Oct. 7, 1941. A. M. BARRETT 2,258,273

PORTABLE DISPLAY DEVICE

Filed April 18, 1940 3 Sheets-Sheet 1

Fig. 1

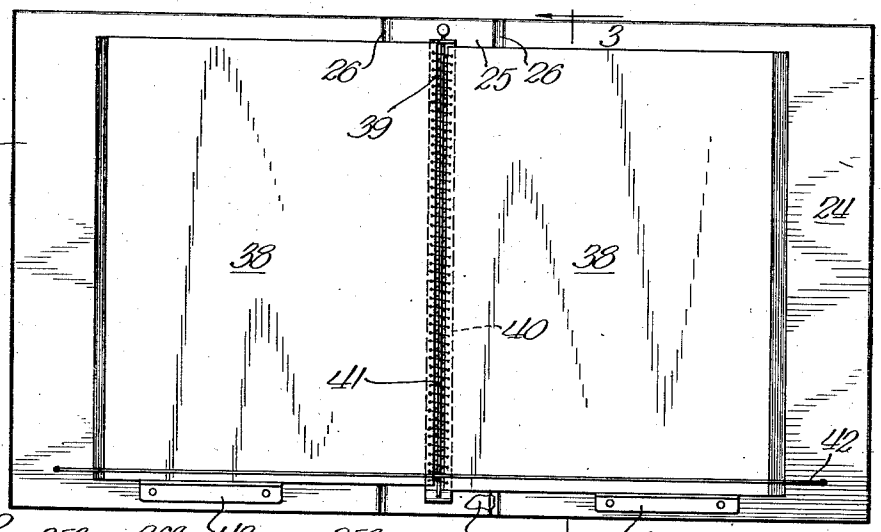


Fig. 2

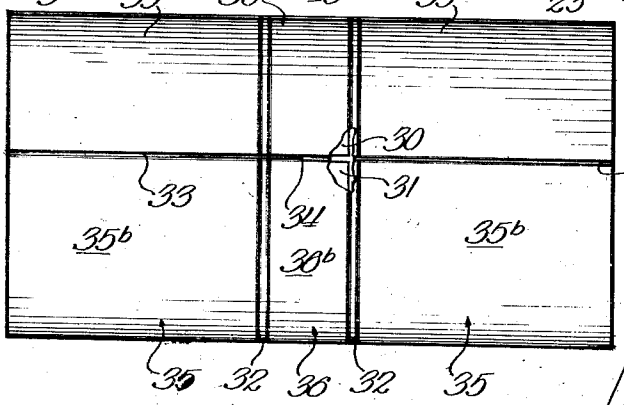


Fig. 3

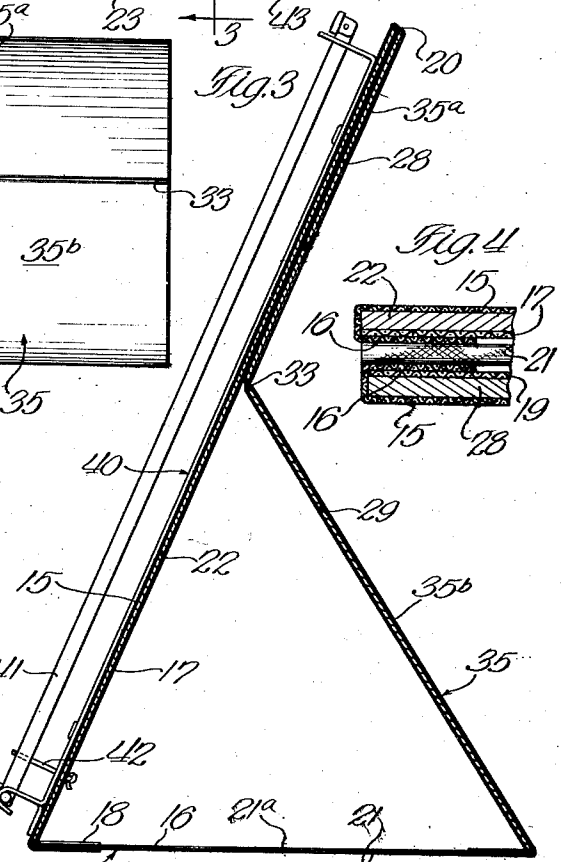


Fig. 4

Fig. 5

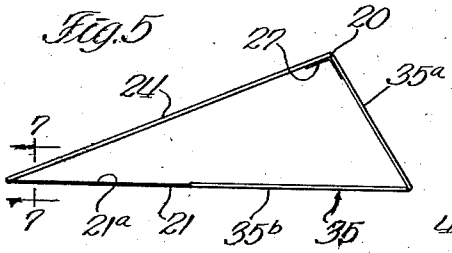


Fig. 6

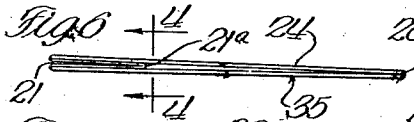
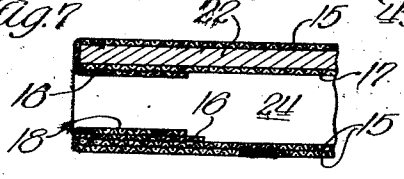


