 which extend rearwardly across the outer edge of said panel, thence across the back thereof as at 10*a*, thence forwardly between the adjacent edges of the panels A and B, thence across the front face of the panel B as at 10*b*, thence rearwardly between the adjacent edges of the panels B and C, thence across the back of the panel C as at 10*c*, thence forwardly between the adjacent edges of the panels C and D and finally partly across the front face of the panel D to which face of said panel they are glued or otherwise suitably secured as indicated at 10*d*.

The tapes or straps 10 may be formed from any suitable material and may be of any suitable width and, as shown, they are loose with respect to all of the panels except where they are secured at their terminal ends to the front faces of the panels A and D.

Between and adacent to the tapes or straps 10, 10 are other upper and lower companion tapes or straps 11, 11 which at their left hand terminal ends 11*a* are glued or otherwise suitably secured to the front face of the panel A at the right hand side thereof and which extend rearwardly between the adjacent edges of the panels A and B, thence across the back of the panel B as at 11*b*, thence forwardly between the adjacent edges of the panels B and C, thence across the front of the panel C as at 11*c*, thence rearwardly between the adjacent edges of the panels C and D and finally are turned upon and glued or otherwise suitably secured against the rear face of the panel C as indicated at 11*d*.

As in the case of the tapes or straps 10, 10, the tapes or straps 11, 11 may be formed of any suitable material, may be of any desired width and are loose with respect to all of the panels except where they are secured at their terminal ends 11', 11*d* to the front and the rear faces of the panels A and C, respectively.

In addition to the tapes or straps 10, 10 and 11, 11, two additional tapes or straps 12, 12 are provided. These tapes or straps 12, 12 are disposed between the tapes or straps 11, 11, are glued or otherwise suitably secured at their left hand ends to the rear face of the panel B at the right hand side thereof as indicated at 12' and extend forwardly between the adjacent edges of the panels B and C, thence across the front face of the panel C as at 12*c*, thence rearwardly between the adjacent edges of the panels C and D, thence across the rear face of the panel D as at 12*d* and finally are brought forwardly across the free or right hand edge of the right hand panel D and are glued or otherwise suitably secured to the front face of said panel D as indicated at 12*e*.

As in the case of the tapes or straps 10, 10 and 11, 11, the tapes or straps 12, 12 may be formed from any suitable material, may be of any desired width and are loose with respect to all of the panels except where they are secured at their terminal ends 12', 12*e* to the rear and the front faces of the panels B and D, respectively.

In view of the foregoing it is apparent that the panel A may be folded either forwardly or rearwardly upon the panel B, that the panel B may be folded either forwardly or rearwardly upon the panel C and that the panel C may be folded either forwardly or rearwardly upon the panel D. Thus, if, for example, beginning at the left hand end of the device, the panel A is folded forwardly upon the panel B, then, in order to collapse the device, the panel C will be folded rearwardly against the panel B and the panel D will be folded forwardly against the panel C. The panels thus will be disposed in superimposed relationship. On the other hand, if, for example, beginning at the left hand end of the device, the panel A is folded rearwardly upon the panel B, then in order to collapse the device the panel C will be folded forwardly upon the panel B and the panel D will be folded rearwardly upon the panel C, and again the panels will be disposed in superimposed relationship. It follows, therefore, that when the panels are folded in either of the two ways stated and as indicated in Figure 5 of the drawings, unfolding of the panels may be initiated by swinging the outermost panel either to the right or the left, whereupon the other panels may be unfolded in sequence to the right or the left depending upon the direction of swinging the outermost panel during unfolding thereof. In other words, assuming that the device is folded in the manner first aforementioned with the aforesaid front face of the panel A outermost, it is apparent that initiation of unfolding of the device may be effected by swinging the panel A to the right which will result in the outer face of said panel remaining outermost or as shown in Figure 1, or that initiation of unfolding of the device may be effected by swinging the panel A to the left, in which event the aforesaid front face of the panel A will be disposed rearwardly and the other panels upon unfolding will also be reversed as indicated in Figure 6 of the drawings, which view corresponds to Figure 3 and indicates a reverse unfolding of the panels from the status illustrated in Figures 1 to 3. In this connection and regarding Figures 2, 3 and 6, it will be noted that the tapes or straps 10, 11 and 12 are illustrated as single heavy lines. This is done in order to avoid confusion between said straps, the panels A, B, C and D and the cooperating panel elements soon to be described which are carried by said straps 10, 11 and 12. However, the enlarged detail views, Figures 4 and 7, clearly show the tapes or straps by double lines. Moreover, as is apparent, the thicknesses of the panels, the tapes or straps and the panel sections in all of the views of the drawings are considerably exaggerated in order to show the construction. Again, Figures 2 and 6, if true sectional views, would show the lower tapes or straps 10 illustrated in Figure 3 underlying the tapes or straps illustrated in said Figures 2 and 6, but since to show in Figures 2 and 6 the lower tapes or straps 10 and the panel elements carried thereby would result in confusion, the said lower tapes or straps 10 have purposely been omitted from Figures 2 and 6.

