United States Patent

Shibata et al.

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[45] **June 20, 1972**

[54] **ADHESIVE DEVICE**

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Oct. 8, 1969 Japan.....44/95464
Oct. 9, 1969 Japan.....44/95886

[52] **U.S. Cl.**.....**40/104.18,** 40/158
[51] **Int. Cl.**.....**G09f 11/06**
[58] **Field of Search**.....40/158, 158 B, 104.18, 104.19, 40/125 A

[56] **References Cited**

UNITED STATES PATENTS

2,349,340 5/1944 Conway.....40/158
3,381,402 5/1968 Ohfuji.....40/158
3,386,199 6/1968 Nagatsuka.....40/158

FOREIGN PATENTS OR APPLICATIONS

766,656 9/1967 Canada.....40/158

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[57] **ABSTRACT**

An adhesive sheet device for mounting photographs and other display items in albums, scrapbooks and the like, is provided including a relatively thick backing sheet and a relatively thin film of pressure-sensitive adhesive coating one surface of the backing sheet. A substantially uniplanar cover sheet of transparent material is disengageably adhered to the coated surface of the backing sheet for insertion of an item beneath the cover sheet for clear viewing of the item through the transparent cover sheet. The backing sheet is provided with means for eliminating the tendency of the sheet to buckle or warp when the cover sheet is repeatedly engaged with and disengaged from the backing sheet under pressure.

