

[54] DISPLAY DEVICE

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40/104.18, 104.19

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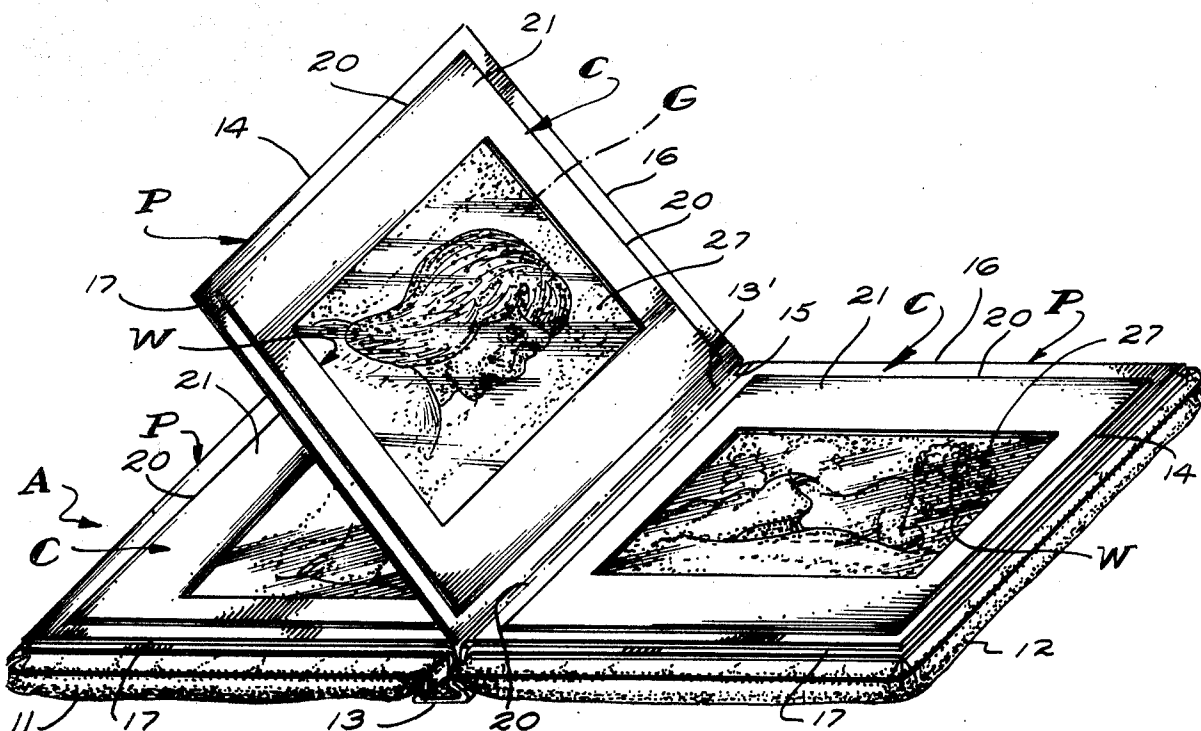
