Jan. 14, 1941. C. E. WHITCOMB 2,228,378

COLLAPSIBLE DISPLAY DEVICE

Filed May 13, 1939 2 Sheets-Sheet 1

Fig. 1

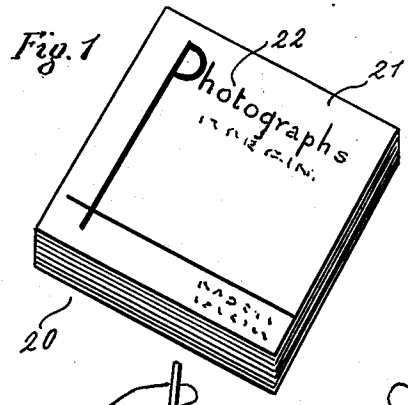
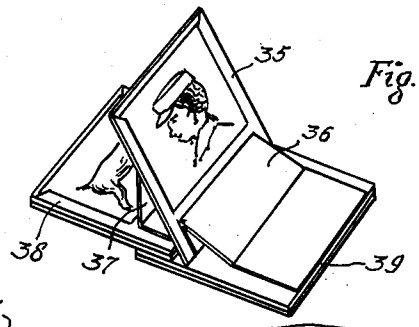


Fig. 5



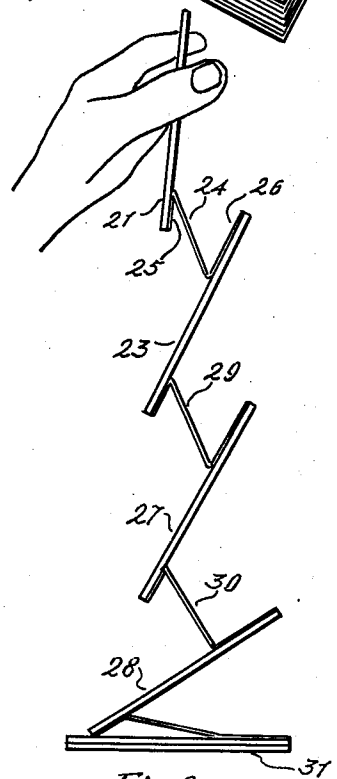


Fig. 2

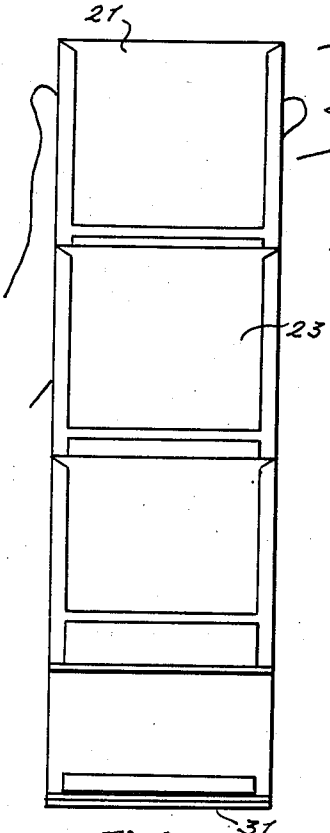


Fig. 3

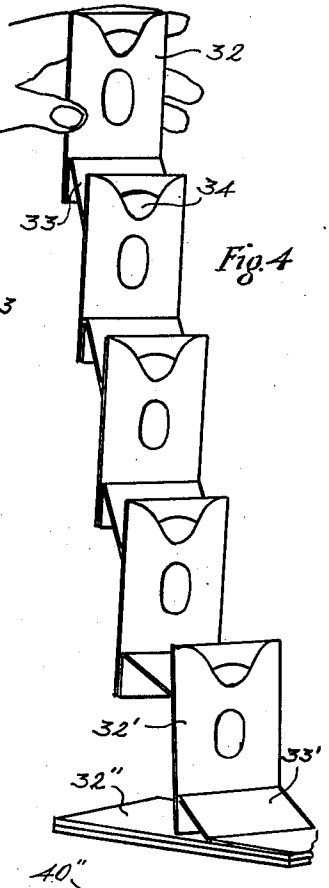


Fig. 4

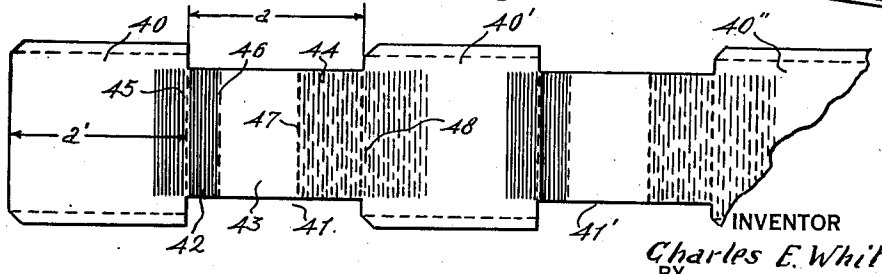


Fig. 6

INVENTOR
Charles E. Whitcomb
BY
Guido et Sacerdote
ATTORNEY

Jan. 14, 1941. C. E. WHITCOMB 2,228,378

COLLAPSIBLE DISPLAY DEVICE

Filed May 13, 1939 2 Sheets-Sheet 2

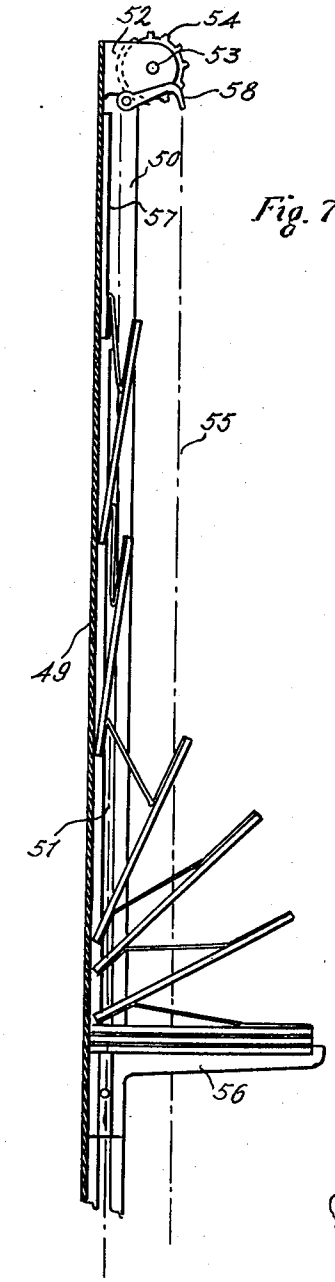


Fig. 7

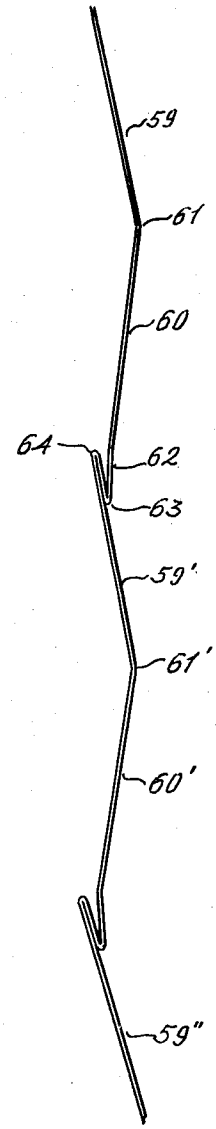


Fig. 8

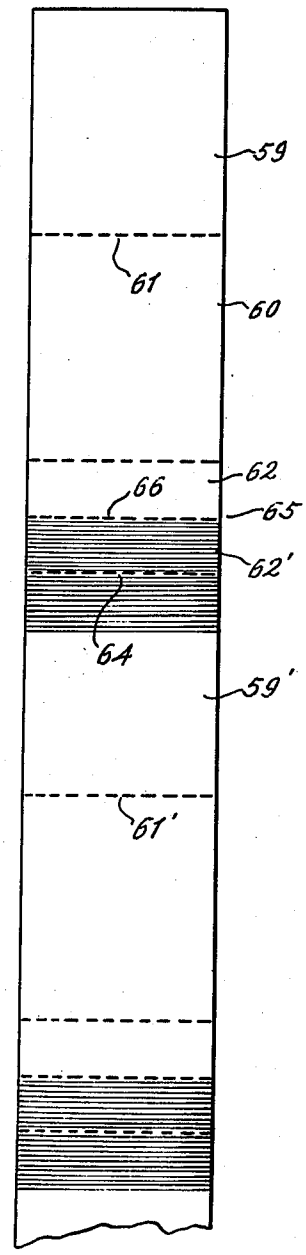


Fig. 9

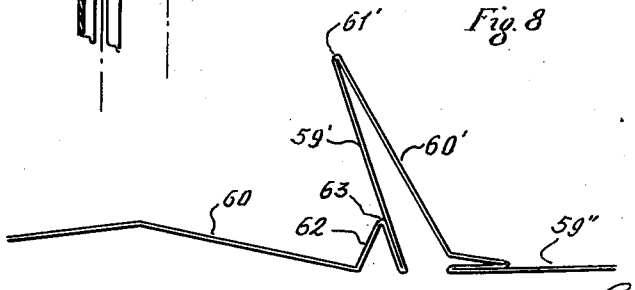


Fig. 10

INVENTOR
Charles E. Whitcomb
BY
Guido de Sacerdote
ATTORNEY

Patented Jan. 14, 1941 2,228,378

UNITED STATES PATENT OFFICE

2,228,378

COLLAPSIBLE DISPLAY DEVICE

Charles E. Whitcomb, Bayside, N. Y.

Application May 13, 1939, Serial No. 273,509

9 Claims. (Cl. 40—102)