Referring now to the aforementioned panel elements which are carried by the tapes or straps 10, 11 and 12, it is pointed out that the sections 10*a* of the straps 10 have glued or otherwise suitably secured to their outer or rear faces, as viewed in Figures 1 and 3, panel elements 13 which are equal in width to said straps and which are coextensive in length with said sections 10*a*, and that, similarly, the inner faces of said strap sections 10*a* have glued or otherwise suitably secured thereto, panel elements 14 which likewise are equal in width to said straps and coextensive in length with said sections 10*a*. Similarly, the strap sections 10*b* are provided on their outer and inner faces, as viewed in Figures 1 and 3, with panel elements 15 and 16, respectively, and the strap sections 10*c* are provided on their outer or rear and their inner faces with panel elements 17 and 18, respectively.

At the rear of the panel B as viewed in Figures 1 and 2 the sections 11*b* of the straps 11 have glued or otherwise suitably secured to their outer or rear and their inner faces panel elements 19 and 20, respectively, which panel elements are of heights corresponding to the distance between the inner edges of the straps 10 and are coextensive in width with the length of said strap sections 11*b*, or, in other words, are of substantially equal width to any one of the panels A, B, C and D all of which preferably are of the same width. Similarly, at the front of the panel C as viewed in Figures 1 and 2, the sections 11*c* of the straps 11 and also the sections 12*c* of the straps 12 have glued or otherwise suitably secured to their outer or front and their inner faces panel sections 21 and 22, respectively, which are of heights equal to the distances between the straps 10 and of widths corresponding to the lengths of the strap sections 11*c*, 12*c* or, in other words, of approximately the width of any one of the panels A to D. Similarly, at the rear of the panel D as viewed in Figures 1 and 2, the sections 12*d* of the straps 12 have glued or otherwise suitably secured to their outer or rear and to their inner faces panel sections 23 and 24, respectively, which are of the same height and width as the panel sections 19, 20, 21 and 22.

Colors are employed for simplicity and convenience in illustrating and describing how different designs may be exhibited at opposite sides of the device by unfolding of the device in the two ways

aforementioned. In the elevation, Figure 1, the colors red and green are indicated in conventional manner by vertical hatching and diagonal hatching, respectively, while in the sectional views, Figures 2, 3 and 6, red is indicated by an undulating or wave line having rounded peaks and hollows; green is indicated by a diagonal cross line; blue is indicated by a series of short, vertical lines, and yellow is indicated by a wave line having sharp peaks and hollows, all in accordance with the chart of Figure 9.