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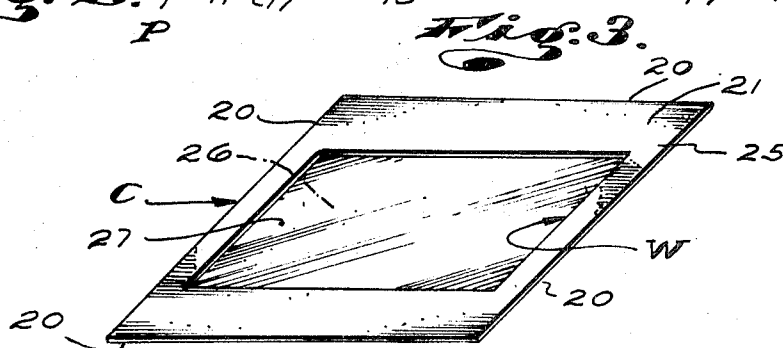
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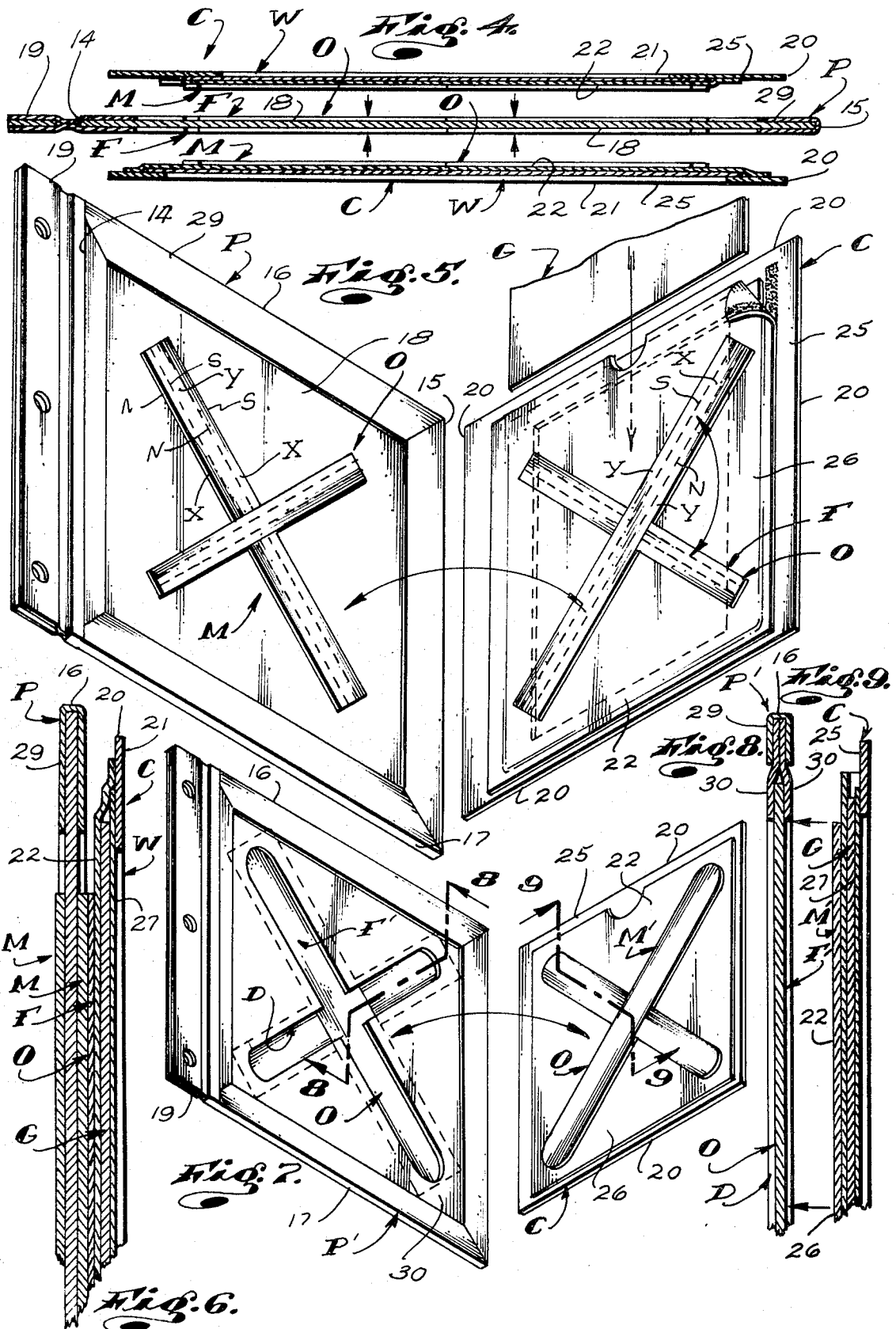
ABSTRACT

