Dec. 12, 1950 W. R. KUTIK, JR 2,533,590

FOLDING PLASTIC BOOK COVER

Filed Sept. 10, 1949

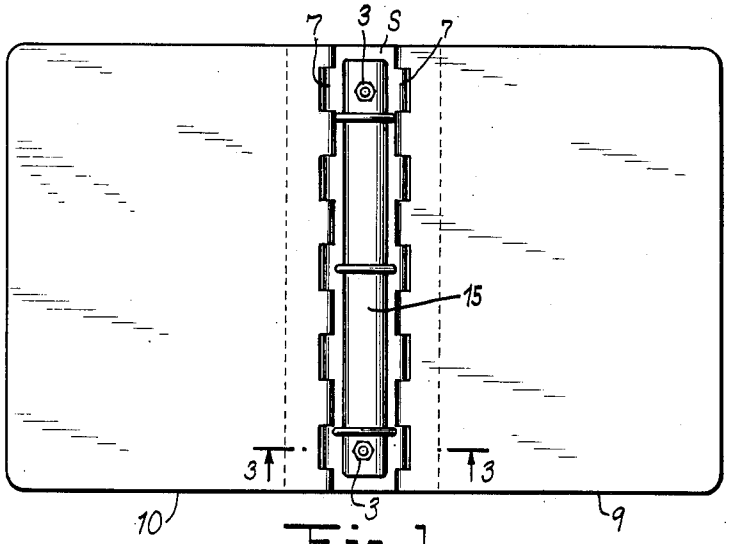


Fig. 1.

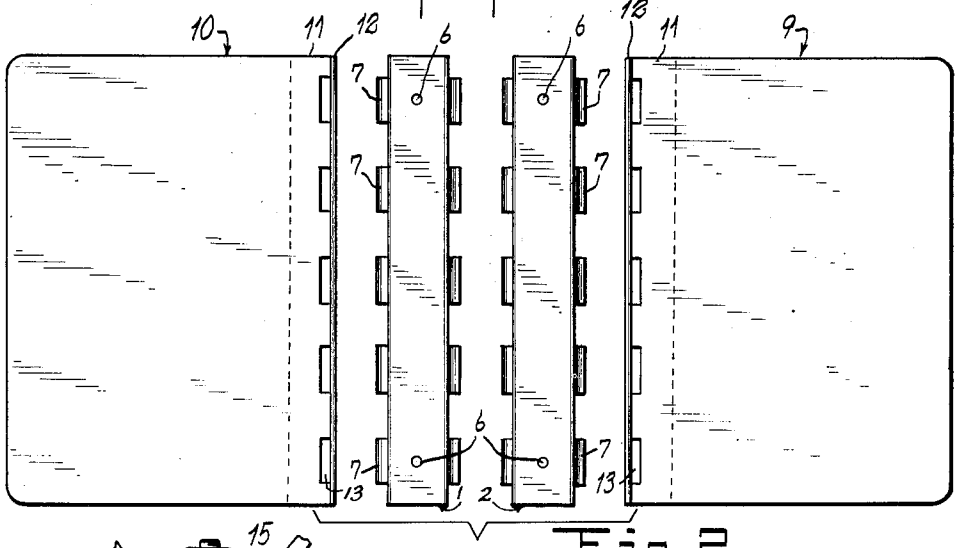


Fig. 2.

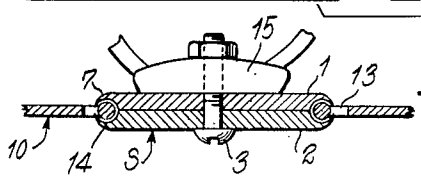


Fig. 3.

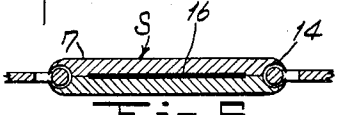


Fig. 5.

