Dec. 8, 1959 C. N. CROSS ET AL 2,916,236

COLLAPSIBLE STAND

Filed Nov. 7, 1957 2 Sheets-Sheet 1

Fig. 1.

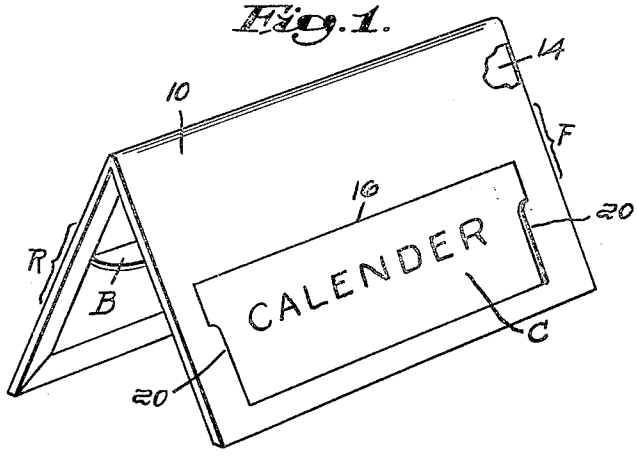
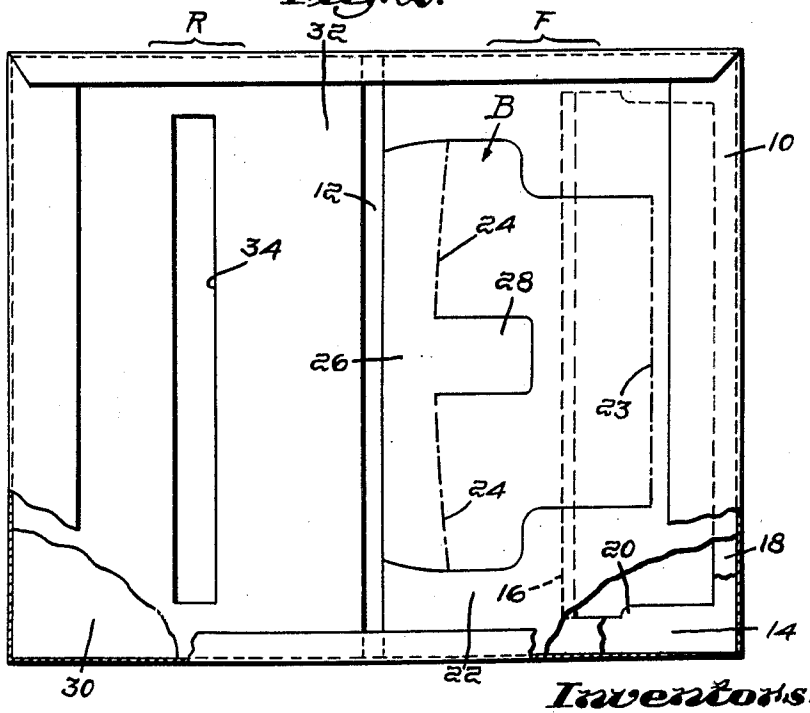


Fig. 2.



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Fig. 3.

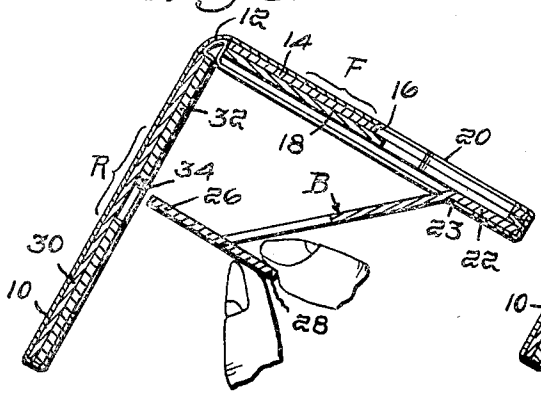


Fig. 4.

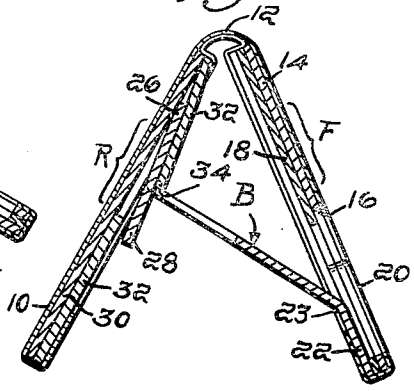


Fig. 5.

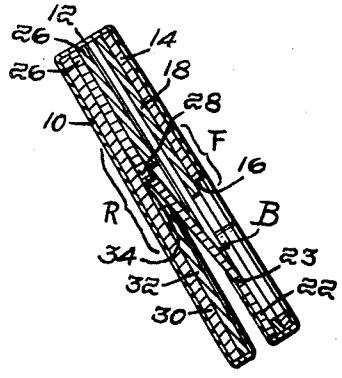


Fig. 6.