Fig. 7



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Fig. 8

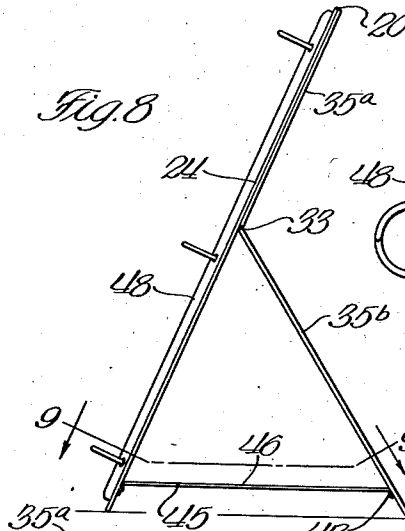
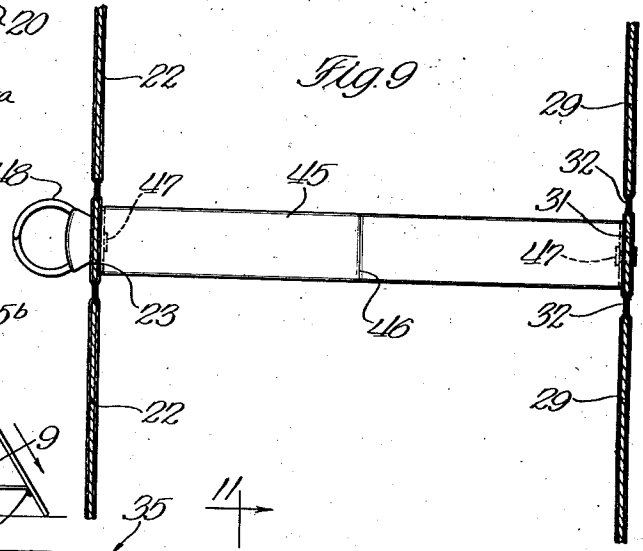


Fig. 9



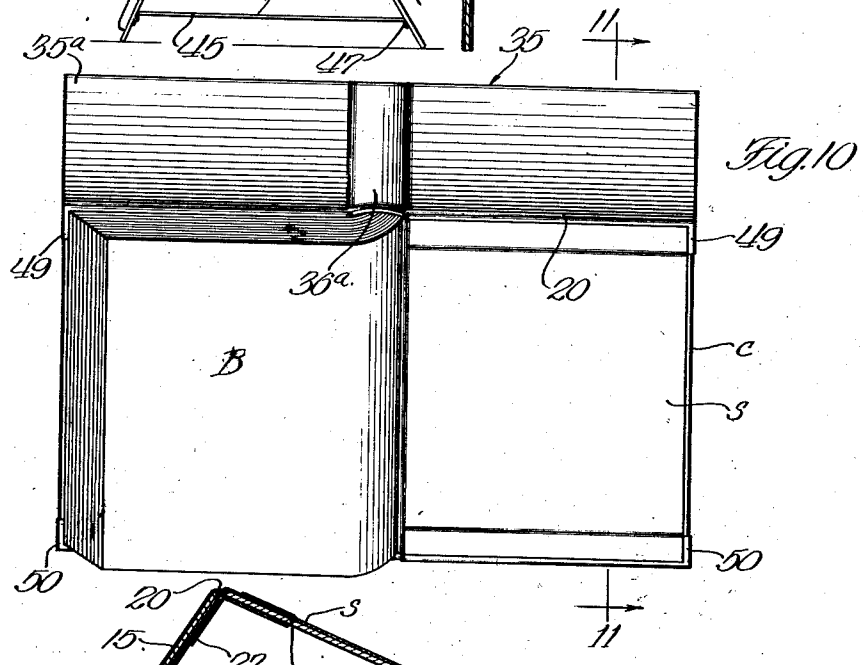
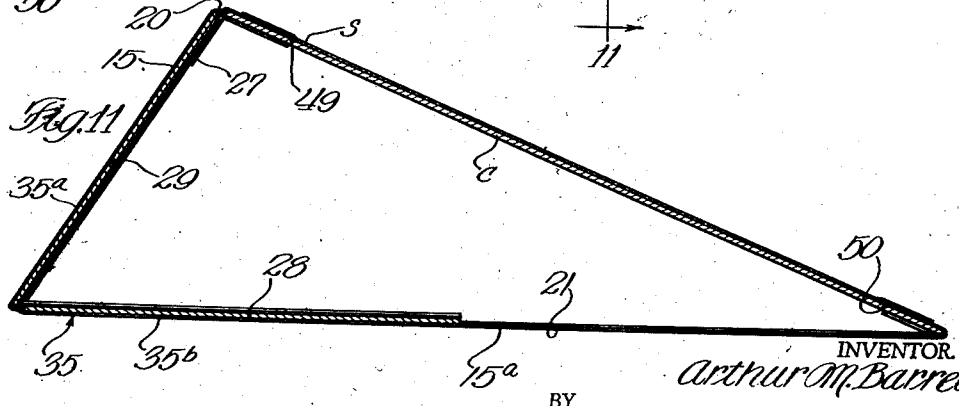