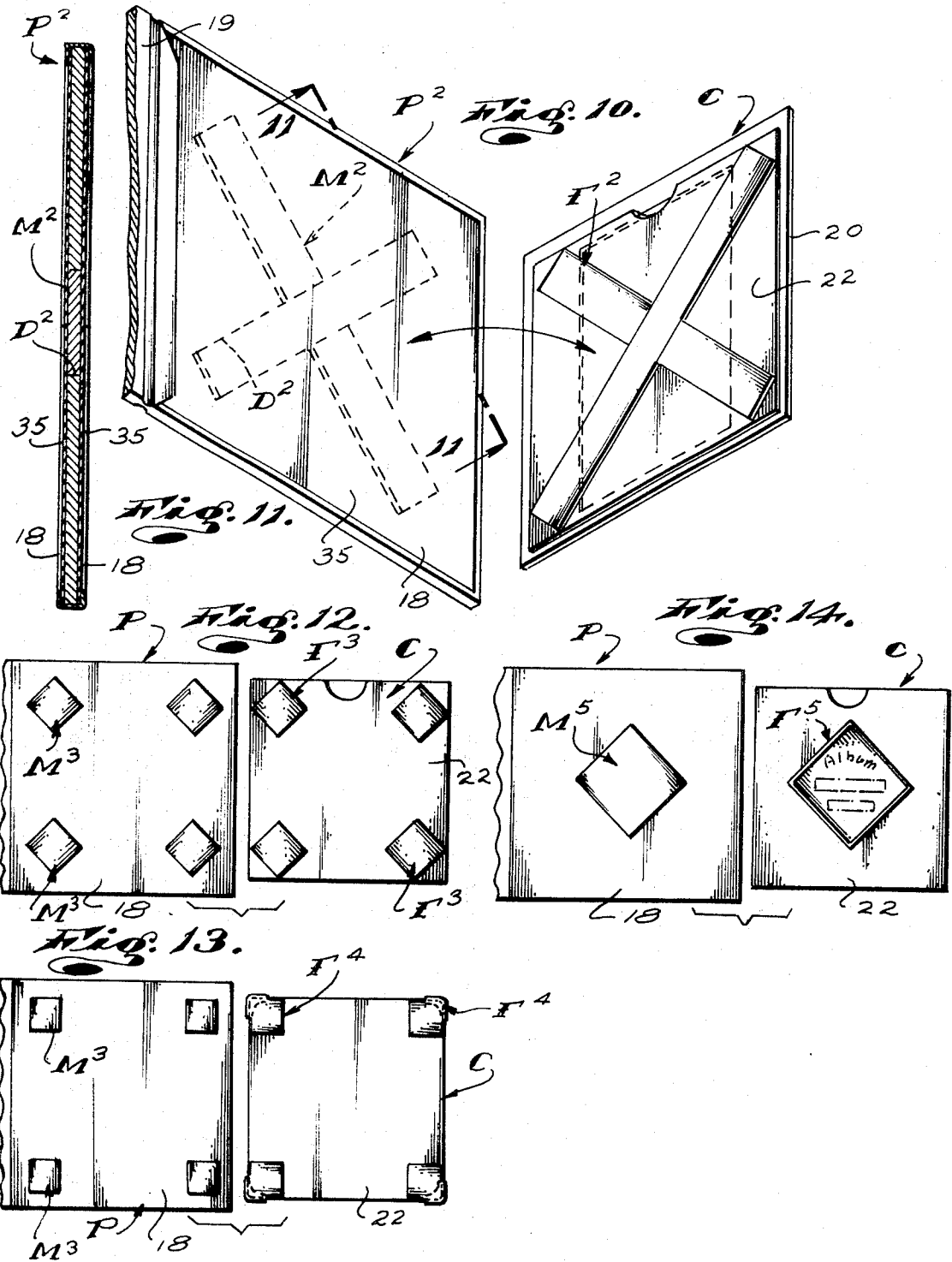
A picture album structure having a plurality of pages, a pair of flat, square, picture carriers with rectangular picture viewing windows related to each page, an orienting and holding means to selectively orient and releasably hold the carriers on the pages with the major axes of the carrier windows on central horizontal or vertical axes of the pages. The orienting and holding means comprising elements on the pages with four like portions on right angularly related axes relative to and spaced equal distances radially of the central axes of the pages and elements of similar configuration and arrangement on the carriers, the elements on the pages or on the carriers being magnetic elements and the other of said elements being ferrous whereby the magnetic and ferrous elements align and hold the carriers on the pages when the carriers are arranged adjacent thereto.