17 Claims, 4 Drawing Figures

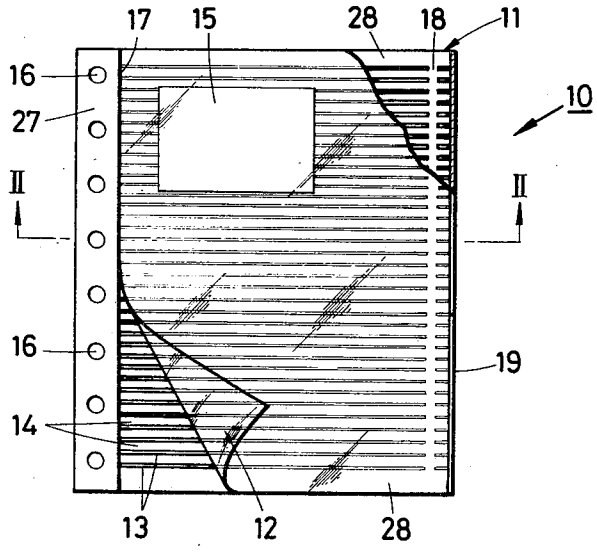


FIG. 1

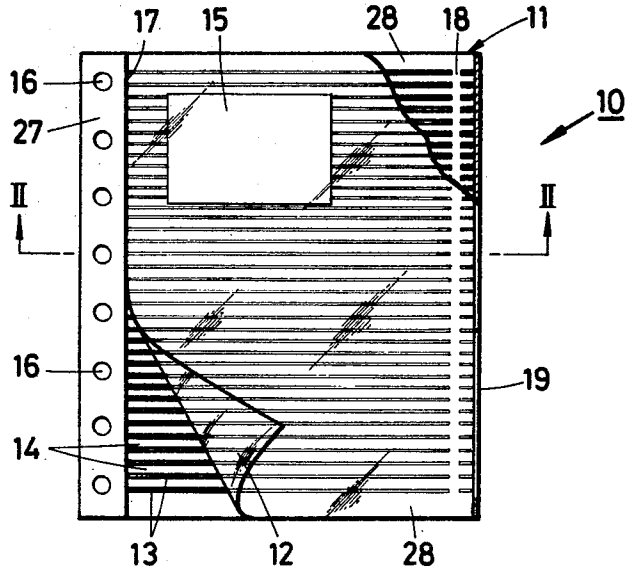


FIG. 2

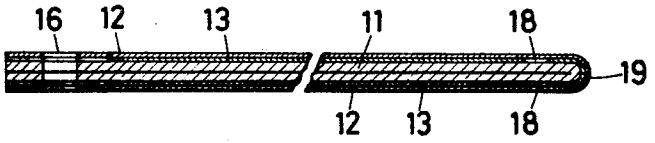


FIG. 3

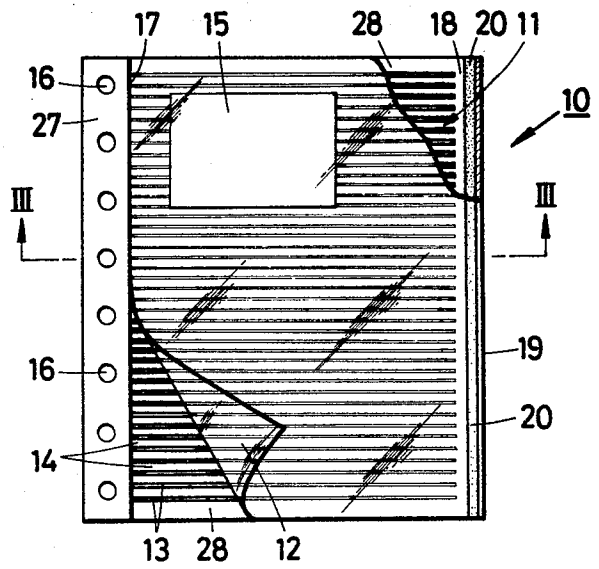
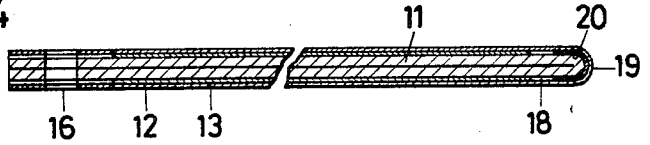


FIG. 4



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FIG. 5

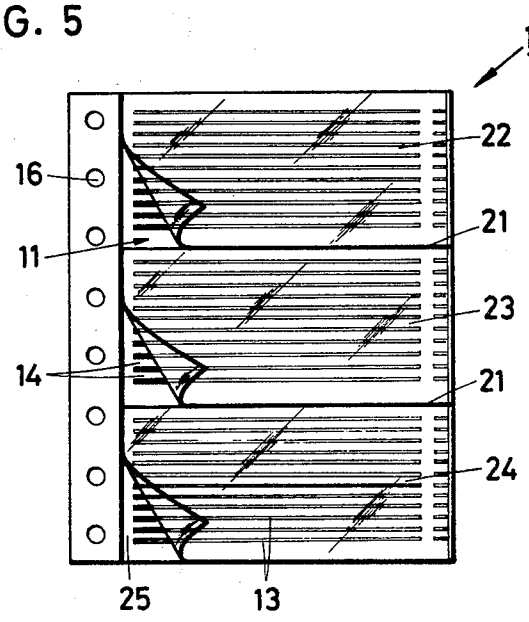
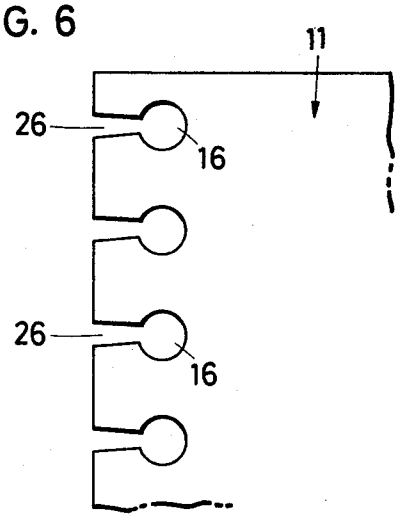


FIG. 6



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ADHESIVE DEVICE

This invention relates to an adhesive sheet device for mounting photographs and other items in albums, scrapbooks and the like.