Referring now particularly to Figures 1 to 3 and 6, it will be observed that the entire front face of the panel A as viewed in Figures 1 to 3 has glued or otherwise suitably secured thereto a covering 25 which hides the ends 10', 11*a* of the straps 10 and 11 and which is colored red; that the entire front face of the panel D is similarly covered by a covering 26 which hides the ends 10*d*, 12*e* of the straps 10 and 12, and which likewise is colored red; that red covering strips 27 equal in width to the straps 10, 10 are secured to the front face of the panel B in underlying relationship to said straps 10; that the panel C is provided on its front face with a red covering 29 equal in height to the panel section 22; that the panel section 22 is colored red; and that the panel sections 16 also are colored red. Further, it will be observed that the front face of the panel B, between the red covering strips 27 is provided with a green covering 30; that the front face of the panel C above and below the panel elements 21, 22 is provided with green covering strips 31; and that the panel elements 15 and 21 are colored green. Thus, when the device is opened as shown in Figures 1 to 3, the fronts of the panels A and D appear red and the fronts of the panels B and C appear green.

At the rear of the device, when the same is opened as shown in Figures 1 to 3, the rear face of the panel A, between the straps 10, is covered by a yellow covering 32; the rear face of the panel C between the straps 10 likewise is provided with a yellow covering 33; the panel B at its top and bottom above and below the panel elements 19, 20 is provided with yellow covering strips 34; the panel D at its top and bottom above and below the panel elements 23 and 24 is provided with yellow covering strips 35; and the panel elements 19 and 23 as well as the panel elements 13 and 17 are colored yellow. Thus, when the device is opened as in Figures 1 to 3 the entire rear of the device appears yellow.

Further, by reference to Figures 1 to 3, it will be observed that the rear face of the panel A, above and below the yellow covering 32, is provided with blue covering strips 36; that the rear face of the panel B between the yellow covering strips 34 is covered by a blue covering 37; that the rear face of the panel C, above and below the yellow covering 33, is provided with blue covering strips 38; that the rear face of the panel D, between the yellow covering strips 35, is provided with a blue covering 39; that the panel elements 14 are colored blue; that the panel elements 18 are colored blue; that the panel element 20 is colored blue, and that the panel element 24 is colored blue. When the device is opened as shown in Figures 1 to 3 all of the blue coverings and panel elements underlie corresponding yellow panel elements. Consequently, the color blue does not appear.

Figures 1 to 3 assume an unfolding of the device from a folded condition with the panel A outermost, by swinging of the panel A initially to the right. On the other hand, Figure 6 assumes an unfolding of the device by swinging of the panel A initially to the left. When this is done, what was in the first case the rear of the panel A now becomes the front thereof, and this is true of each of the other panels. Consequently, the various panel elements are reversed and at what is now the front of the device only the blue coverings and panel elements appear so that the entire front of the device appears blue, the upper and lower and intermediate blue panel elements having been swung into covering relationship to the corresponding yellow panel elements, and the blue panel elements and coverings mating to afford the solid blue appearance over the entire front face of the device as stated. At the same time, at what is now the rear of the device, all of the red coverings and panel elements appear so that the entire rear of the device appears red, the green coverings and panel elements obviously being hidden.

From the foregoing description considered in connection with the drawings and assuming a color arrangement of the various coverings and panel elements as set forth, it is clear that when the device is unfolded in the first way previously described the two end panels at their fronts appear red and the two middle panels at their fronts appear green, while all of the panels at their rears appear yellow. Thus, at the two sides of the device are two different designs or color arrangements, respectively. On the other hand, it is equally clear that when the device is opened in the second way previously described the fronts of the panels all appear blue and the rears of the panels all appear red, so that two other different designs or color arrangements appear at the front and back of the device, respectively. Consequently, according to the present construction, four different designs or color arrangements are obtainable, in which connection it is apparent that instead of colors, any other designs may be employed. This not only affords an opportunity for changing the appearance of the device from time to time but, assuming the use of four different colors which harmonize with the furnishings of four different rooms, it is apparent that the device may be moved from one room to another and may be unfolded so that the color exposed at the outer side of the device harmonizes with the color of the furnishings of the particular room in which the device is used. Similarly, if the device is to be used as part of a scene in a stage setting, four different scenes may be embodied in the single device.