Fig. 10

Fig. 11



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PORTABLE DISPLAY DEVICE

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Fig. 12

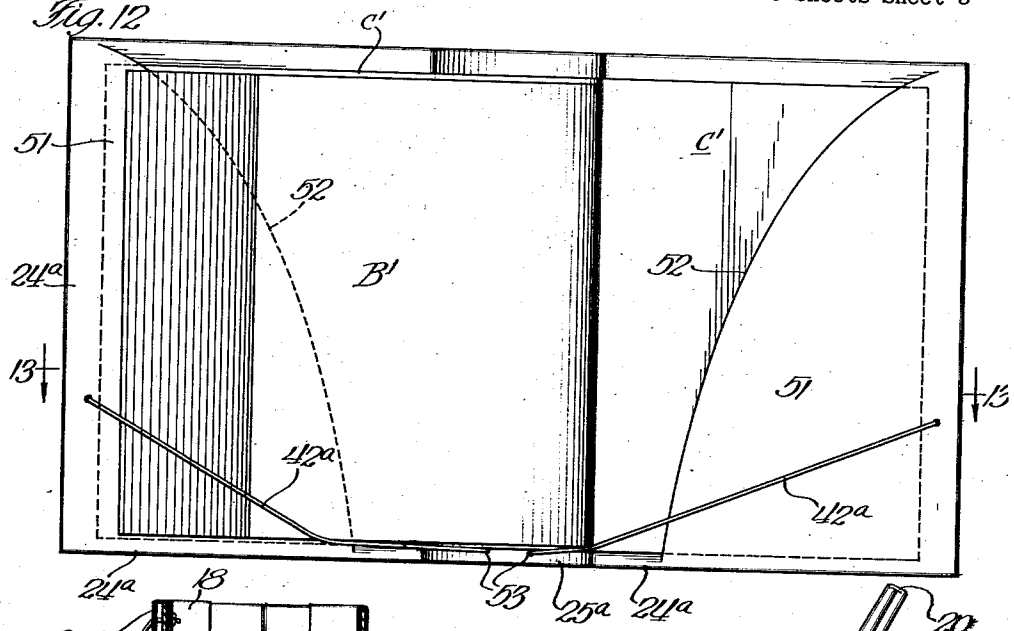


Fig. 13

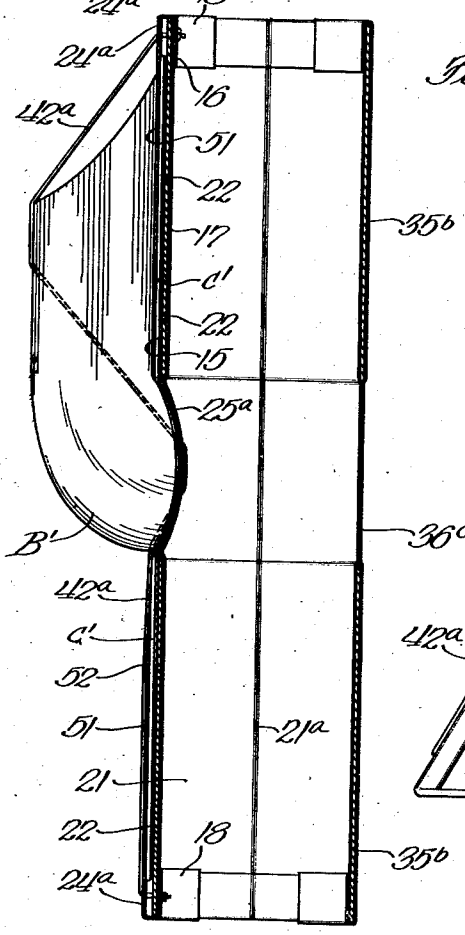
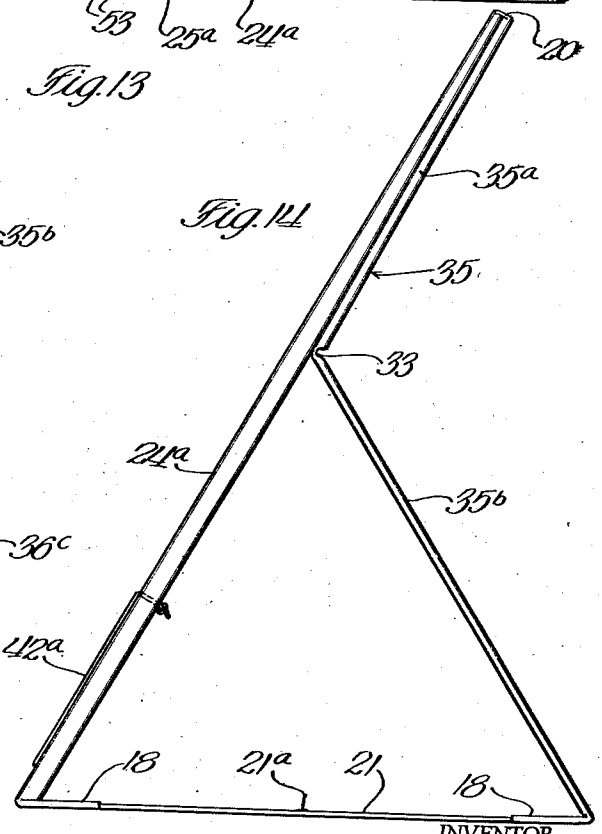


Fig. 14



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Patented Oct. 7, 1941

2,258,273

UNITED STATES PATENT OFFICE

2,258,273

PORTABLE DISPLAY DEVICE

Arthur M. Barrett, Winnetka, Ill., assignor to The Barrett Bindery Co., Chicago, Ill., a corporation of Illinois

Application April 18, 1940, Serial No. 330,308

15 Claims. (Cl. 281—33)

This invention relates to devices for supporting illustrated matter, reading matter, or the like, in the form of a collection of sheets or leaves bearing the desired matter and loosely bound together, permanently bound together in book form, or arranged together in any other suitable manner.

My invention is directed to a device of the character stated which is particularly suitable for display purposes; when closed simulates the appearance of a book and when opened provides an adjustable supporting structure in the nature of an easel, by means of which the contained leaves may be disposed at various angles to the horizontal so as to be viewed to best advantage; may be opened, adjusted and closed with expedition and facility; will support the contained material rigidly and positively in desired adjustment; is readily adaptable to material either bound together in loose leaf form or permanently bound together in book form; and may be provided with means for holding the sheets or leaves to be displayed in extended position, such means being effective for assisting in closing the device, and, if desired, with means for supporting at their lower edges the leaves in the extended open condition of the device.

While the device of my invention is particularly suitable for display purposes, it may be used to advantage for various other purposes such as, for example, for supporting books, magazines, or other reading matter in position to be readily visible and readable with ease. Further objects and advantages of my invention will appear from the detail description.

In the drawings:

Figure 1 is a front view of a display device embodying my invention, in open condition with a plurality of leaves, loosely secured together, mounted therein;

Figure 2 is a back view, on a reduced scale, of the device of Figure 1;

Figure 3 is a sectional view, on an enlarged scale, taken substantially on line 3—3 of Figure 1, the leaves shown in the latter figure being omitted for clearness of illustration;

Figure 4 is a fragmentary sectional view, on an enlarged scale, taken substantially on line 4—4 of Figure 6;

Figure 5 is a semi-diagrammatic side view of the device of Figure 3 adjusted at a different angle than that shown in the latter figure;

Figure 6 is a semi-diagrammatic side view of the device of Figure 5 adjusted so as to occupy a third position;

Figure 7 is a fragmentary sectional view, on an enlarged scale, taken substantially on line 7—7 of Figure 5;

Figure 8 is a view similar to Figure 3, on a relatively reduced scale, of a modified form of device;

Figure 9 is a fragmentary sectional view, on an enlarged scale, taken substantially on line 9—9 of Figure 8, certain parts being shown in plan;

Figure 10 is a front view of a second modified form of device embodying my invention, with a permanently bound book mounted therein, the device being shown in open position and adjusted so as to occupy its second angular position shown in Figure 11;

Figure 11 is a sectional view taken substantially on line 11—11 of Figure 10, this view being on an enlarged scale;

Figure 12 is a view similar to Figure 1, of a third modified form of device embodying my invention, with a permanently bound book mounted therein;

Figure 13 is a sectional view taken substantially on line 13—13 of Figure 12; and

Figure 14 is an end view of the device as shown in Figure 12, with the book omitted.

The device of my invention comprises, in general, a plurality of hingedly connected, substantially rigid members providing, in effect, a linked structure adjustable into various positions. More specifically, the structure thus provided is adjustable into a first position defining a triangle with its front side inclined at a predetermined angle to the horizontal and into a second position defining a second triangle the front side of which is inclined to the horizontal at a predetermined angle less than that of its first position. The structure may also be folded so as to lie flat upon a horizontal supporting surface. It is thus possible, by the use of my device, to support material contained therein in any one of three different positions.

In the illustrated embodiment of my invention, shown by way of example, the device comprises a fabric covering and substantially rigid inserts, providing rigid members hingedly connected by the covering. Any other suitable construction which provides substantially rigid members connected together for adjustment in the manner stated may be employed, within the broad concept of my invention.

The device shown in Figures 1 to 6, inclusive, comprises a fabric main covering 15 in the form of a closed loop having a front portion, a back portion extending downward from the upper edge of the front portion, and a bottom portion con-

necting the lower edges of the front and the back portions. The inner or front portion of main covering 15 has its lateral edge portions turned in at 16, as shown more clearly in Figure 4, and secured to a sheet 17 of fabric constituting a portion of a supplementary fabric covering, and the back portion thereof has its marginal portions 18 turned inward and rearward and secured to the marginal portions of a fabric sheet 19 forming another element of the supplementary covering. The end portions of main covering 15 are disposed in overlapping relation, with their lateral marginal portions turned inward and downward, and are suitably secured together, as by means of an appropriate adhesive, as will appear more clearly from Figure 7. The covering thus provided, including the main covering and the supplemental covering, comprises front and back portions hinged together at their upper edges by covering 15, at 20, and connected together at their lower edges by a flexible stop member 21. The latter limits movement apart of the front and back portions and is foldable upward therebetween, along a central transverse fold line or crease 21*a*, when the latter members are folded one on the other, as will appear more fully presently.

The front portion, which is of rectangular shape, receives two rectangular cover reinforcing inserts 22, formed of cardboard or other suitable substantially rigid material, and, if desired, though not necessarily, a relatively narrow rectangular substantially rigid back reinforcing insert 23, likewise formed of cardboard or other suitable material. The inner edges of inserts 22 are spaced from the lateral edges of insert 23, as shown in Figure 9, these inserts constituting, with the front portion of the covering, a front member comprising two cover elements 24 and a back element or backbone 25, hingedly connected at 26 by the fabric covering. Preferably, a fabric strip 27 (Figures 5 and 11) is secured by a suitable adhesive to the upper areas of the front and the back portions, providing a hinge connection therebetween supplementary to the connection 20. The inserts 22 and 23, if the latter be used, are secured in position within the cover in a suitable manner, conveniently by means of an adhesive.

The back portion of the covering receives, at each side thereof, upper and lower rectangular substantially rigid cover inserts 28 and 29, respectively, and, at its central portion, if desired, though not necessarily, rectangular substantially rigid upper and lower back inserts 30 and 31. The inner edges of cover inserts 28 and 29 are spaced from the lateral edges of back inserts 30 and 31, when used, and are hingedly connected thereto by the covering, at 32. The inserts 28 and 30 have their lower edges spaced a short distance from the upper edges of the inserts 29 and 31, respectively, and hingedly connected thereto by the covering, at 33 and 34. The inserts 28 and 29 are suitably secured in the covering, conveniently by means of an appropriate adhesive, as are the inserts 30 and 31 if used. The back portion of the covering and the associated inserts thus constitute a back or outer member comprising cover elements 35 and a back element 36 corresponding to and foldable about the cover elements and back element of the front member.

Each of the cover elements 35 of the back member comprises an upper section 35*a* and a lower section 35*b*, hinged together at 33 by the covering, and the back element 36 comprises an upper section 36*a* and a lower section 36*b* hinged together by the covering at 34, the hinge lines of the cover elements and the back element being, of course, aligned as shown. Constructing the back member in this manner provides, in conjunction with the front member, a structure which, when not in use, may readily be folded into book form, the parts being appropriately proportioned to that end, so as closely to simulate in appearance an ordinary book. Further, the structure referred to renders possible adjustment thereof, when the device is in extended or opened condition, in such manner as to dispose the inner or front member at various angles to the horizontal. In Figure 3 the device is shown adjusted into what I term its first position. When thus adjusted the device forms, in side view, a triangle defined by substantially the lower half of the front member, the stop member 21 and the lower section of the back member, the upper section of the back member extending upward from the vertex of this triangle and seating against the back of the upper half of the front member. In that manner the front member is rigidly supported at a downward and formed inclination for supporting thereon, at the same inclination, a collection or assembly of sheets or leaves mounted on the front member in a suitable manner. By disposing the device so as to define, in side view, a second triangle in which the lower section of the back member is aligned with stop member 21, with the upper section of the back member extending from the upper edge of the front member to the lower section of the back member, the front member is rigidly supported in a second inclined position at a considerably less angle to the horizontal than in Figure 3, as shown in Figure 5. By folding the stop member 21 upward about the folding line or crease 21*a*, into position between the lower portion of the front member and the lower section of the back member, the latter member may be disposed, throughout its height, in substantially parallel relation to the front member, the device then being capable of lying in a flat horizontal position as shown in Figure 6. When thus disposed, the device may readily be folded into closed condition, with the back and cover elements of the back member extending over and about the corresponding elements of the front member, as above described. It is thus possible, by constructing the device in the manner shown and described, to support the front member thereof in any one of a plurality of positions, and the desired adjustments may be effected quickly and easily, as will be apparent.