19 Claims, 14 Drawing Figures









DISPLAY DEVICE

This invention has to do with a picture or photo album and is more particularly concerned with novel, releasable mounting and orienting means for arranging pictures, such as photographs in an album.

It is common practice for people to keep and maintain a photographic history of themselves and of members of their family. It is further common practice for persons to insert and keep photographs in the pages of a blank book or album specifically designed to receive photographs and which provides a safe and attractive means to keep such photographs, in a condition and manner for convenient display.

The finer and better quality photograph albums are quite costly. As a result of the high cost of such albums, it is the common practice of many persons to periodically remove certain old and less desirable photographs from the album, rearrange those photographs to be kept in the album and to insert new photographs.

In the better quality albums, special structures and means are provided to enable the removal, replacement and rearrangement of photographs without the necessity of using glue, adhesives and the like and so that photographs can be removed and inserted, as desired, without damage to the albums or to the photographs.

The most effective and desirable albums of the character referred to above include a book-like structure with a plurality of substantially square, heavy or stout, bound pages and a plurality of picture or photo carriers releasably engageable on each side or surface of each page. Each carrier comprises a square front panel of quality paper board stock with a rectangular picture opening therein, a thin, transparent, celluloid panel fixed to the inner or back side of the front panel and overlying the picture opening and a back sheet or panel of paper fixed to the rear side of the front panel about three sides thereof and cooperating therewith to define an envelope like structure, with one open side and into which a photograph to be viewed through the window can be conveniently, slidably engaged. In addition to the above, the carrier structure includes flat, flexible paper retaining flaps or tabs at its four sides or at its four corners, which tabs are adapted to be slidably engaged in tab receiving slots in the album pages to releasably secure the carrier to the pages. To engage such a carrier with or to remove it from a related page, the carrier and the tabs must be flexed to a considerable extent and great care must be taken not to damage the paper structure. Even when the utmost care and skill is exercised in the normal use of such structure, the paper parts which are worked soon become soft, weaken and fail.

It is important to note that standard photographs are not square, but are rectangular. The most common size of studio or commercial photograph is 8 inches $\times$ 10 inches. The vertical axis of the subjectmatter of photograph is not restricted to either axis of the photograph, but can extend along either the major or minor axis thereof. As a result of the above, and so that all the photographs in an album can be arranged in the album with their vertical axes parallel with the vertical axes of the pages of the album, regardless of whether their vertical axes are parallel with the major or minor dimensions of the photographs, the carriers are, as noted, square and the tab and slot type mounting provided

therefor is such that the carriers can be cooperatively engaged on with a related page in four, selective, rotative positions and so that the axis of the photograph can be properly arranged in the album.

In practice, and to display photographs in carriers separately, easel-like holders, similar to a page of the albums, are provided to receive and support a carrier.

An object of this invention is to provide an album structure of the character referred to above having novel means to orient and to releasably secure photo carriers on and to the pages of a related album.

It is an object and feature of this invention to provide a structure of the character referred to wherein the orienting and holding means provided to secure picture carriers to and with the pages of an album include magnetic and ferrous elements arranged in a predetermined manner on the carriers and the pages.

It is a further object and feature to provide a structure of the character referred to wherein the photograph carriers are square, have rectangular photograph viewing windows on their front surfaces and wherein the magnetic and ferrous elements are arranged on the back surfaces of the carriers and on the surfaces of the album pages so that the carriers can be oriented and secured to the pages with the major axis of the windows extending horizontally or vertically relative to the pages, as desired.

An object and feature of my invention is to provide a structure of the character referred to wherein the magnetic elements can be fixed to and carried by the album pages or can be fixed to and carried by the carriers and the ferrous elements can be fixed to and carried by either the carriers or by the pages as desired.

A further object of this invention is to provide a structure of the character referred to wherein the magnetic elements or the ferrous elements are fixed to the surface of their related parts to project outwardly therefrom and when the magnetic or ferrous element related to the other related parts are at the bottoms of recesses which cooperatively receive the outwardly projecting elements related thereto.

Yet another object and feature of my invention is to provide a structure of the character referred to wherein the magnetic elements are established of elongate flexible plastic ribbon-like strip with longitudinally extending, laterally spaced magnetic fields, said strips being bonded to their related parts, and a structure wherein said ferrous elements are elongate ribbon-like strips of sheet metal, bonded to their related parts and corresponding in longitudinal and effective lateral extent with the magnetic elements.

It is an object and feature of this invention to provide a structure of the general character referred to wherein the magnetic means provided to orient and secure the carrier to the pages includes elongate strips with laterally spaced longitudinally extending magnetic fields bonded to the opposing surfaces of the carriers and pages, the magnetic fields of the strips on the pages occurring between the magnetic fields of the strip on the carriers when the carriers are oriented with the pages and the strips are in engagement with each other.

The foregoing and other objects and features of my invention will be fully understood for the following detailed description of typical preferred forms and applications of my invention throughout which description reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of an album embodying my invention.

FIG. 2 is a plan view of the album shown in FIG. 1;

FIG. 3 is a perspective view of a photograph carrier that I provide;

FIG. 4 is an exploded sectional view taken substantially as indicated by line 4—4 on FIG. 2;

FIG. 5 is an exploded isometric view showing details of construction;

FIG. 6 is an enlarged detailed sectional view taken substantially as indicated by line 6—6 on FIG. 5 and showing a portion of the structure in assembled relationship;

FIG. 7 is a view similar to FIG. 5 showing another embodiment of my invention;

FIG. 8 is an enlarged section view taken substantially as indicated by line 8—8 on FIG. 7;

FIG. 9 is an enlarged sectional view taken substantially as indicated by line 9—9 on FIG. 7;

FIG. 10 is a view similar to FIG. 7 showing another form of my invention;

FIG. 11 is an enlarged detailed sectional view taken substantially as indicated by line 11—11 on FIG. 10;

FIG. 12 illustrates another form and embodiment of my invention;

FIG. 13 shows yet another embodiment of the invention; and

FIG. 14 shows still another form of the invention.

In FIGS. 1 and 2 of the drawings, I have shown a typical album A embodying the present invention. The album A is shown as including front and rear covers 11 and 12 hingedly joined along their adjacent, inner, vertical edges, as at 13; a plurality of pages P hingedly mounted between the covers, adjacent to and along the inner vertical edges of the covers, as at 13'; and a plurality of photograph carriers C.

The exact nature and form of means employed to hingedly join and connect the covers and pages can vary widely in form without in any way affecting the novelty of this invention. Accordingly, further consideration and description of such means can and will be dispensed with.

The pages P can be square or rectangular parts with vertical inner and outer side edges 14 and 15, horizontal top and bottom edges 16 and 17 and flat, planar mounting surfaces 18. The inner edges 14 as shown provided with portions 19 of the means for hingedly mounting the pages formed thereon.

The photograph carriers are flat square units having straight right angularly related side edges 20 flat front and rear surfaces 21 and 22 and rectangular photograph viewing windows W in their front surfaces.

The rectangular windows W correspond proportionately with a desired standard rectangular photograph format and, preferably, are slightly less in major and minor dimensions with that format so that photographs placed inward of the windows are suitably framed therein.

The carriers C are laminated envelope-like structures into which the photographs G to be viewed can be conveniently slidably engaged.

In the case illustrated, the front surfaces 21 in which the windows W occur are established of square sheets 25 of card stock. The rear surfaces 22 are established of square back sheets 26 of paper, three edges of which are bonded or glued to the rear surface of the sheets 25.

In practice, the carriers can be further provided with a transparent, plastic pane 27 fixed to the innerside of the sheet 25 to overlay the window W, as illustrated.