We have disclosed in our copending U.S. Pat. No. application No. 697,532, filed on Jan. 12, 1968, an adhesive device of the type including a relatively thick backing sheet and a relatively thin film of pressure-sensitive adhesive coating one surface of the backing sheet. The coated surface is provided with a plurality of depressed grooves extending therealong and forming aerating channels separating and defining relatively raised and substantially coplanar exposed surface areas of the adhesive film. A substantially uniplanar cover sheet of transparent material is disengageably adhered to the substantially coplanar exposed surface areas and disengageable therefrom for insertion of a display item beneath the cover sheet and adhered to the exposed surface areas, for clear viewing of the item through the transparent cover sheet. The depressed grooves serve for escape of air therethrough when the cover sheet is pressed against the raised exposed surface areas of the adhesive film. Since the cover sheet of transparent material is substantially uniplanar and clear, it is possible to eliminate distortion or blurring of any item adhered to the adhesive film and placed beneath the uniplanar cover sheet. The backing sheet is folded centrally in half on itself with the two halves of its uncoated surface permanently bonded and is provided with a row of perforations extending parallel to and adjacent to one edge thereof, for binding of the device into albums. The cover sheet is formed with a separation line therein extending parallel to said row of perforations inwardly of and closely adjacent to the latter.

While the foregoing device of our earlier application has many valuable advantages, we have now found that said device has the drawback that when the cover sheet is pressed against the backing sheet, pressing efforts which are normally exerted with fingers from the centrally folded end of the sheet progressively towards the separation line tend to cause the backing sheet to curl or buckle. This buckling is pronounced where the backing sheet is relatively thin or relatively large-sized.

It is the primary object of this invention to provide means for eliminating the above-mentioned drawback of our previous device.

This object and other features of the invention will be better understood from the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a plan view of an adhesive sheet device embodying the invention;

FIG. 2 is a cross-sectional view taken on line II—II of FIG. 1;

FIG. 3 is a plan view of a modification according to the invention;

FIG. 4 is a cross-sectional view taken on line III—III of FIG. 3;

FIG. 5 is a plan view of another modification; and

FIG. 6 is a plan view of an adhesive sheet device having a row of perforations of modified design. Like numerals refer to like parts throughout the various figures.

Referring now to FIG. 1, there is shown an adhesive sheet device **10** which comprises a relatively thick backing sheet or cardboard base **11** and a cover sheet of transparent material **12** disposed in superimposed relation thereto. The backing sheet **11** may be made of paper, cloth, plastics or other suitable sheet material, and it is provided at least at one surface thereof with a relatively thin film **13** of a pressure-sensitive adhesive compound known in the art, which film is printed in the form of lines extending laterally along the backing sheet **11** and in a substantially equally spaced-apart relation to each other, so that there is formed a plurality of depressed grooves **14** alternating with the lines of the adhesive film **13** and thereby forming aerating channels separating and defining relatively raised and substantially coplanar exposed surface areas of the adhesive film.

The cover sheet **12** preferably of transparent material such as for example polyethylene is substantially coextensive with the backing sheet **11** and is disengageably adhered to the backing sheet, more specifically to the substantially coplanar exposed surface areas **13** of the adhesive film and disengageable therefrom for insertion of an item beneath the cover sheet. A desired display item **15** such as photographs may be placed where desired on the backing sheet **11** and securedly held in position by closing and pressing the cover sheet **12** against the backing sheet **11**. In which instance, it is to be noted that the cover sheet surface adheres only to the raised lines of the adhesive film **13** printed on the surface of the backing sheet **11**.

Designated at **16** is a row of circular perforations formed in the backing and cover sheets and extending parallel to and adjacent to one edge thereof for binding the adhesive device **10** into albums, scrapbooks and the like. The transparent cover sheet **12** is formed with a separation line **17** therein extending parallel to the row of perforations **16** inwardly of and closely adjacent to the latter for disengaging the cover sheet **12** along said separation line **17** from the backing sheet **11**.

When pressing the cover sheet merely against the backing sheet, there are usually developed numerous air bubbles due to residence of air in between the two superimposed sheets. To eliminate such air bubbles which mar the view of the inserted item, there is applied a finger pressure, with or without the aid of a piece of cloth, to the cover sheet, more specifically which finger pressure is exerted thereto from an opposite edge of the sheet progressively toward the separation line **17**, or from right to left as viewed in the drawings.