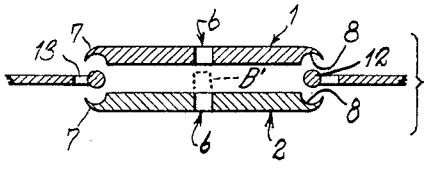


Fig. 4.

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Patented Dec. 12, 1950

2,533,590

UNITED STATES PATENT OFFICE

2,533,590

FOLDING PLASTIC BOOK COVER

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Application September 10, 1949, Serial No. 115,045

2 Claims. (Cl. 281—29)

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The invention herein disclosed relates generally to folding covers molded of plastic resins and more particularly to that class of hinged folding covers which utilize integrally molded parts as hinged connections.

One object of my invention is to provide a folding plastic cover which includes four main elements, two back units which together form the spine or back of the cover, and two side pieces. Within each set, the elements, i. e., each of the two back elements and each of the two side elements, may be identical. When identical it is only necessary to employ two different die or mold cavities in the fabrication of the elements.

Another object of my invention is to provide a simplied construction, easily manufactured and simply assembled, the assembly being done manually. Because of the simplicity of assembly, a cover made according to my invention may be marketed completely unassembled or may be marketed assembled as hereinafter more fully appears, it then being left to the purchaser to complete the device by assembling any desired attachments to the spine.

The one embodiment described utilizes my invention in connection with a well-known ring binder assembly. The cover may also be utilized as a portfolio or as a permanent binder in which case sheet holding structures of any well-known type may be supported from the spine. Also, inasmuch as the form of the edges of the side elements other than that of the edge associated with the spine, form no part of the invention, the side elements may be adapted to provide a folding box such as those used for candy, postage stamps, fishing flies and the like.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, this invention relates to the combination and articles of manufacture described in the specification and shown in the drawings and defined in the appended claims.

It should be understood, however, that various changes and modifications may be made and practiced within the scope of the following claims without departing from my inventive ideas.

I shall describe several embodiments of my invention with reference to the following drawings, in which:

Fig. 1 is a top plan view of a device made according to my invention;

Fig. 2 is an exploded plan view of the device shown in Fig. 1, the ring binder assembly being removed;

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Fig. 3 is a cross-section taken substantially along the line 3—3 of Fig. 1;

Fig. 4 is an exploded view of the parts shown in Fig. 3 with the ring binder assembly being removed; and

Fig. 5 is a cross-section taken substantially along the line 3—3 of Fig. 1, in which an alternative means for connecting the units comprising the spine is employed.

Referring more particularly to the drawings, S denotes the spine of the cover. The spine S is formed of the two identical back elements 1 and 2. Each of the identical elements 1 and 2 is molded of plastic resin and consists of a flat plate having two series of tongues 7 formed integral therewith, one series of tongues 7 running along each of the long edges of the plate. Each of the tongues 7 has formed therein a groove 8 which is substantially semi-circular in cross-section and whose long axis is parallel to the long edge of said plate. The grooves axially register mutually along each row of tongues to define a passageway.

The spine S is assembled by laying the back elements 1 and 2, one on top of the other, and fastening elements 1 and 2 by bolts or rivets 3, as shown in Fig. 3. Alternatively the elements 1 and 2 may be cemented together as shown in Fig. 5 in which case the two sets of coinciding holes 6 may be eliminated, or if retained may be used in connection with rivets or bolts to hold a ring binder assembly, if desired.

The identical side elements 9 and 10 which complete the cover are similarly molded in one piece of plastic resin. Each of said side elements 9 and 10 consists of a flat plate having an edge portion 11 which is adjacent to the spine S after assembly. This edge portion 11 has formed integrally therewith a bead or extended cylindrical element 12 which runs the entire length of the cover. This bead 12 may be formed in the molding operation to run intermittently along the length of the cover, since the bead is only useful in cooperating with grooves 8 and the passageway defined thereby to form a hinge bar as will be hereinafter described. It is desirable, however, to run the bead along the entire length of the cover since it has a reinforcing effect in the areas between the slots 13. Adjacent to this bead 12, the edge portion is provided with a series of substantially rectangular slots 13 which, when the cover is assembled, cooperate with the tongues 7 as hereinafter more fully appears.