With the above structure, it will be apparent that 5 photographs G can be slidably engaged with the carriers C, for convenient viewing through the windows W.

It will be apparent that in practice, the carriers C can be made in a number of different ways without materially altering their basic nature, purpose and function and that the particular carrier structure showing is only illustrative of one satisfactory structure. In practice, for example, the carriers could be established of a single sheet of paper, folded and glued in much the same manner as a common paper envelope.

15 The pages P of the album are established of heavy card stock and are suitably trimmed with decorative binding 29 about their exposed edge portions.

Throughout the drawings and in the several forms of the invention disclosed, the structure thus far described is the same and the various parts and/or portions of the structure are identified by like reference characters and numbers.

The invention that I provide next includes orienting and fastening or holding means on and between the pages P and carriers C to selectively orient the carriers C on the pages with the major axes of the windows W horizontal or vertical and to releasably hold or secure the carriers on the pages.

30 In the form of the invention shown in FIGS. 1 through 6 of the drawings, the orienting and holding means O includes magnetic element M on each surface 18 of each page and a ferrous element F on the rear surface 22 of each carrier C.

35 In the form of the invention under consideration, the element M and F are in the form of crosses established of flat, elongate ribbon-like magnetic and ferrous strips. The elements M are established of flexible strips of plastic material with a filler of magnetic material therein and are bonded to the surfaces 18 of the pages P by a suitable adhesive. The elements F are established of thin flexible sheet metal strips bonded to the surfaces 22 of the carriers C by a suitable adhesive.

45 The cross-like elements F are arranged with their centers concentric with the central axes of the carriers C and with their four legs being of equal length and each being at right angle to each adjacent leg.

The central longitudinal axes of the legs are arranged so that they occur on the central vertical and horizontal axes of the carrier or on axes intermediate or at 45° relative to said central and horizontal axes. The legs are of equal length and are as long as is practical.

50 The cross-like elements M on the pages P are the same in configuration, size and/or extent as the elements F and are fixed to the surfaces 18 of the pages with their central axes positioned so that when the central axes of the elements F are aligned therewith the carriers C are in proper predetermined centered position on or with the pages P.

60 In the preferred carrying out of the invention and as shown in the form of the invention now under consideration, the legs of the cross-like elements are at 45° to the horizontal and vertical axes of pages and carriers.

65 With the structure thus provided, it will be apparent that when the back surface 22 of a carrier C is arranged in adjacent opposing relationship with a surface 18 of a page P, the element F of the carrier enters the flux

field of the element M of the page and is drawn to said element M and securely releasably held thereby.

It will be noted that the legs of the elements M and F are drawn into juxtaposition and into alignment with each other by the magnetic fields presented and in such a manner that the major axis of the window W in the carrier occurs in parallel relationship with either the horizontal or vertical axis of the page. It will be further apparent that the carrier is held in one of four rotative positions on the page and that by manually separating the carrier from the page, turning it 90° and moving it back into engagement with the page, the carrier is centered on the page with the major axis of the window W on whichever of said horizontal or vertical axes is desired.

It will be apparent that misplacement of the carrier C in the page P results in lateral displacement and/or axial misalignment of the related legs of the elements M and F with the result that the magnetic holding effect is weak and/or ineffective. Upon gently manually moving the carrier C relative to the page P, to overcome frictional drag between the elements and to assist the effect of the magnetic fields of the legs of the element M to fully receive the legs of the element F, the carrier C orients itself in proper predetermined position on the page and is securely releasably held thereon by the means O.

In another form and carrying out of my invention, wherein the structure appears substantially identical with the structure shown in FIGS. 1 through 6 of the drawings, the element F is similar to the element M, that is, the element F is a magnetic element.

In this form or carrying out of the invention, the plastic, magnetic strips establishing the element M or element F has two laterally spaced, parallel, longitudinally extending magnetic zones, such as the zones X indicated by the dotted lines on the element M in FIG. 5 of the drawings and the strips establishing the other element, the element F in the case illustrated, has a central magnetic zone Y as indicated by the dotted lines in FIG. 5 of the drawings. The zones Y are substantially equal in lateral extent to the space between the zones X.