However, repeated application of such finger pressure tends to create a buckle in the backing sheet **11** over an extended period of time. This buckle or warp is pronounced if the backing sheet is relatively thin or relatively large.

It is the aim of the instant invention to provide a means of eliminating such buckling tendency of the backing sheet, which means in one embodiment of the invention comprises a nonadhesive strip zone **18** on the backing sheet devoid of adhesive film **13** and extending longitudinally along and closely adjacent to one edge thereof opposite to the separation line **17** but substantially parallel to the latter, as shown in FIG. **1**. The provision of this strip zone **18** has the two-fold effect that it firstly serves to limit the range of releasing the cover sheet from the backing sheet by sensing thereat the feel of a relief from the adhesive pressure present between the two superimposed sheets, and secondly it obviates the necessity of exerting a finger pressure to a fold edge **19** of the backing sheet when closing the cover sheet thereon, thereby preventing the backing sheet from being warped. The nonadhesive zone **18** may alternatively be provided by attaching a strip of nonadhesive material such as paper, vinyl tape and the like extending therealong.

Another preferred embodiment of the invention to achieve the aforesaid aim is shown in FIG. **3** and **4** where the buckle eliminating means consists of a non-adhesive strip zone **18** and an adhesive marginal edge portion **20** to which the cover sheet is permanently sealed. This arrangement ensures the elimination of buckle of the backing sheet in a manner similar to the above described first embodiment, and at the same time, it serves as a guide to prohibit the user from releasing the cover sheet inadvertently beyond the strip zone **18**. Instead of using an adhesive bond at the portion **20**, the cover sheet, if made of a plastic material, may be fused with heat thereat.

Referring to FIG. **5**, there is shown an adhesive device embodying the invention in which the cover sheet **12** is further provided with a plurality of lateral separation lines **21** extending parallel to the raised adhesive lines **13** from the longitudinal separation line **17** and terminating at the non-adhesive zone **18** and defining separate sections **22**, **23** and **24** of the device for mounting display items therein. The advantage of this arrangement is that individual items may be replaced or relocated in either of these separate mount sections without having to disengage the cover sheet from the other mount sections. Designated at **25** is a non-adhesive area of the backing

sheet **11** extending parallel to and communicating with the separation line **17** for facilitating the releasing of the cover sheet from the backing sheet.

FIG. **6** illustrates a modification of binding perforations **16** each having an outwardly diverging slit **26** for insertion of a binding ring therethrough. This arrangement enables the user to place individual sheets **10** separately in and out of the binding position at will without dismantling the whole album book.

The portion of the cover sheet **12** which has the row of perforations **16** formed therein and is separated by the separation line **17** from the remainder of the sheet **12** may be preferably permanently bonded by fusion to the backing sheet **11** thereby providing a reinforced binding zone **27**.

The backing sheet **11** is further provided at its upper and lower marginal edge portions each with a blank area **28** devoid of adhesive lines **13** and extending parallel thereto from the separation line **17** communicating with the strip zone **18**. This blank area **28** is normally exposed to the atmosphere or to light. If the adhesive area **13** extends into the said blank marginal area **28**, the adhesive compound becomes deteriorated under the influence of environmental attack and affects the appearance of the album book into which the adhesive sheets **10** are bound.

It will be understood from FIGS. **2** and **4** in particular that the adhesive sheet device **10** is conveniently manufactured by folding the sheet in half on itself centrally along the fold line **19** with the two halves of its uncoated surface superposed and permanently bonded together.

Having thus described the invention, it is to be understood that there may be made various changes and modifications in the specific form and construction advanced herein as apparent to one skilled in the art, but such changes and modifications should not depart from the scope of the appended claims.

What is claimed is:

1. An adhesive sheet device for mounting flat objects to be viewed, comprising a backing sheet having a face and at least one edge, a flexible cover sheet of transparent material covering a portion of said backing sheet, securing means at the edge of said backing means for securing the cover sheet to the face of said backing sheet along the edge, pressure sensitive adhesive means on at least a portion of the surface of said backing sheet for removably bonding said cover sheet to said backing sheet, said adhesive means including a pressure sensitive adhesive extending continuously along the direction transverse to said edge, said adhesive means being spaced from said securing means to form an adhesive free strip-shaped zone extending parallel to the edge and spaced from the edge, said cover sheet being substantially unsecured and unbonded to said backing means along the zone, the adhesive free zone forming a discontinuity in the uniformity of the sections of pressure sensitive adhesive in the direction transverse to the edge.

