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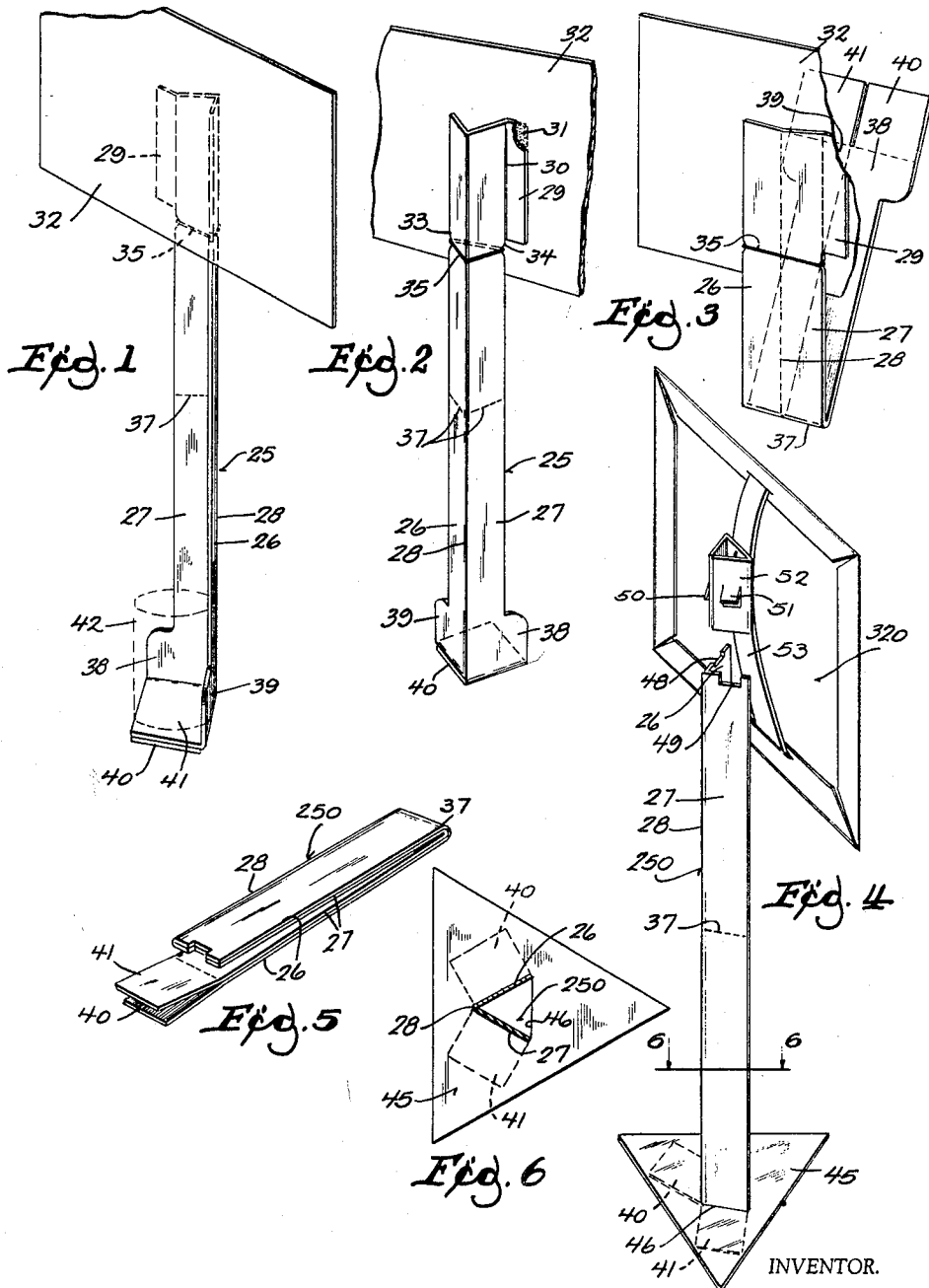
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3,176,419