In Figure 1 I have shown a plurality of sheets or leaves 38, loosely secured together in a known manner, by means of a coiled connecting member 39, of known type, mounted on the front member by means of binder mechanism 40, also of known type. This binder mechanism may be suitably secured, as by means of rivets, to backbone 25 of the front member and includes a flat rod or strip 41, pivoted at one end and releasably secured at the other end, this rod being inserted through the coil member 39. I also provide an elastic member or cord 42 extending across the cover elements and backbone of the front member, adjacent the lower edges thereof, this elastic member having its ends secured to the cover elements adjacent the outer edges thereof and being of such length as to be placed under tension when the cover elements are disposed in

full open position extending from opposite sides of the backbone in the plane thereof. The elastic member **42** confines the leaves **38** for retaining them in desired position. I preferably also provide supporting angle brackets **43**, riveted or otherwise suitably secured to the inner faces of the front cover elements, below elastic member **42**. These brackets serve to support the leaves **38**, at the lower edges thereof, confining them against downward displacement. Preferably one of the brackets **43** is disposed slightly lower than the other bracket, the arrangement being such that these brackets may be disposed in interfitting relation without distorting the device in the closed condition of the latter.

While the member **42** is placed under tension when the device is in open position, its tendency to cause closing of the device is not effective, since such closing movement is prevented by the rearwardly extending portions of the back member and the stop member, as will be clear from Figures 3 and 5. However, if the device, when adjusted as in either Figure 3 or Figure 5, be grasped at its upper back portion and raised from the supporting surface upon which it rests, the elastic member **42** will act to swing the cover elements of the front member forward toward closing position, causing folding of the stop member **21** and movement of the back member forward into parallelism with the front member, thus facilitating folding and closing of the device.

The form of device shown in Figures 8 and 9 is, in general, similar to that shown in Figures 1 to 7, inclusive, and a brief description thereof will suffice. In Figures 8 and 9 the covering is not extended between the lower edges of the inner and the outer members to provide a stop member. Instead, I provide a separate strap **45**, provided with a central transverse folding crease **46**, this strap being suitably secured at its ends, as by means of rivets **47**, to the backbones of the inner and the outer members of the device. A binder mechanism **48**, for connecting together leaves in loose leaf binder form, of a known type different from that of Figures 1 and 3, is secured to the backbone of the front member. In other respects the device shown in Figures 8 and 9 is similar to that shown in Figures 1 to 7, inclusive, and need not be described in greater detail.

The form of device shown in Figures 10 and 11 is intended for use with permanently bound books having substantially rigid covers. In general, the construction and operation is similar to that of the devices shown in Figures 1 to 9, inclusive, and requires no detailed description except with respect to those features having to do with the particular use of the device.

In Figures 10 and 11 the main covering **15***a* extends but a comparatively short distance from the upper edge of the back member and from the front of the stop member **21**, and has its lateral marginal portions turned rearward and inward to provide upper and lower front pockets **49** and **50**, respectively, of comparatively short height. These pockets receive the top and bottom portions of covers *c* of a permanently bound book B, the covers being secured in the pockets by a suitable adhesive, there being a covering sheet of paper *s* adhesively secured to the inner face of each cover *c* and over the major area of the front portion of the pockets **49** and **50**, respectively. The book B is so disposed that the backbone thereof coincides with the backbone of the display device. In this construction the covers of the book constitute the cover elements of the front member and the device as a whole may be adjusted and manipulated in the same manner as the devices of Figures 1 to 9, inclusive.

The modified form of device shown in Figures 12 to 14, inclusive, is quite similar to that of Figures 1 to 3, inclusive. Each of the front cover elements **24***a* is provided with a pocket **51** of a size and shape to receive cover *c'* of a permanently bound book B'. Preferably, the inner edges of pockets **51** are curved, as shown at **52**, to facilitate insertion thereinto of the book covers. These pockets **51** may be formed in any suitable manner. Conveniently, the main covering is cut through on an arcuate line extending from a point adjacent the upper outer corner of front cover element **24***a* toward the diagonally opposite corner, the portion of the covering between edge **52** of the pocket and the outer and lower edges of cover element **24***a* being free from the insert **22**. The latter and the cut free portion of the main covering then define the pocket.