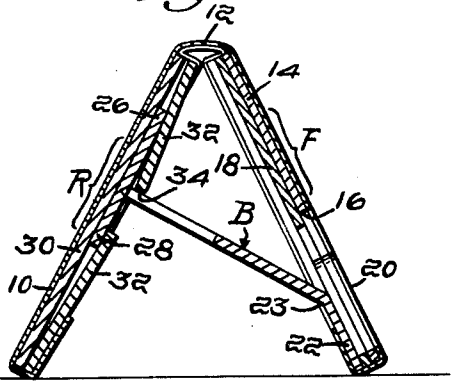


Fig. 8.

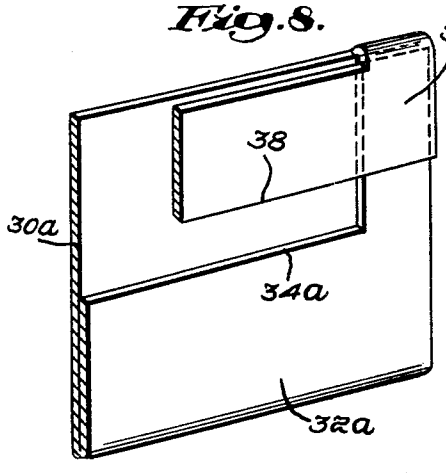
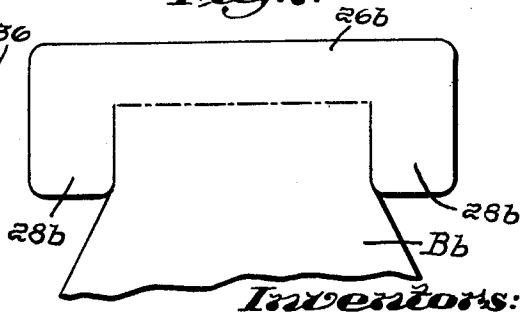


Fig. 7.



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COLLAPSIBLE STAND

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Application November 7, 1957, Serial No. 694,991

5 Claims. (Cl. 248—35)

This invention relates to a collapsible stand which may constitute or be organized as part of a display device, which stand embodies in its construction a diptych, that is, two panels or leaves hingedly connected, which panels may be disposed at an angle to stand in the manner of a gable roof on a supporting surface with bearings parallel to the hinge line. One or both of the panels may bear display matter such as a calendar pad or a picture, or have secured thereto a picture or card to be displayed for which the diptych structure then acts in the manner of a stand. The structure may be closed for shipment or storage into a substantially two-dimensional form of large area but small thickness.

Means are provided for supporting the two panels in a relatively angular position from which they will not accidentally be released and which, preferably, does not require manipulation when shifting from one of the positions to the other, other than the mere change of the angular relationship of the two panels.

One of the panels may be considered a display panel either having decorative pictures or letterpress display directly printed thereon or mounting a separate calendar pad, picture or the like, and the other panel a leg for supporting the first and foldably associated therewith, a brace being provided carried by one of the panels and adjustably associated with the other to maintain the two in angular position.

In the drawings we have illustrated the invention as applied to a desk calendar and for convenience in the following description will speak of it in specific language applicable to the disclosure. In particular it may be noted that the comparison to a gable roof is particularly close in the case of the illustrated embodiment, since the two panels are of substantially like area and terminate at the hinge joint corresponding to the ridgepole of the roof. However, this reference to a gable roof should not be taken to imply either equality in area of the two parts which are hinged, or that both terminate at the hinge line. In particular when the diptych may be considered primarily as a stand for supporting a different article, clearly the article supported could stand much higher than the support or be much wider.

In the drawings:

Fig. 1 is a perspective view of a desk calendar as it would stand on the top of a desk in use;

Fig. 2 is a plan view, on a larger scale, of the two panels opened out into a plane with parts successively broken away;

Fig. 3 is a central section illustrating the position which the parts would take in the penultimate operation of preparing them for delivery to the user;

Fig. 4 is a similar view showing a later stage;

Fig. 5 shows the operation of Figs. 3 and 4 completed, with the two panels folded into face to face engagement, for storage or shipment;

Fig. 6 is a similar view showing the panels opened out to the position which they occupy in Fig. 1;

Fig. 7 is a fragmentary view of the end portion of a modified form of brace; and

Fig. 8 is a sectional view in perspective showing a modified form for the interior board of one of the panels.

The desk calendar shown as an example of the invention is constructed, as such articles frequently are, from "boards" and "flexible sheet material." By "board" is meant material of some thickness and stiffness, such as cardboard and binder's board, as contrasted with paper, cloth, and similar more or less limp and thin materials which are termed "sheet materials."