This invention relates to displaying devices and more particularly refers to displaying devices in which a multiplicity of flat display elements are connected to one another in a manner permitting of their being extended and simultaneously displayed in longitudinal series or chain formation and to be retracted to a non-displaying position, where said elements are superimposed on one another in compact columnar or book formation.

The primary object of this invention is to provide a multiple display device of an extensible and collapsible character, comprising a plurality of superimposed display elements connected to one another by link members, making it possible for said display elements to automatically extend by gravity to displaying position when the top element is held in a fixed position and the remaining elements are allowed to extend therefrom.

Another object is to provide a collapsible displaying device, comprising a plurality of display elements, adapted to be extended in series or chain formation, adjacent elements being interconnected by link members, making it possible for one element to pass from a position where it abuts against and completely covers an adjacent element to a laterally displaced position where it partially or totally uncovers said adjoining element.

A further object is to provide a device of the character specified, in which adjoining display elements are interconnected by link members forming an articulated connection therebetween, said link members being adapted to both retain said elements in chain or series formation and act as means for holding or supporting one of the elements connected thereto in an upwardly directed easel-like display position for individual display purposes.

A still further object is to provide a collapsible display device of a novel and improved construction, said device comprising a plurality of display elements interconnected by link members hinged thereto, the construction of said device being such as to make it passible to produce the entire series of display elements and connecting link members from a single strip of paper or other suitable material.

Other objects and advantages of the present invention will more fully appear as the description proceeds and will be set forth and claimed in the appended claims.

My invention is illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a multiple display device embodying my invention in its collapsed or closed position;

Fig. 2 is a side view in elevation of the same device in a partially extended position;

Fig. 3 is a front view in elevation of the device shown in Fig. 2;

Fig. 4 is a view in perspective showing another device embodying my invention in a partially extended position;

Fig. 5 is a view in perspective of the device shown in Figs. 1 to 3, in which one of the display elements is set easel-like in an individual display position;

Fig. 6 is a fragmentary plan view of a blank adapted for the production in a single piece of a multiple display device similar to that shown in Figs. 2 and 3;

Fig. 7 is a fragmentary side view in elevation, partly sectioned, of a device embodying my invention, adapted for mounting on a wall;

Fig. 8 is a fragmentary side view in elevation of an extended foldable display device, embodying one of the novel features of my invention;

Fig. 9 is a fragmentary plan view of a blank in strip form, adapted for the production of the device shown in Fig. 8; and

Fig. 10 is a fragmentary side view in elevation of the same device, showing one of the display elements maintained in an easel-like displaying position by the link members connecting it to the adjoining display elements.

The elements composing my device, which I include in the generic term of display elements, may be display boards, frames, envolopes, flat pockets, or containers, according to the use for which the device is intended. For instance, the device **20** shown in Figs. 1, 2 and 3, comprises a plurality of display elements in the form of frames within which can be mounted photographs, cards, advertisements, samples of cloth, or any other suitable display material.

The device comprises a top display element **21**, serving as a cover, bearing on its exposed surface when the device is in its collapsed position, shown in Fig. 1, any suitable inscription **22** referring to the character of the display matter therein contained.

The display element **23** directly underneath the top element is connected thereto by a link member **24**, shown in the form of a section of a paper blank, the ends of which **25**, **26**, are secured by means of an adhesive to opposite ends of elements **21**, **23**, respectively, said ends **25**, **26** being reversely creased and foldable with respect to link member **24** to form a Z-shape therewith.

The succeeding display elements **27**, **28**, etc., are connected to one another in the same fashion by link members **29**, **39**, etc., so that when the top display element is held in one hand, as shown in Fig. 2, and the remaining elements are left free to extend, said remaining elements will automatically and rapidly descend to form a vertical series of displays which are simultaneously exposed, as Fig. 3 clearly shows.

The displacement of each display element with respect to the preceding one in the series is effected by swinging movement of the link member intervening therebetween about its hinged connection

to the said preceding element while the element which is being displaced comes to occupy a series of successive substantially parallel positions until it reaches its lowermost position with respect to the preceding element.

The device can with equal ease be brought back to its collapsed position merely by lifting the bottom element 31 in the series towards the top element, the articulated connections between adjoining elements just naturally causing said elements to successively come to rest upon one another in the superimposed relation shown in Fig. 1.

As stated, the frame-shaped elements composing the device shown in Figs. 1 to 3 can be used for photographs, cards and the like, but instead of frame-shaped elements the device may comprise open-top pockets or envelopes, if desired. For instance, in Fig. 4 the device is shown composed of a plurality of open-top pockets 32, connected by link members 33, said pockets being each adapted to receive a phonograph record 34. The device is shown of a size small enough for the top element to be held in one hand, that is, usable in connection with phonograph records of very small size, but, of course, a similar device can be made for phonograph records of normal size.

In Figs. 4 and 5 I also illustrate an important function of the link members connecting adjoining display elements. In Fig. 4 it is seen how the lowermost of the extended pockets 32' rests in an upright position on top of the still unfolded pockets 32'', being held in said position by the link member 33' connecting it to the next unfolded pocket. In this position the element or pocket 32' is clearly displayed so as to be visible from the front, and since it is anchored by the link member it does not of necessity require that the preceding elements in the series be extended.

A better illustration of this possibility for individual display is given in Fig. 5, where a series of interconnected display elements, similar to those shown in Figs. 1 to 3, is shown with one of its display elements 35 maintained in an easel-like position by front member 36 acting as an anchoring means therefor and rear link member 37 acting as a support, the preceding display elements 38 and the following display elements 39 being still in their folded or superimposed relation and lying flat on a supporting surface, forming a base for the element 35 being displayed.

While when the display elements are made of comparatively heavy board it is best to use lighter stock for the link members, as shown in Fig. 2, whenever a relatively light material will serve the purpose for the production of the display elements themselves, it is possible to produce the device from a single strip of paper or like material.

This possibility is illustrated in Fig. 6 where 40, 40', 40'' represent identical blanks from which the display elements may be obtained, said blanks being part of the same strip of paper or like material and being longitudinally spaced from one another a distance *a*, substantially equivalent to the longitudinal extension of each blank, indicated at *a'*.

The portions 41, 41', etc., of the strip intervening between blanks are preferably narrower than the blanks themselves and serve to provide the link members between the blanks.

Said intervening portions are divided into three transversal sections 42, 43, 44, said sections being defined by folding line 45 between the rear section 42 and the display element blank adjoining it, folding line 46 between section 42 and the next section 43, folding line 47 between section 43 and section 44, and folding line 48 between section 44 and the next display element blank.

The extensible structure is then completed by folding and adhesively attaching each section 42 against the inner surface of the adjoining display element and by reversely folding and adhesively attaching each section 47 to the rear surface of the adjoining display element, thereby leaving the intermediate section 43 to act as a link or articulation connecting two adjoining display elements in a manner similar to that illustrated in Fig. 2.

A device embodying my invention may also be used for wall display purposes. For instance, in Fig. 7 I illustrate such a device, in which 49 is a panel adapted to be attached to a wall, said panel having at each side a flange 50 provided with a longitudinal slot 51 and having at the top a bracket or brackets 52 supporting a transversal shaft 53 carrying at each side a sprocket wheel 54.

From each sprocket wheel depends a chain 55 attached to a bracket 56 vertically slidable along slots 51. The top display element 57 of the display device is fixed to the upper end of the panel 49 and when the device is in its collapsed or closed position it may be held in said position in any suitable manner, for instance, by means of a retaining hook or hooks 58.

When the device is in its inoperative position the bracket 56 is set in position under and in direct proximity of the closed display device by means of chains 55, it being understood that shaft 53 may be provided with a knob or other suitable operating means.

When the device is to be extended the means retaining it in its closed position is released and the bracket 56 acting as a support for the extensible portion of the device is caused to descend, thereby allowing the various display elements to gradually extend to their displaying position. It will be understood that a reversal of the movement of sliding bracket 56 will subsequently cause the device to once more assume its collapsed position, as Fig. 7 clearly shows.

As previously stated, one of the features of my novel device is the provision of link members between adjoining display elements forming an articulated connection therebetween, which are also adapted to function as means for retaining or supporting the display elements in an easel-like display position.

This feature can also be incorporated in multiple display devices of the foldable or zig-zag type, as distinguished from the type of device previously described in which the display elements may be said to be slidable with respect to one another. For instance, in Fig. 8 I illustrate a foldable strip consisting of a number of sections, each comprising two elements 59—60, 59'—60', foldable against each other along a folding line 61, 61', etc.

The adjoining display elements of adjoining sections are connected to each other by a link member, such as 62, which forms an articulated connection therebetween, said link member being hinged to the edge of one element and being hinged to the surface of the adjoining element at a point 63 spaced from the edge 64 thereof a distance equivalent to the length of said link member.

As a result, when the device is folded zig-zag fashion the display elements of which the device is composed will be exactly superimposed upon one another, the link members 62 being folded

flat between the two elements connected thereby.

A construction such as that shown in Fig. 8 can be obtained in continuous strip form, as shown in Fig. 9, by delimiting the successive sections by means of folding lines 61, 61', between the elements composing each section and providing an intermediate section 65 between adjoining main sections, the extension of said intermediate sections 65 in a longitudinal direction being equivalent to twice the length of the link member to be obtained therefrom. Each intermediate section 65 will, therefore, be divided into two transversal portions 62, 62', joined by a folding line 66, the part 62 forming the link member proper and the part 62' being folded along folding line 64 over the surface of the next display element and being adhesively attached thereto.

The construction just described also makes it possible to set up individual elements in easel-like fashion, said elements being retained or supported in said position by the link members connected thereto. For instance, in Fig. 10 it is shown how the display element 60' of the device shown in Fig. 8 may be set in an upwardly inclined easel-like position by causing its lower end to be retained in said position by the link member connecting it to the ajoining element 59'' and supporting its upper end by reversely folding element 59' about the folding line 61' and spreading open link member 62 about its folding line 63. The spreading of the link member 62 to its extended position thus makes it possible to broaden the base of element 69', which will consequently be enabled to act as an easel-like support for element 60'.

It will be understood that my invention may be carried into practice in ways different from those shown without departing from the inventive idea. The drawings should, therefore, be understood as being intended for illustrative purposes only and not in a limiting sense.

I, accordingly, reserve the right to carry my invention into practice in all those ways and manners which may enter, fairly, into the scope of the appended claims.

I claim:

1. A device of the character described comprising at lease two substantially flat elements and a Z-shaped link member interposed therebetween, said link member having one of its end legs abutting against and secured to the front face of one of said elements and the other end leg abutting against and secured to the rear face of the other element, so as to form with said elements a Z-shaped structure extensible from an extreme flattened position where said elements are superimposed on one another to another extreme position where said elements are laterally displaced one with respect to the other from the former position.

2. A device of the character described comprising at least two substantially flat elements of the same size and a Z-shaped link member interposed therebetween, said link member having one of its legs abutting against and secured to the front face of one of said elements and the other end leg abutting against and secured to the rear face of the other element, so as to form with said elements a Z-shaped structure extensible from an extreme flattened position where said elements are exactly superimposed on one another to another extreme position where said elements are laterally displaced one with respect to the other from the former position.

3. A device of the character described comprising a plurality of substantially flat elements superimposed on one another, and Z-shaped link members between the adjoining surfaces of adjoining elements forming a hinged connection therebetween, whereby said device may be extended to a chain formation of flattened Z-shaped structures, simultaneously exposing to view the front surface of each of said elements.

4. A device of the character described comprising a plurality of substantially flat elements superimposed on one another, and Z-shaped link members between the adjoining surfaces of adjoining elements forming a hinged connection therebetween, whereby said device may be extended to a chain formation of flattened Z-shaped structures, simultaneously exposing to view the front surface of each of said elements, said elements being substantially identical in size, and being in exactly superimposed relation when the device is in its collapsed position, the top element acting as a cover for the collapsed structure.

5. A device of the character described comprising a plurality of substantially flat elements superimposed on one another, and Z-shaped link members between the adjoining surfaces of adjoining elements forming a hinged connection therebetween, whereby said device may be extended to chain formation of flattened Z-shaped structures, simultaneously exposing to view the front surface of each of said elements, said elements and link members being integrally obtained from the same strip of material.

6. A device of the character described comprising a plurality of substantially flat elements superimposed on one another, and Z-shaped link members between the adjoining surfaces of adjoining elements forming a hinged connection therebetween, whereby said device may be extended to a chain formation of flattened Z-shaped structures, simultaneously exposing and rendering accessible all of said elements, said elements being in the form of containers adapted to receive articles of a substantially flat nature.

7. A device of the character described comprising at least two substantially flat elements and a Z-shaped link member interposed between their adjacent surfaces, said link member consisting of a collapsible and extensible Z-shaped structure made of foldable sheet material, the top and bottom legs of said Z-shaped structure being adhesively secured each to the adjacent surface of the element adjacent thereto.

8. A device of the character described comprising at least two substantially flat elements and a Z-shaped link member interposed between their adjacent surfaces, said link member consisting of a collapsible and extensible Z-shaped structure made of foldable sheet material, the top and bottom legs of said Z-shaped structure being adhesively secured each to the adjacent surface of the element adjacent thereto, said Z-shaped structure being narrower than the two elements connected thereby.

9. A device of the character described comprising at least two substantially flat elements made of foldable sheet material, and a link member therebetween, said link member being in the form of a collapsible and extensible Z-shaped structure integral with said elements, the top and bottom legs of said Z-shaped structure being folded from and adhesively secured to the adjacent surface of the element adjacent thereto.

CHARLES E. WHITCOMB.