An elastic cord **42***a* is secured at each end to the front cover elements **24***a*, adjacent the outer edges and a short distance above the lower edges thereof. This cord **42***a* passes through spaced openings **53** in backbone **25***a* of the front portion of the device, adjacent the lower edge thereof. The portions of cord **42***a* beyond openings **53** extend across the lower corners of the pages of the book B', as shown in Figure 12, for holding them in position. The pages may be turned in the usual manner without hindrance, since they will readily slip from under the cord and may as readily be inserted therebeneath.

It will be noted, from Figure 13, that the backbones **25***a* and **36***c* of the front and back members, respectively, of the device of Figure 12, are not provided with stiffening inserts. Such inserts may be used or not, as desired, in all of the illustrated embodiments of my invention.

While I have shown by way of example, in certain forms of the device of my invention, binder mechanisms of known type for mounting thereon sheets or leaves connected together in loose leaf form, such binder mechanisms are not essential to my invention and the sheets or leaves may be mounted on the device in any other suitable manner. Also, binder mechanism, when used, may be secured either to the backbone of the device or to either of the front cover elements thereof, as conditions may require.

It will be understood from the above that changes in the construction and arrangement of parts of my invention may be resorted to without departing from the field and scope thereof, and I intend to include all such variations, as fall within the scope of the appended claims, in this application in which the preferred forms only of my invention have been disclosed.

I claim:

1. In a device of the character described, an inner member comprising a back element and substantially rigid cover elements hinged to said back element, said cover elements being provided with pockets for reception of the covers of a book, an outer member comprising hingedly connected back and cover elements corresponding to and foldable over said back and cover elements of said inner member, and a stop member connecting the lower portions of said inner and outer members limiting movement apart of their lower edges, the cover elements of said outer member comprising hingedly connected substantially rigid upper and lower sections, said upper sections being hingedly connected at their upper

edges to the upper edges of said inner cover elements, the combined lengths of said stop member and one of said lower sections being less than the combined lengths of said inner member and one of said upper sections.

2. In a device of the character described, an inner member comprising substantially rigid hingedly connected cover elements, an outer member comprising hingedly connected cover elements corresponding to and foldable over said cover elements of said inner member, said cover elements of said outer member each comprising substantially rigid upper and lower sections with said upper sections hinged at their upper edges to the upper edges of said inner cover elements, a foldable stop member connecting said inner and outer members adjacent their lower edges and limiting movement apart thereof, and an elastic member secured to said inner cover elements extending across the latter at the inner face thereof and placed under tension when said inner cover elements are opened.

3. In a device of the character described, an inner member comprising a back element and substantially rigid cover elements hingedly connected at their inner edges to said back element, an outer member comprising hingedly connected back and cover elements corresponding to and foldable over said back and cover elements of said inner member, said elements of said outer member each comprising hingedly connected upper and lower sections and the sections of said outer cover elements being substantially rigid with said upper sections hinged at their upper edges to the upper edges of said inner cover elements, a foldable stop member connecting said inner and outer members adjacent their lower edges and limiting movement apart thereof, an elastic member secured to said inner cover elements extending across the latter and said inner back element adjacent the lower edge of said inner member and placed under tension when said inner cover elements are opened, and supporting angle brackets secured to the inner faces of said inner cover members below said elastic member.

4. In a device of the character described, an inner member comprising a back element and substantially rigid cover elements hingedly connected at their inner edges to said back element, an outer member comprising hingedly connected back and cover elements corresponding to and foldable over said back and cover elements of said inner member, said elements of said outer member each comprising hingedly connected upper and lower sections and the sections of said outer cover elements being substantially rigid with said upper sections hinged at their upper edges to the upper edges of said inner cover elements, a foldable stop member connecting said inner and outer members adjacent their lower edges and limiting movement apart thereof, an elastic member secured to said inner cover elements extending across the latter and said inner back element adjacent the lower edge of said inner member and placed under tension when said inner cover elements are opened, and supporting angle brackets secured to the inner faces of said inner cover elements below said elastic member, said brackets being positioned one lower than the other for disposal in interfitting relation when said inner cover elements are closed.

5. In a device of the character described, a back element and substantially rigid cover elements hingedly connected at their inner edges to said back element, an elastic member secured to said cover elements extending across the latter and said back element at the inner faces adjacent the lower edges thereof and placed under tension when said cover elements are opened, and supporting angle brackets secured to the inner faces of said inner cover elements below said elastic member, said brackets being positioned one lower than the other for disposal in interfitting relation when said inner cover elements are closed.

6. In a display device, four members hinged together end to end in a closed loop for free relative movement in either direction about their respective hinge axes, three of said members being substantially rigid, the combined lengths of two adjacent ones of said rigid members being materially greater than the combined lengths of the third rigid member and the fourth member, whereby one of the rigid members may be supported on a flat surface by the other three of said members at either one optionally of two different degrees of inclination to the supporting surface.

7. In a display device, a substantially rigid rectangular front member, a back member comprising a substantially rigid rectangular upper section hinged at its upper end to the upper end of said front member and a substantially rigid rectangular lower section hinged at its upper end to the lower end of said upper section, and a stop member hinged at its ends to the lower ends of said front member and said lower section, the combined lengths of said front member and said upper section being materially greater than the combined lengths of said lower section and said stop member.

8. In a display device, a substantially rigid rectangular front member, a back member comprising a substantially rigid rectangular upper section and a substantially rigid rectangular lower section, said upper section being hinged at its upper end to the upper end of said front member and freely movable relative thereto into parallelism therewith seating against the back thereof and into angular relation to said front member, said lower section being hinged at its upper end to the lower end of said upper section and freely movable relative thereto, and a stop member hinged at its ends to the lower ends of said front member and said lower section, the combined lengths of said front member and said upper section being materially greater than the combined lengths of said lower section and said stop member.

9. In a display device, a substantially rigid rectangular front member, means for retaining a plurality of leaves on said front member, a back member comprising a substantially rigid rectangular upper section hinged at its upper end to the upper end of said front member for free relative movement in either direction about its hinge axis and a substantially rigid rectangular lower section hinged at its upper end to the lower end of said upper section for free relative movement in either direction about its hinge axis, and a stop member hinged at its ends to the lower ends of said front member and said lower section with each of the latter being freely movable relative to said stop member in either direction about its hinge connection thereto, the combined lengths of said front member and said upper section being materially greater than the combined lengths of said lower section and said stop member.

10. In a display device, a relatively stiff front display board upon which material to be dis-

played is adapted to be supported, an upper relatively stiff backboard of a length of the order of slightly less than one-half of the length of the display board hinged at its upper end to the upper end of the display board, a lower relatively stiff backboard of a length of the order of more than one-half of the length of the display board hinged at its upper end to the lower end of said upper backboard, and a foldable connecting member hinged to the lower end of the display board and to the lower end of the lower back board, the sum of the lengths of the two backboards being approximately equal to the length of the display board and the sum of the lengths of the backboards and the connecting member being substantially greater than the length of the display board, whereby the display board may be supported on a flat surface at either a large acute angle to the surface or at a small acute angle to the surface.

11. In a display device, an inner member comprising a pair of substantially rigid inner cover elements hingedly connected adjacent their inner edges, a pair of outer cover elements one associated with each of said inner cover elements, each of said outer cover elements comprising a substantially rigid upper section and a substantially rigid lower section hingedly connected to each other, said upper section of each outer cover element being hingedly mounted at its upper edge to the upper edge of its associated inner cover element, connecting means extending between and connected to said inner member and said outer elements, each upper section being adapted to be disposed against and substantially parallel with its associated inner cover member in which position said connecting means is adapted to limit spacing apart of the lower edges of each lower section and said inner member for supporting the latter in a first angular position with respect to the horizontal, and, optionally, each lower section and said connecting means being adapted to be disposed substantially horizontally with each upper section disposed angularly to said inner member for supporting the latter in a second angular position with respect to the horizontal, and sheet supporting means carried by said inner section.

12. The combination of claim 11 characterized by the connecting means being foldable to be disposed between the inner and outer cover elements.

13. The combination of claim 11 characterized by the provision of an elastic member secured to said inner cover elements extending across the latter at the inner faces thereof and placed under tension when said inner cover elements are opened.

14. In a display device, a substantially rigid front member upon which sheets to be displayed are adapted to be supported, means for supporting said front member optionally in one of two angular positions with respect to the horizontal, said means comprising a back member having a substantially rigid upper section and a substantially rigid lower section hingedly connected to each other, said upper section being hingedly connected to said front member, and connecting means extending between said lower section and said front member, said upper section being adapted to be positioned against and substantially parallel to said front section, said connecting means limiting spacing apart of the lower edges of said lower section and said front member to angularly support the latter in a first angular position to the horizontal, and, optionally, said lower section and said connecting means being adapted to be disposed substantially horizontally with said upper section disposed substantially angularly to said front member to support the latter in a second angular position to the horizontal.

15. In a display device, an inner member comprising substantially rigid inner cover elements hingedly connected adjacent their inner edges, outer covering means comprising outer cover elements corresponding to and adapted to be superimposed over said inner cover elements, said outer elements each comprising a substantially rigid upper section and a substantially rigid lower section, the upper section of each outer cover element being hingedly mounted to its associated inner cover element whereby each upper section is adapted to be positioned against and substantially parallel with the upper portion of said inner member, connecting means extending between said lower sections and said inner member, said connecting means limiting spacing apart of the lower edges of the lower sections and said inner member when the upper sections are disposed against and substantially parallel with said inner member for supporting the latter in a first position angular to the horizontal, and, optionally, the lower sections and said connecting means being adapted to be disposed substantially horizontally with the upper sections disposed angularly to said inner member to support the latter in a second position angular to the horizontal.

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