Referring to Fig. 1, there is there shown a desk calendar embodying a front panel F and a rear panel R as they would stand on the desk top in the manner of a gable roof, a brace B (Fig. 6) being carried by one panel, as F, and associated with the other to maintain them in that position, the two panels being hingedly connected along the apex of the angle (the ridgepole of the roof). The two panels may be folded about the hinge in face to face relation as seen in Fig. 5, and opened out again to the position of Figs. 1 and 6 and, so far as the user is concerned, it is simply a matter of closing or opening the two parts as one would the covers of a book.

Referring now to Fig. 2 the two panels are each made of a number of superposed boards, herein rectangles of equal size. In practice the superposed boards may be formed as sections of a single piece of material which is weakened along spaced lines to permit their folding together in face to face relation, as this facilitates handling, particularly in the covering operation which will be described, but we have not thought it necessary to illustrate this as in the completed article the boards are functionally separate elements. Herein the panels are placed adjacent one another with two edges in spaced opposition as shown in Fig. 2 and a covering of flexible material 10 is applied to the exterior faces thereof, the faces away from the reader in Fig. 2, and folded in over the sides, the flexible material spanning the space between the spaced edges and forming a flexible hinge 12 at the "ridgepole." The use of such covering, besides providing an attractive exterior for the article, is a preferred way of securing the several boards of each panel in face to face relation, while leaving the portion of their area within the edges disconnected, so that there is an unobstructed or open, interfacial space between them, this being of particular importance in the case of the rear panel R, as will appear.

The panel F is herein formed of three superposed boards, although this is incident to the particular arrangement shown for mounting the calendar pad C. There is an exterior board 14 having a sight opening 16 cut through the same and through the covering to disclose the calendar pad C which is received in a suitably sized opening or well in an intermediate or well board 18. The calendar pad may be inserted from the front through the window opening and behind filleted corner portions 20 of the front board. The interior board 22 overlies the well opening and carries the brace B which is herein cut therethrough by a circuitous line having spaced under portions terminating at the ends of a line 23, weakened by scoring or partial severance to form a hinge. The brace B as shown has a relatively narrow proximal portion adjacent the hinge, although this is not necessary. The distal portion is provided with two transversely aligned but spaced scored lines (hinge lines) 24 defining a cross-head 26, which may be turned (Fig. 3) at an angle to the proximal portion of the brace. The crosshead in the example shown includes also a centrally located, proximally directed extension 28 which is cut from the body of the brace along a broken line intersecting the ends of the lines 24. The main portion of the crosshead

is thus on one side of its hinge lines 24 and extension 28 on the opposite side. The hinge lines 24 are curved or angularly related, as shown, toward the proximal end of the brace for a purpose which will appear.

The panel R herein embodies an exterior board 30 and an interior board 32, and through the latter is cut a transverse slot 34 opening into the interfacial space between the two boards and providing for the reception of the end of the brace which slides therein in the manner to be described, the brace in this instance extending to the side of the slot nearer the "ridgepole" and being entirely received within the peripheries of the two boards 30 and 32 or the projections thereof, as will appear.

The calendar is made in the form shown in Fig. 2 and the final manipulation by the manufacturer consists in engaging the brace B with the rear panel R. The particular arrangement of the cross-head facilitates this. Referring to Fig. 4 the two panels are moved toward each other with a folding motion and the brace is bent outwardly from the plane of the interior board 22 along its hinge line 23. The portion 28 of the cross-head provides a convenient finger hold by which the cross-head, including this part and the part 26, may be moved in traversing position to the body of the brace, as seen in Fig. 3. This facilitates introducing a cross-head part 26 through the slot 34 into the interfacial space between the two boards 30 and 32 as shown in Fig. 4. The closing movement of the two panels is then continued until they come to the position shown in Fig. 5 where they are superposed on one another. This is the position of storage and shipment and the way the parts are positioned when the article is delivered to the user. To set up the diptych in the position of Figs. 1 and 6 the user simply opens the two leaves as he would a book and draws them apart. Such action however does not pull the brace B out from the slot 34. As the cross-head 26 moves downwardly toward the slot it, and in particular its extension 28, is normally held in the plane of the interfacial space, although the body of the brace is being pulled out at an angle thereto. The extension 28 therefore engages behind the wall of the lower margin of the slot as seen in Fig. 6 and the motion ceases and the parts cannot be opened out beyond that position unless they are literally torn apart with breakage of the pieces.