In this form of the invention, the polarity of the zones extends laterally of said zones, with their north and south poles arranged as indicated by the characters N and S in FIG. 5 of the drawings.

With the above relationship of parts, it will be apparent that when the elements M and F are moved into engagement with each other, the zones Y of element F are drawn and tend to move into position between the zones X of the element M.

In the form of the invention shown in FIGS. 7, 8 and 9 of the drawings, the elements M' are magnetic elements similar to the elements M but are fixed to and carried by the carriers C. The elements F' are ferrous elements carried by the pages P'. More particularly, the pages P' are established of two sheets 30—30 of card stock with openings D, conforming to the shape of the element M' punched or otherwise formed therein and the elements F' consists of a single element of the sheet metal engaged between sheets 30 of the page and bridge or extend across the openings D.

With this structure and relationship of parts, it will be noted that the elements M' enter and are received by the openings D to orient the carriers on the pages and that when they are thus arranged, the magnetic fields

or the elements M' hold the elements M' in engagement on and with the elements F' and securely releasably hold the carriers on and with the pages.

In the last form of the invention, the carriers are selectively rotatable for positioning the windows W in the carriers in the same manner as set forth above in describing the first considered form of the invention.

In FIGS. 10 and 11 of the drawings, the cross-like elements M² and F² are shown related to the page P² and carriers C, respectively, and are shown with their legs on horizontal and vertical axes relative to the pages and carriers.

In this form of the invention, a single element M² is related to each page and is engaged in a through opening D² punched or otherwise formed in the page and is retained in the opening D² by thin, paper surface or cover sheets 35—35 glued to the board stock establishing the page and which dress and define the surfaces 18 of the page.

The element M² in this form of the invention can be of considerable thickness and can be established of rigid ceramic magnetic material.

It will be apparent that this last form of the invention functions in the same manner as does the first form of the invention.

In practice, any slight degree of misalignment of the carriers on the pages results in greater misalignment of the outer ends of the related legs of the elements M than occurs at the centers thereof. As a result of the above, the outer end portion of the legs of the elements afford the greatest orienting effect. In light of the foregoing, if the strength of the magnetic elements is sufficiently strong, it can permit the central portions of the elements M and F to be removed to reduce weight and costs. If the central portions of the elements M and F are removed and the end portions thereof are left, the resulting structures consist of four like element parts spaced equal distances radially and circumferentially relative to a predetermined common center and on right angularly related axes, as clearly illustrated at M3 and F3 in FIG. 12 of the drawings.

In carrying out the above noted modification of my invention, the ferrous elements F⁴ can be established by four sheet metal pads at the four corners of the carrier C⁴ and having formed outer corner portions engaged over and about the carriers of the carriers to cap and protect said corners, as shown in FIG. 13 of the drawings.

In FIG. 14 of the drawings, I have shown a last and final form or embodiment of my invention wherein the element M⁵ is a flat, square pad of magnetic material fixed to the center of the surface 18 of its related page and the element F⁵ is flat, square, sheet metal name and identification plate corresponding in plan configuration with the element M⁵ and fixed to the center of the surface 22 of its related carrier and having a rearwardly projecting retaining and orienting flange about its perameter, corresponding in rearward extent with the thickness of the element M⁵ and adapted to slidably engage about the perimeter of the element M⁵ when the elements are fully engaged. The central, right angularly related axes of the square elements M⁵ and F⁵ occur on or adjacent to the central vertical and horizontal axes of the carrier, as shown, or can, if desired be on axes at 45° relative to said central vertical and horizontal axes.

It will be apparent that the last described form of the invention will serve the same end as each of the other, previously described forms of the invention.