DISPLAY ASSEMBLY HAVING A COLLAPSIBLE STRUCTURAL MEMBER

Filed Oct. 3, 1962

2 Sheets-Sheet 1



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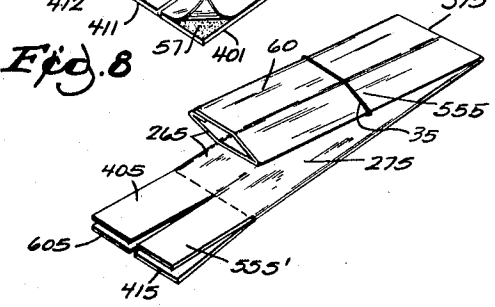
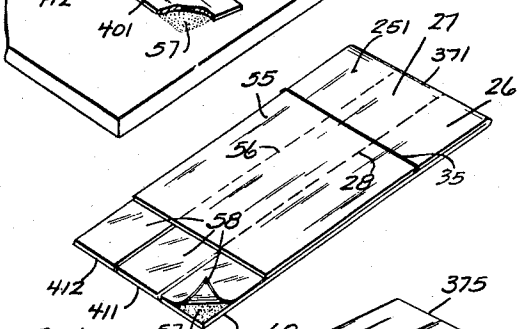
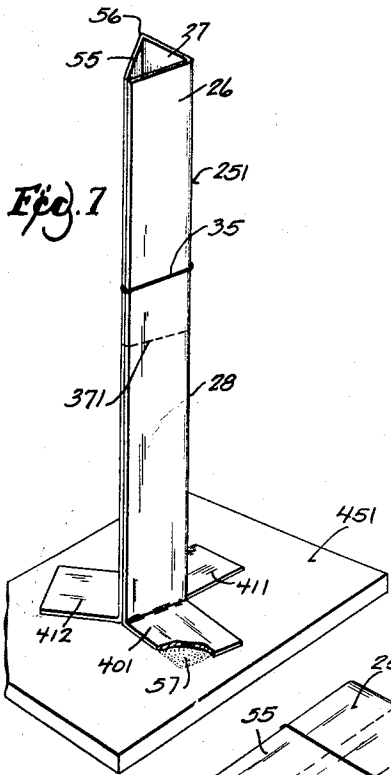


Fig. 7

Fig. 8

Fig. 11

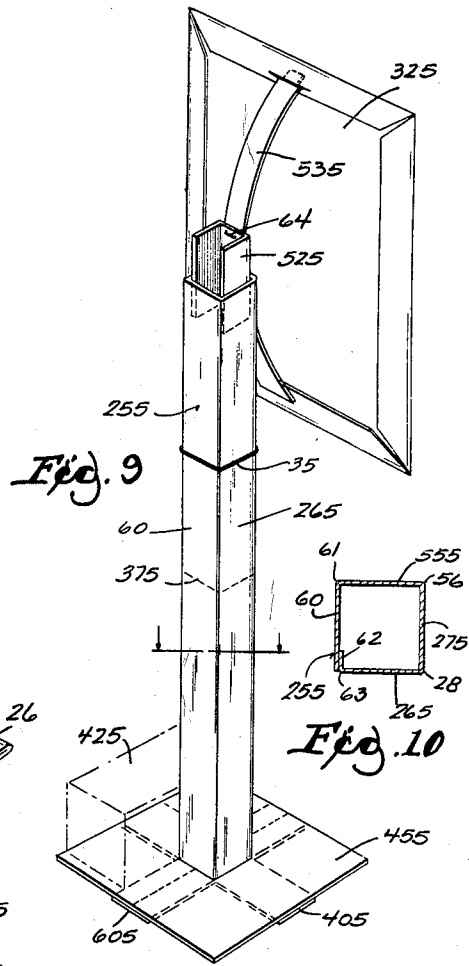


Fig. 9

Fig. 10

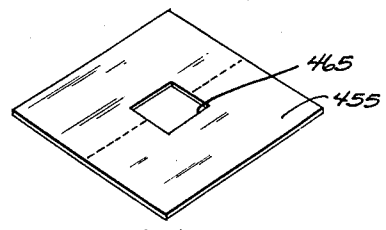


Fig. 12

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DISPLAY ASSEMBLY HAVING A COLLAPSIBLE STRUCTURAL MEMBER

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5 Claims. (Cl. 40—125)

This invention relates to a display assembly having a collapsible structural member.

The present application is a continuation in part of application 845,114, filed October 8, 1959.

It is an object of the invention to provide a structural member which can be fabricated separately or as a part of a display and which, in either event, can be folded flat for shipment and which will either be self-erecting in the sense that it will spring to its position of use or, in any event, will be stable in its position of use, notwithstanding that it has been folded.

This is accomplished by blanking the structural member from cardboard or the like which is creased or scored to be folded longitudinally to a cross section such as to preclude transverse folding, the material also being transversely creased or scored in a manner to permit transverse folding only when the material is flat. In other words, the longitudinal fold is incompatible with the folding of the material on its transverse fold.

Thus, if the longitudinal fold is maintained in the structural member by means which preclude its parts from flattening out, the structural member will also be held in such a way as to preclude transverse folding.

In the various embodiments disclosed, the structural member is angular or triangular or square in cross section when erected but folds into flat form when collapsed to permit of folding on the transverse score line. In the disclosed embodiments, rubber bands encircle the faces of the structural member and subject such member to a bias such that as the structural member is erected, the respective faces tend to spring to longitudinally folded positions in which they are incapable of yielding about their transverse score lines.

Various means are disclosed for holding the parts in the positions to which they are urged by the rubber bands.

In the drawings:

FIG. 1 is a view in perspective illustrating a device embodying the invention and which includes a structural column having integral base flaps and a unitarily connected display panel.

FIG. 2 is a fragmentary detail view in perspective showing the device of FIG. 1 from another angle.

FIG. 3 is a detail view in perspective fragmentarily showing the device of FIG. 1 and FIG. 2 as it appears when collapsed and folded on a transverse score line for shipment.

FIG. 4 is a view in perspective showing in relatively separated positions the component parts of a modified embodiment of the invention in which the display panel is separately fabricated and detachably connected with the collapsible column.

FIG. 5 is a view in perspective showing the column of the FIG. 4 embodiment as it appears when collapsed and folded for shipment.

FIG. 6 is a view taken in section on the line 6—6 of FIG. 4.

FIG. 7 is a detail view in perspective showing a modified embodiment of column and base embodying the invention, portions of one of the column flaps being broken away.

FIG. 8 is a detail view in perspective showing the collapsed and folded column of the embodiment shown in FIG. 8.

FIG. 9 is a view in perspective showing a further modified embodiment of the invention.

FIG. 10 is a detail view taken in section on the line 10—10 of FIG. 9.

FIG. 11 is a view in perspective showing in collapsed and folded position the column of the device illustrated in FIG. 9.

FIG. 12 is a detail view in perspective of the base of the device shown in FIG. 9.

In the device shown in FIGS. 1 to 3, the collapsible structural member 25 comprises a column which, as erected, is of angular cross section to include faces 26 and 27 foldably joined to each other at right angles upon a score line 28. At its upper end, the face 27 has an integral flange 29 joined to it upon a score line 30 and connected by adhesive 31 with a display panel 32. Immediately beneath the flange 29, the faces 26 and 27 are respectively notched at 33 and 34, the notches serving to position a rubber band 35 which encircles the two faces under tension. When the faces are flattened to the same plane as shown in FIG. 3, the tension of the rubber band 35 is increased. Consequently, whenever the faces 26 and 27 are free to fold upon the longitudinal score line or crease 28, the tension of the rubber band tends to draw them from the mutually planiform position of FIG. 3 to the angular relationship in which they are shown in FIGS. 1 and 2.

The faces are not free to fold along the score line 28 when they are folded intermediate their ends upon the transverse score line 37, as is the case in the showing of FIG. 3. In FIG. 3, the upper and lower ends of the respective faces 26 and 27 have been collapsed into superposed position on the transverse score line 37. Accordingly, in order that the column may be erected to the position shown in FIGS. 1 and 2, it is first required that the upper and lower ends of faces 26 and 27 be unfolded so that the entire length of such faces lies in the same plane. Thereupon, the tension of the rubber band 35 will cause the faces to fold about the longitudinal score line 28, such folding being incompatible with folding upon the transverse score line 37. Thus, when the faces are folded as shown in FIG. 1 and FIG. 2, they cannot fold on the transverse score line and the column will stand erect.

In order that the column may be supported in its erect position, the lower ends of the faces 26 and 27 are desirably enlarged as shown at 38 and 39. Whether or not they are enlarged, each is desirably provided with a flap. The flap of face 26 is shown at 40 and the flap of face 27 is shown at 41. When the two faces are at right angles to each other as shown in FIG. 1 and FIG. 2, the flaps 40 and 41 are superposed and a can such as is commonly used for foods or lubricating oils or the like may be placed on the superposed flaps as shown in dotted lines at 42, the can being representative of any weight which, placed on the superposed flaps, will anchor the base of the column to maintain the column erect to hold the panel 32 in display position.

The device shown in FIG. 4 to FIG. 6 is collapsed and erected like that of FIGS. 1 to 3. However, it has a different base and it has a display which is not integral with the structural column. Its structural member is designated by reference character 250. Like member 25, it has faces 26 and 27 integrally joined on a longitudinal fold line 28 and having a transverse fold line at 37. In other words, the generic concept involves collapsing them into parallel positions whether such positions involve the same plane or contiguous planes. In either case, they may be folded on a transverse fold line when in parallel positions, whereas they may not fold on a transverse fold line when they are non-parallel.