In practice the diptych may be opened and reclosed as often as desired. The motion of the boards to the two extreme positions (Figs. 5 and 6) occurs with a snap action, both palpably felt and audibly observed, and there is no likelihood of the user using destructive force. At the same time the parts are securely held in the set up position of Fig. 1, wherein the brace acts primarily as a tie, being under tension, but also, because the head comprising the parts 26 and 28 stands at an angle to the body of the board 22 as a strut under compression as against minor forces which might cause collapse of the structure to the position of Fig. 6, although the resistance in this way provided is not such as to prevent voluntary closing of the parts by suitable manual pressure.

In the withdrawal of the brace from the position of Fig. 5 toward the position of Fig. 6, the pull of the brace is at an angle to the head 26 and tends to open up or distend the interfacial space between the boards 30 and 32. Because of the nonlinear relation of the hinge line at 24 the pressure exerted on the part 28 near the center of the broken or curved line is greater than at the ends of the cross-head and consequently the tendency is to push the extension of 28 firmly against the exterior board 30 and this insures the extension 28 passing the lower margin of the slot 34 and entering the interfacial space in the area beneath the same.

In Fig. 8 we have illustrated a modified construction for the rear panel having an exterior board 30*a* and an interior board 32*a* which is recessed inwardly from one edge, the lower margin 34*a* of this recess constituting the lower margin of a slot corresponding to 34. A short

auxiliary board 36, which herein is a folded over extension of board 32*a*, has an edge 38 which opposes edge 34*a* and defines a slot as will be apparent which corresponds to 34 in Fig. 2. What this amounts to is that the portion of the interior board above the slot is offset forwardly relative to the portion below the slot providing a deeper interfacial space in that area to facilitate the introduction of the cross-head 26 therein and to promote the entrance of the portion 28 of the head into the space below the margin 34*a* when the parts are opened. Such an arrangement is hardly necessary, particularly when the curved hinge line 24 for the cross-head is provided.

Fig. 7 shows an alternative form for the end of the brace. The cross-head 26*b* is hinged on line 24*a* to the end of brace B*b* which at this point is of narrow width. Extension 28*b* extends past the hinge line at either side of this end portion of the brace. The functions of the parts are like those of the similarly numbered parts in Figs. 2 through 6. The form shown in those figures is recommended.

We are aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and we therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, as is in fact clear in several matters from the description itself. Reference is to be had to the appended claims to indicate those principles of the invention exemplified by the particular embodiment described and which we desire to secure by Letters Patent.

We claim:

1. A collapsible stand comprising two hinged panels adapted to be erected to stand with the panels angularly disposed in the manner of a gable roof, one panel comprising a brace hinged thereto on an axis parallel to the hinge line of the panels, which brace comprises a body portion and a cross-head distally hinged thereto on a transversely extending hinge axis and having portions extending to both sides of the hinge line, the other panel comprising an interior board having a slot of a length greater than the width of the head and a width less than the depth of the head and a board exterior thereto defining therewith an open interfacial space to which the slot opens, into which space the end of the brace may enter and in which it may slide when introduced through the slot, said portions of the cross-head spanning the width of the slot and engaging behind the opposite margins of the slot on retrograde movement of the brace tending to withdraw it from said space.

2. A stand as set forth in claim 1 wherein the panels close into a folded position wherein they are superposed internal face to internal face and with the brace housed in said space.

3. A stand as set forth in claim 1 wherein the head is hinged to the stem along a line deviating from a straight line whereby on partial withdrawal of the brace from the interfacial space incident to setting up the stand the proximally extending part of the cross-head is stressed toward the exterior and away from the opposed margin of the slot.

4. A stand as set forth in claim 1 wherein the interior board comprises two relatively offset portions defining the margins of the slot, that margin past which the proximally extending portion of the head passes in retrograde movement lying in a plane interior to that of the other.

5. A collapsible stand comprising two hinged panels adapted to be erected to stand with the panels angularly disposed in the manner of a gable roof, one panel comprising an interiorly facing board having a scored line therein providing a hinge parallel to the hinge line and having a three-sided cut intersecting the line to provide a hinged brace, the distal portion of the brace having two scored lines transversely thereof, which lines are spaced but substantially aligned to define the hinge line of a

distal crosshead portion, the body of the brace being severed along a broken line extending from the adjacent ends of said two lines to provide a proximally extending cross-head portion integral with the first, the other panel comprising an interior board having a length greater than the width of the head and a slot of a width less than the depth of the head and a board exterior thereto defining therewith an open interfacial space to which the slot opens, into which space the end of the brace may enter and in which it may slide when introduced through the slot, said portions of the cross-head spanning the slot and engaging behind the opposite margins of the slot on retrograde movement of the brace, tending to withdraw it from said space.

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CERTIFICATE OF CORRECTION

Patent No. 2,916,236 December 8, 1959

Carroll N. Cross et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 6, strike out "a slot of" and insert the same after "having" in line 5, same column.

Signed and sealed this 21st day of June 1960.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents