

March 24, 1953

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2,632,657

BOOKBINDER CONSTRUCTION OF PLASTIC MATERIAL

Filed Feb. 2, 1948

2 SHEETS—SHEET 1

FIG. 1

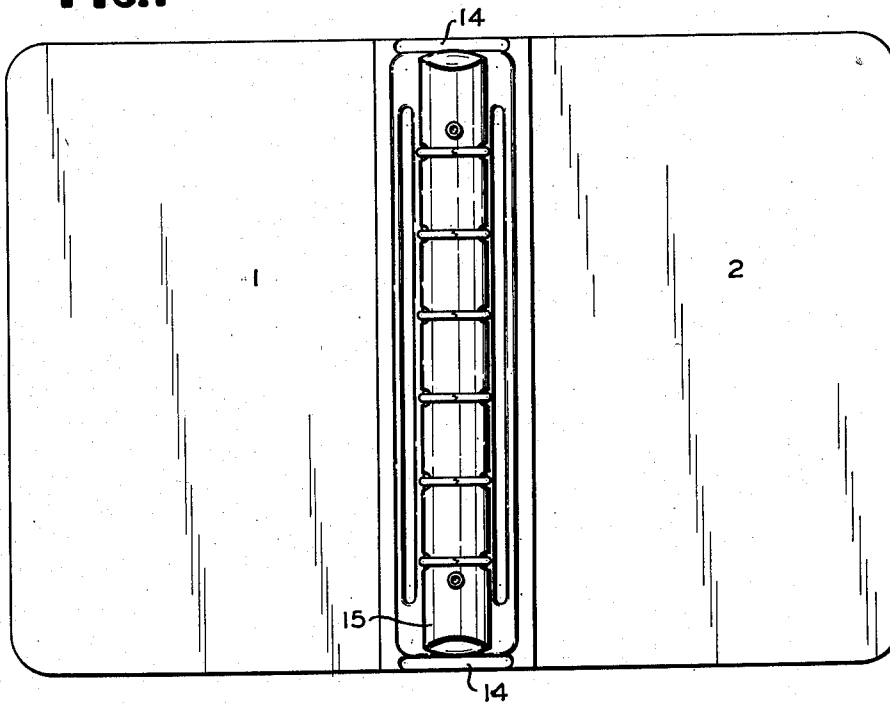


FIG. 2

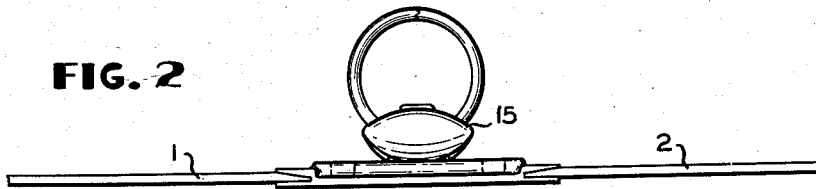


FIG. 3

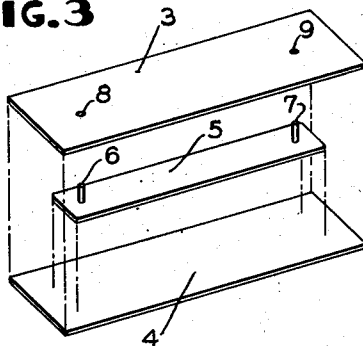
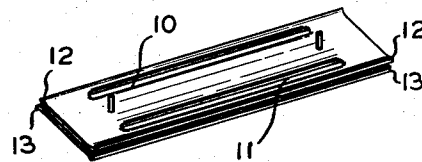