2. A device as in claim **1**, wherein the adhesive free zone is sufficiently great so that a user peeling off the cover sheet can feel the discontinuity.

3. A device as in claim **1**, wherein said adhesive means forms continuous strips of adhesive transverse to the edge.

4. A device as in claim **3**, wherein said securing means includes a plurality of strips of adhesive extending transverse to the edge between the zone and the edge.

5. A device as in claim **3**, wherein said securing means includes pressure sensitive adhesive for removably bonding the cover sheet to the backing sheet.

6. A device as in claim **1**, wherein said securing means includes pressure sensitive adhesive for bonding the cover sheet to the backing sheet removably.

7. A device as in claim **1**, wherein said securing means includes adhesive for bonding the cover sheet to the backing sheet permanently.

8. A device as in claim **1**, wherein said securing means includes the same material as said adhesive means and forms an extension of said adhesive means with the strip-shaped zone forming an interruption in said adhesive means.

9. A device as in claim **1**, wherein said backing sheet further comprises three additional edges one of which is opposite to said edge.

10. A device as in claim **9**, wherein said backing sheet has a row of perforations parallel to said one of said added edges for binding said backing sheet into an album.

11. A device as in claim **10**, wherein said perforations include outwardly diverging slits for passing a binding ring therethrough.

12. A device as in claim **9**, wherein said adhesive means is separated from two of said additional edges by adhesive free areas.

13. A device as in claim **1**, wherein said cover sheet extends about said edge and is folded about said edge, said cover sheet having a second face, second securing means corresponding to said first securing means on said second face, second adhesive means corresponding to said first adhesive means on said second face and spaced from said securing means to form a second adhesive free strip-shaped zone extending parallel to the edge and corresponding to said first strip-shaped zone.

14. A device as in claim **1**, further comprising a second cover sheet adjacent said first cover sheet, second securing means corresponding to said first securing means at said edge for bonding said second cover sheet, and second adhesive means corresponding to said first adhesive means for removably bonding said cover sheet to said backing sheet, said adhesive means being spaced from said securing means to form a second adhesive free strip-shaped zone extending parallel to the edge and spaced from the edge, said second zone being an extension of said first zone and corresponding to said first one.

15. A device as in claim **1**, wherein said cover sheet is divided in a direction transverse to the edge for mounting items thereon.

16. An adhesive sheet device for mounting photographs and the like in an album, which comprises a relatively thick backing sheet; a plurality of parallel strips of relatively thin film of pressure sensitive adhesive on one surface of said backing sheet; said strips forming a plurality of aerating channels therebetween and defining with said channels a discontinuous overall adhering area, and a substantially uniplanar cover sheet of transparent material disengageably adhered to said adhering area and disengageable from said strips for insertion of an item beneath said cover sheet for clear viewing of the item through said transparent uniplanar cover sheet; said backing and said cover sheet having formed therein a row of perforations parallel to and adjacent to one edge thereof for binding said sheet device into an album; said cover sheet being formed with a separation line therein extending parallel to said row of performations inwardly of and closely adjacent to the latter, said backing sheet being further provided with a non-adhesive strip zone devoid of said adhesive zone and extending parallel to the separation lines but closely adjacent to the opposite edge of the sheet, said zone being spaced from the opposite edge of the sheet so that a portion of the adhering area is on one side of said zone and another portion of the adhering area is on another side of said zone, said zone forming an interruption in the adhering area greater than other interruptions in said adhering area in the direction transverse to the zone when such interruptions exist.

17. A device as in claim **16**, wherein said zone extends transverse to said strips and divides each of the strips so that one portion of each strip is on one side of the zone and one portion of each strip is on the other side of the zone.

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