April 25, 1950 J. P. ROSE 2,505,743

BOOKBINDER

Filed May 14, 1947

Fig. 1

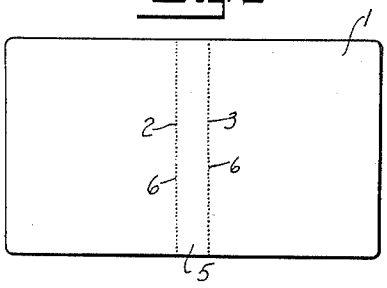


Fig. 2

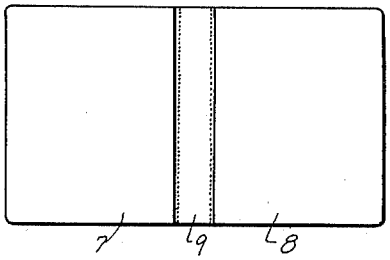


Fig. 3

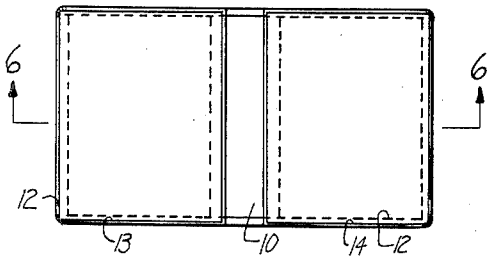


Fig. 4

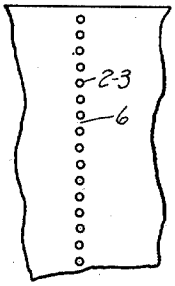


Fig. 5

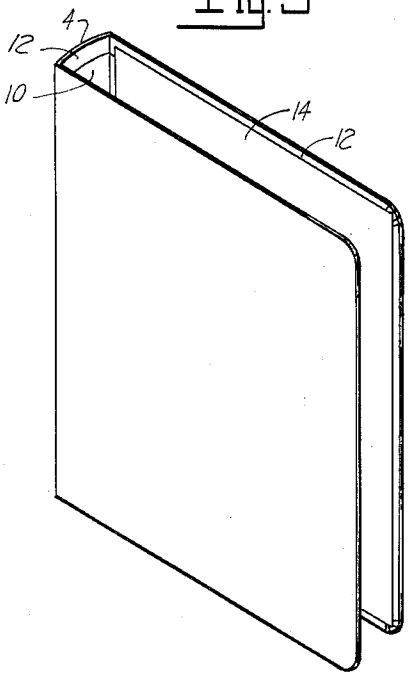
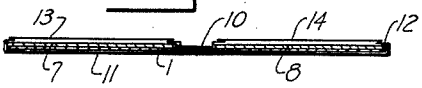


Fig. 6



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BOOKBINDER

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3 Claims. (Cl. 281—29)

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This invention relates to binders intended for use in connection with binding books, pamphlets, catalogs and the like.

The object of the invention is to provide a binder in which the front and back covers and the back of the binder are made of a single piece of sheet material with a novel type of hinge which eliminates looseness and play along the lines of juncture of the front and back covers and the back of the binder without interfering with the free movement of the front and back covers for the purpose of opening and closing the binder.

In the drawings, Fig. 1 is a view of the front of a continuous section of board upon which the binder is built up; Fig. 2 is a like view with left and right supporting plates associated with the back board of Fig. 1; Fig. 3 is a view of the inside of the binder in open position lying flat; Fig. 4 is an enlargement of the middle portion of Fig. 1; Fig. 5 is a view of the binder with the front and back covers at substantial right angles to the back of the binder and Fig. 6 is a section on the line 6—6 of Fig. 3.

The back board 1 of the binder is made of a length defining the overall dimensions of the finished binder. It may be made of any flexible type of board, such as cardboard, composite board, or the like, normally substantially stiff but capable of flexing. Two parallel rows of small holes or perforations 2—3 are formed through the back board by punching, drilling or like operations. These rows of holes 2—3 border or outline the back 4 of the binder and in a binder which is substantially 15 inches long and 9 inches wide, the distance apart of the two rows of holes 2—3 is substantially 1⅜ inches. The size of the holes 2—3 are preferably made of the order of the thickness of an ordinary dressmaker's pin and in a book of the size mentioned it is preferred to form about 16 holes to the inch, the lines of holes extending from the top to the bottom edges of the back board 1. The back of the book consequently exhibits two spaced rows of holes, adjoining holes being separated by narrow necks 6 of the material of which the back board is made. The rows of holes 2—3 provide two weakening lines crosswise of the binder and the necks provide connecting sections between holes, which necks or connecting sections tend to retain the front and back covers and the back of the binder in the form of a single unit, but nevertheless capable of permitting the cover portions to hinge along the line of the holes 2—3 and the necks 6. In Fig. 4 a section, of a series of such holes, is illustrated together with the connecting necks 6 considerably enlarged for the purpose of illustration. Two