Having described only typical preferred forms of my invention, I do not wish to be limited to the specific details hereinabove set forth, but wish to reserve to myself any modifications and variations that may appear to those skilled in the art and which fall within the scope of the following claims:

Having described my invention, I claim:

1. In combination, a substantially rigid page with a flat surface having a square carrier zone within its perimeter, said zone having horizontal top and bottom edges and vertical side edges, a square picture carrier with a flat front panel with a central rectangular picture window with side edges parallel with adjacent sides of the carriers and a flat rear sheet related to the panel to define an envelope to receive and arrange a picture for viewing through said window, orienting and holding means releasably securing the carrier to the page with the sides of the carrier in adjacent parallel relationship with the edges of the zone, said means including elements on the page and on the carrier, the element on the carrier arranged on the rear sheet with four portions spaced equal distances from an on right angularly related radial axes relative to the center of said carrier, the element on the page arranged within said zone with four portions positioned to register with and occur adjacent the four portions of the element on the carrier when the carrier is positioned adjacent to the page, at least one of the elements being a magnetized element and the other element being a magnetic flux conductive element whereby the elements are releasably held in juxtaposition by magnetic fields, said means serving to selectively releasably hold the carrier and page together with the carrier in one of four rotative positions where the major axis of the window is parallel with the horizontal or vertical axes of the page.

2. A structure as set forth in claim 1 wherein the element on the page is established of flat thin magnetic material and the element on the carrier is established of flat thin ferrous metal.

3. A structure as set forth in claim 1 wherein the element on the carrier is established of flat thin magnetic material and the element on the page is established of flat thin ferrous metal.

4. A structure as set forth in claim 1 wherein the elements on the page and the carrier are established of flat thin magnetic material.

5. A structure as set forth in claim 1 wherein the elements on the page and carrier are established of thin flat strips of material arranged to define crosses with right angularly related legs of equal lateral and longitudinal extent.

6. A structure as set fourth in claim 5 wherein the element on the page is established of flat thin magnetic material and the element on the carrier is established of flat thin ferrous metal.

7. A structure as set forth in claim 5 wherein the ele-

ment on the carrier is established of flat thin magnetic material and the element on the page is established of flat thin ferrous metal.

8. A structure as set forth in claim 5 wherein the elements on the page and the carrier are established of flat thin magnetic material.

9. A structure as set forth in claim 1 wherein the elements on the page and carrier are established of four sections of thin flat material of like plan configuration.

10. A structure as set forth in claim 9 wherein the element on the page is established of flat thin magnetic material and the element on the carrier is established of flat thin ferrous metal.

11. A structure as set forth in claim 9 wherein the element on the carrier is established of flat thin magnetic material and the element on the page is established of flat thin ferrous metal.

12. A structure as set forth in claim 9 wherein the elements on the page and the carrier are established of flat thin magnetic material.

13. A structure as set forth in claim 1 wherein the element on the page is at and defines the bottom of an opening in the surface of the page corresponding in plan configuration with and in which the element on the carrier is engaged.

14. A structure as set forth in claim 13 wherein the element on the page is established of flat thin magnetic material and the element on the carrier is established of flat thin ferrous metal.

15. A structure as set forth in claim 13 wherein the element on the carrier is established of flat thin magnetic material and the element on the page is established of flat thin ferrous metal.

16. A structure as set forth in claim 13 wherein the elements on the page and the carrier are established of flat thin magnetic material.

17. A structure as set forth in claim 1 wherein the page has a through opening corresponding in configuration with and cooperatively receiving the element on the page, said element on the page being magnetic and adapted to cooperatively engage the element of the carrier at one surface of the page and the element of a like carrier at the other surface of the page.

18. A structure as set forth in claim 1 wherein the magnetic element projects from the surface on which it is arranged, the other element is established of thin sheet metal and has a flange about its perimeter engaged about the perimeter of the magnetic element.

19. A structure as set forth in claim 1 wherein the page is established of two adjacent panels with openings corresponding in configuration with the element on the carrier, said element on the page defined of sheet metal between the panels and extending across said openings, the element on the carrier projecting therefrom into the opening in one panel and engaging the sheet metal element, the opening in the other panel receiving an element on a like carrier related thereto.

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