When assembling the cover, the bottom or out-

side element 2 of the spine S is placed so that the grooves 8 formed in the tongues 7 face upwardly. The two side elements 9 and 10 are then placed adjacent to the bottom element 2 of the spine S so that the bead 12 lies within the series of grooves 8, and the tongues 7 lie within the slots 13. The top or inside element 1 of the spine S is then superimposed on the outside element 2 so that the tongues 7, the grooves 8 and the holes 6 coincide. To this end, the grooves 8 of the top element 1 face downwardly. The top and bottom elements 1 and 2 are then affixed one to the other by bolts, rivets, cement, or any other means as hereinbefore described.

It will thus be apparent that the tongues 7 of the spine S work in the slots 13 formed in the side pieces 9 and 10, and the bead 12 works in the substantially circular space or passageway 14 formed by the grooves 8 when the spine is assembled. Hinges are thus provided. In the specific embodiment of the invention described, the diameter of the bead 12 is slightly smaller than that of the circular space or passageway 14 so that the side elements are freely rotatably secured to the spine S. It will be understood, however, that by increasing the diameter of the bead 12 relative to the diameter of the substantially circular space or passageway 14, friction between said grooves 8 and said bead 12 will be provided, thus creating some impediment to free rotation. If, therefore, it is desired to utilize the invention in a folding cover wherein free rotation in the hinge joints is not desired, the diameter of the bead 12 relative to that of the substantially circular space or passageway 14 may be increased.

The invention may be utilized in folding covers for books in which case a ring binder assembly 15 may be affixed to the inner plate 1 of the spine S. Also, by forming one or both of the side pieces with edge walls, a folding box may be made such as those used as containers for candy, fishing flies, and the like. Where this is done, and one set of dies or molds is employed for the fabrication of the side pieces, the necessary result will be that the side pieces have side edges of equal size.

In Fig. 5, the cement 16 is used to hold the spine parts together. The plastic from which the parts are made may be of the type permitting cementing by the use of a solvent of the plastic so the plastic itself acts as a cement. The four main parts of the present invention may be made of any of the currently available plastics and they may be formed by injection molding, pressure molding and the like.

In some instances it may be desirable to make the front and back panels or sheets of different shapes or dimensions. The spine parts 1 and 2 may also be made respectively different in shape or dimensions. For example, in Fig. 4 the lower part 2 may be molded with integrally projecting pins b', shown by broken lines, which fit the holes b of the part 1 and form rivets when cemented or otherwise fastened therein.

I claim:

1. A molded folding cover comprising in combination, a spine comprising two superimposed identical elements, each element being a flat plate having a series of tongues formed integral therewith, running along the long edges thereof, each tongue having a groove formed therein, the long axis thereof being parallel to the long edge of the element, means for holding said elements together, and two identical side covers, each having a wide edge adjacent to said spine in which is formed integral therewith a bead running the entire length thereof and a series of slots formed therein adjacent to said bead whereby said bead cooperates with said grooves and said tongues cooperate with said slots to form a freely rotatable hinge, said grooves being semi-circular and facing each other to form a passageway of diameter slightly larger than that of said bead whereby said bead acts as a hinge bar.

2. A folding cover including, in combination, a spine comprising two superimposed elements, each being a long plate having a series of tongues running along the long sides thereof, each tongue having a substantially semi-circular groove formed therein, the axis of said groove being substantially parallel to said sides and the tongues of each of the plates registering with the tongues of the other with the grooves of registering tongues mutually registered and interfacing to form passageways, means for holding said elements together, and two side covers, each having an edge adjacent to said spine in which is formed a bead extending axially through each of said passageways which are adjacent to said edge and a slot adjacent to each of said registering tongues and providing the cover with clearance therearound, said grooves being proportioned so that each of said passageways is slightly larger than the bead therein whereby said bead acts as a hinge bar for the cover.

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