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reinforcing plates 7 and 8, preferably made of the same type of material of which the back board 1 is made, are adhered one on each side of the back board 1. The reinforcing plates 7 and 8 are of a size to coincide with the top, bottom and front edges of the back board 1, but of less width than the distance from the outer edges of the back board 1 to the centers of the lines of perforations 2—3 and necks 6 in order that the inner edges of the plates 7 and 8 do not interfere with the free movement of the covers on their hinges formed by the holes 2—3, for which purpose the plates are made of a width to just border the outer edges of the lines of holes and in order that the edges of the plates, when the binder is closed, overlie the respective rows of holes adjacent to such plate edges. The associated back board 1 and the reinforcing plates 7 and 8 with the relative relation of the two lines of holes 2—3 are illustrated in Fig. 2, the front and back covers of the binder being substantially thicker than the back 4 by reason of the two-ply arrangement of the back board 1 and the reinforcing plates 7 and 8.

The inside face 9 of the back 4 of the binder is covered with a suitable covering 10, such as woven fabric which may be impregnated with a rubber or other like compound. Paper or other suitable material, may also be used as the covering material. Such covering 10 extends from the top to the bottom edges of the inside face 9 covering also the holes 2—3 and necks 6 and also overlaps the portions of the reinforcing plates 7 and 8 which lie near the holes 2—3. The degree of overlap of such plates is optional but it should be of the order of ¾ of an inch. Such covering is adhered entirely over the inside face 9 and over the rows of holes 2—3, the necks 6, and along the inside end edges of the plates 7 and 8 closely following the contour thereof in order that play in the relation of the covering 10 and the parts underlying it is eliminated. The outside face of the entire back board 1 is also covered with a suitable covering 11, preferably with a single sheet of paper. The covering 11 is adhered over the entire surface of the back board 1 of the binder, the holes 2—3 and the necks 6 and is lapped over all of the outside edges of said back and a short distance over all of the inside face thereof, as is shown at 12 in Fig. 6. It is to be noted that such overlap of the inside face of the back board overlies the covering 10 and conforms to the contours of the inside face of the binder. Finishing sheets of paper 13—14 are adhered on the inside faces of the reinforcing plates 7 and 8 overlying the outside edges of the covering 10 and the edges 12 of the covering 11.

The coverings 10 and 11 are applied, without looseness, while the back board 1 and the reinforcing plates 7 and 8 are flat. The book when open lies flat and when closed assumed a bowed or rounded back, as shown in Fig. 5. The bowed or rounded configuration of the back is assumed automatically when the book is closed for the first time and continues as a permanent characteristic. The automatic bowing or rounding of the book back is regarded as a valuable feature of this invention inasmuch as no separate manufacturing operation is required to produce it. The finished book when closed has a cushioned or springy feel when pressed with the hands or fingers.

The holes 2—3 may be drilled, punched or otherwise formed but it is not necessary to clean the waste from the holes or to have the holes exactly cylindrical. The important factor is that the holes be formed substantially in line and that they be so closely associated that the necks between holes will readily bend, but nevertheless continue to serve as connections between the front and back covers and the back of the binder. When the binder is finished and the two covers are bent toward each other to book formation, two hinges are automatically formed directly along the line of holes 2 and 3 and the necks 6.

I claim:

1. A binder comprising a backboard of substantially uniform thickness throughout and defining the shape and contour of the binder when in flat condition, two lines of spaced perforations in the backboard bordering and defining the back of the binder, adjoining perforations of each line of perforations being closely related, of the order of 16 perforations to the running inch, connecting necks between adjoining perforations, said necks uniting the back of the binder and the left and right members thereof, said perforations and necks constituting hinges upon which said left and right members are relatively movable, a reinforcing plate carried by each of said left and right members, the inner edges of the reinforcing plates being spaced from said lines of perforations but when the binder is in flat condition, not more than the thickness of said plates so that the edges of the plates, adjacent the perforations, overlie the perforations as the cover is bent from open to closed position and a covering adhered directly to the inside surface of the binder back and said perforation lines and extending over the inner end edges of said reinforcing plates and over and being adhered to the inner top faces of said reinforcing plates for a distance inside of said edges and a facing overlying the outer portions of the backboard.

2. A binder according to claim 1 in which the perforations are of a size of the order of the thickness of an ordinary dressmaker's pin.

3. A binder comprising a backboard, two spaced lines of perforations in said board, said lines of perforations running crosswise of the binder and substantially from the top to the bottom edges thereof, connecting necks between perforations, the lines of perforations defining the outer edges of the back of the binder and the lines along which the cover members of the binder bend, said necks connecting the back of the binder and the left and right cover members, a reinforcing plate carried by each of said left and right cover members, the inner edges of the reinforcing plates being spaced from said lines of perforations, but, when the binder is in flat condition, not more than the thickness of said plates so that the edges of the plates, adjacent the perforations, overlie the perforations as the cover is bent from open to closed position, and a covering overlying said perforations, the inside surface of the back of the binder and said necks and adhered to said surfaces of the back and necks, a covering, comprising a single sheet of material, overlying the outer faces of the cover members, said perforations, said necks and back of the binder and adhered to the outer surfaces of said cover members, necks and back of the binder.

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