From the foregoing description considered in connection with the accompanying drawings it is believed that the construction, the mode of operation and the results obtained by unfolding of the device in the two different ways mentioned will be clearly understood. It is desired to point out, however, that while only a single specific embodiment of the invention has been illustrated and described, the same is readily capable of embodiment in specifically different mechanical structures within the spirit and the scope of the invention as defined in the appended claims.

I claim:

1. A folding panel device of the character described comprising a plurality of panels, straps fastened at their ends to certain of said panels and extending loosely across other of said panels and connecting said panels together for relative unfolding movements in both right hand and

left hand directions, and panel elements carried by both sides of said straps.

2. A folding panel device of the character described comprising a plurality of panels, straps fastened at their ends to certain of said panels and extending alternately and loosely across the front and rear faces of intermediate panels, other straps fastened at their ends to certain other of said panels and extending alternately and loosely across the front and the rear faces of intermediate panels to the opposite sides thereof as the straps first mentioned, whereby the panels are connected together for relative unfolding movements in both right and left hand directions, and panel elements carried by both sides of said straps.

3. A folding panel device of the character described comprising a plurality of panels, straps fastened at their ends to certain of said panels and extending loosely across other of said panels and connecting said panels together for relative unfolding movements in both right hand and left hand directions, panel elements carried by both sides of said straps, and covering elements on the opposite faces of said panels for cooperation with the strap carried panel elements to complete a design at each side of each panel upon unfolding of the panels in either direction.

4. A folding panel device of the character described comprising a plurality of panels, straps fastened at their ends to certain of said panels and extending alternately and loosely across the front and the rear faces of intermediate panels, other straps fastened at their ends to certain other of said panels and extending alternately and loosely across the front and the rear faces of intermediate panels to the opposite sides thereof as the straps first mentioned, whereby the panels are connected together for relative unfolding movements in both right and left hand directions, panel elements carried by both sides of said straps, and covering elements on the opposite faces of said panels for cooperation with the strap carried panel elements to complete a design at each side of each panel upon unfolding of the panels in either direction.

5. A folding panel device of the character described comprising a plurality of panels, straps fastened at adjacent ends to the outer face of one of the terminal panels and extending loosely across the back of said terminal panel, forwardly between the adjacent edges of the terminal panel and the next adjacent panel, loosely across the front of the second panel and so on throughout the series of panels, the other ends of said straps being fastened to the outer face of the other terminal panel, other straps fastened at adjacent ends to the outer face of one of said terminal panels and extending loosely across the opposite faces of the panels having the first mentioned straps extending thereacross, the other ends of said second mentioned straps being fastened to a panel intermediate the two terminal panels, and other straps fastened at adjacent ends to the other terminal panel and also extending loosely across the opposite faces of the panels having the first mentioned straps extending thereacross, the other ends of said last mentioned straps also being fastened to a panel intermediate the two terminal panels.

6. A folding panel device as set forth in claim 5 in which the straps carry panel elements on both their outer and their inner faces and in which the panels have sectional coverings for cooperation with said panel elements to complete different designs depending upon which panel elements overlie particular panels when the device is unfolded.

7. A folding panel device as set forth in claim 5 in which the second and third mentioned straps extend across the same face of one of the intermediate panels.

8. A folding panel device of the character described comprising a plurality of panels, straps connecting said panels so that they are swingably unfoldable from a superimposed relationship in either a right hand or a left hand direction with respect to each other whereby in the one case certain sides of the straps are disposed outwardly and in the other case the other sides of the straps are disposed outwardly, and cooperating coverings on the opposite faces of the panels and on the opposite faces of the straps whereby two different designs are exhibited at opposite sides of the device, respectively, when it is unfolded in one direction and two other different designs are exhibited at opposite sides of the device, respectively, when it is unfolded in the other direction.

ERNST REICHL.