The device of FIG. 4 to FIG. 6 also uses a different type of base. In this construction, the faces 26 and 27 have flaps 40 and 41 but, in use, they are folded outwardly away from each other as shown in dotted lines in FIGS. 4 and 6, instead of being folded into superposed position as in FIG. 1. The base member 45 is provided with an opening 46 which is dimensionally in conformity with the folded faces 26 and 27, and the flaps 40 and 41 are divergent beneath the base member 45 to be confined between the base member and the floor. If the base member has substantial weight of its own, it will not be necessary to use a can or other weight.

A special display panel mounting is also disclosed in the construction of FIGS. 4 to 6. The faces 26 and 27 have notches at 48 and 49 which receive the cut-out tabs 50 and 51 on a triangular adaptor 52 which is received telescopically into the angle between the faces 26 and 27. The adaptor is stapled or otherwise fastened to the bowed stretcher 53 of a tensioned panel 320 which is marginally flanged in accordance with the teaching of my Patent No. 2,805,504.

Whereas the structural members thus far disclosed represent open figures in cross section, being merely angles, the structural member 251 shown in FIGS. 7 and 8 has a closed triangular form in cross section, comprising not only the faces 26 and 27 integrally joined on a longitudinal fold line 28, but further comprising a third face 55 joined to the face 27 upon a longitudinal score line 56. The rubber band 35 now encircles all three faces, tending to hold them in the triangular form shown in FIG. 7 when the structural member is erected as there illustrated. Yet, if the several faces are provided with transversely aligned transverse score lines at 371; they may be folded on such transverse score line after first being collapsed into parallelism as shown in FIG. 8. For this purpose, the rubber band 35 may either be removed or left in place. If left in place, it will be subjected to very substantially more tension than in the construction shown in FIGS. 1 to 3.

The general arrangement of the base 451 with respect to the several flaps 401, 411 and 412 is similar to that shown in FIGS. 4 and 6. However, in this instance, the flaps are coated with pressure sensitive adhesive as indicated at 57, and protective sheets 58 may be stripped away to expose the adhesive for attaching the flaps to the base 451.

In the device of FIGS. 9 to 12, the column 255 is square in cross section. It comprises faces 265, 275, 555 mutually connected upon longitudinal score lines 28 and 56 which correspond to those previously described. In addition, there is a fourth face 60 joined to face 555 upon a score line 61. Also, there is a gluing flap 62 connected to the face 60 and integrally joined to the face 265 on a fold line 63. The concept of connecting the otherwise free margins of the faces is applicable to the construction of FIG. 7 in the same manner as disclosed in FIG. 9.

FIG. 11 shows how the several faces may be collapsed into parallel planes and thereupon are foldable on a transverse fold line 375 for shipping or storage. The several flaps 405, 415, 555' and 605 which are joined to the four faces as shown in FIG. 11 may be folded outwardly beneath a base 455 and anchored by a weight 425, the base desirably having an opening 465 which corresponds in cross section to the erected column as shown in FIGS. 9 and 12.

In this instance, the erected column being square in cross section, a channel-shaped adaptor is used at 525 for the support of the panel 325 whose bow 535 is connected by staple 64 or otherwise to the adaptor.

I claim:

1. The combination with a display panel, of a support therefor comprising collapsible lightweight structural member comprising an elongated strip of material having a longitudinal fold line and faces at opposite sides of said fold line which are hingedly movable upon said fold line with respect to each other between collapsed positions of substantial parallelism and erected positions in which said faces are at an angle to each other, the said faces being respectively subdivided by aligned transverse fold lines upon which they are foldable in their collapsed positions of parallelism, but upon which they are not foldable when erected to positions in which they are angularly related to each other, and means carried by said strip for rendering said faces self-erecting when portions of the respective said faces at opposite sides of the respective fold lines are aligned, said means comprising a rubber band entirely externally encircling said strip and under greater tension in said collapsed position than in said erected position for biasing said faces toward their angularly related erected positions, said means being yieldable to accommodate movement of said faces to their collapsed positions of substantial parallelism, said faces having flaps, and means connected with said flaps for maintaining said faces in the angular erected positions to which they are biased by said rubber band.

2. A combination according to claim 1, said last means including a flat base to which said faces are substantially normal, a plurality of said faces having flaps extending laterally outwardly therefrom in face contact with the base and each individually connected therewith.

3. The device of claim 2 in which said member comprises two such faces.

4. The device of claim 2 in which said member comprises three faces and has a closed triangular form in cross section.

5. The device of claim 2 in which said member has four such faces, opposing faces being in substantial parallelism with each other and the several faces constituting a closed four sided figure in cross section when erected.

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