FIG. 4



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2 SHEETS—SHEET 2

FIG. 5

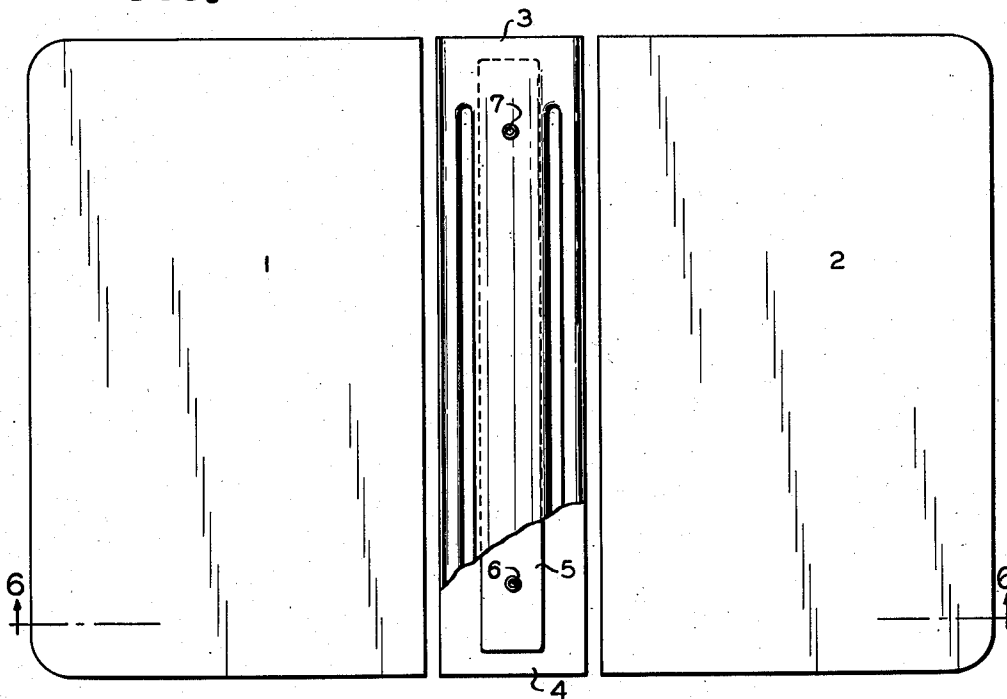


FIG. 6

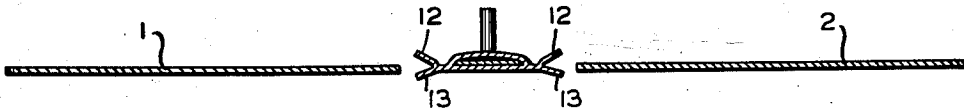


FIG. 7

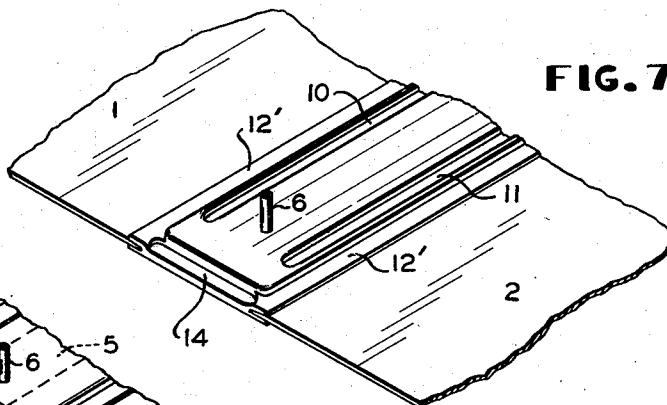
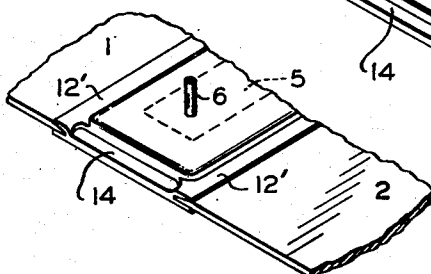


FIG. 8



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BOOKBINDER CONSTRUCTION OF PLASTIC MATERIAL

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2 Claims. (Cl. 281—29)

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This invention relates to an improvement in binder case constructions made of plastic material. The new construction is particularly useful in ring binders. It is not however necessarily limited to such use but has a broader application as will be pointed out.

It is necessary to refer to an example of the invention to explain the useful features of construction and an example is shown in the drawings.

Fig. 1 shows a plan view of a ring binder notebook;

Fig. 2 is a bottom edge view;

Fig. 3 is a detail view indicating an assembly of part of the material in the back portion including material for the hinge portions;

Fig. 4 indicates the material of Fig. 3 assembled and with hinge bands formed adjacent the side edges;

Fig. 5 is a plan, and

Fig. 6 is a cross sectional view of the covers and back portion subassembly of Fig. 4 about to be put together for the final step of the binder case construction;

Fig. 7 is a fragmentary pictorial view indicating the final step after the assembly of the material of Fig. 6; and

Fig. 8 is a fragmentary pictorial view similar to Fig. 7, but illustrating a modified feature of construction.

The example illustrated is one which has been made as follows. The covers 1 and 2 are of stiff plastic such as rigid Vinylite sheet plastic of one thickness. The sheets 3 and 4, Fig. 3, are flexible plastic, such as flexible Vinylite sheet plastic, each of one thickness. The member 5 is made of sheet metal with hollow rivet members 6 and 7 fastened to it and spaced as are holes 8 and 9 in sheet 3. The plastic sheets are of ornamental character available in colored or decoratively embossed material.

The subassembly of Fig. 4 is made by laminating the sheets of Fig. 3. This laminated structure is held together by welding sheets 3 and 4 under pressure along bands 10 and 11. These bands 10 and 11 are hinge bands of flexible material in the finished structure. A cross section of this subassembly is seen in Fig. 6.

With this subassembly of the back portion material the covers 1 and 2 are assembled by inserting the edges of the covers between the open lips 12 and 13 beyond the hinge portions 10 and 11 at each side of the back portion assembly. These lips 12 and 13 extend not only along each side but also along each end edge of the subassembly as seen in Fig. 4.

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After the covers 1 and 2 are inserted between the side extensions or lips 12 and 13, the plastic material is welded together under pressure which thins down the cover margins as indicated along the bands 12', Fig. 7. A weld is made at the time along the end bands 14. This closes all the lip portions 12 and 13, with the covers welded between and makes a single thickness at the end extensions 14 and permanently fastens the material together to make the new binder case construction.

Rivet members 6 and 7 are spaced to receive the "metal" of the ring binder mechanism 15 seen in Fig. 1. It is mounted on the rivets and they are headed over as shown in Fig. 1 for the finished product of the example.

Instead of using the rivet members 6 and 7 to fasten on a ring binder mechanism, such members can be used to fasten other types of sheet holding devices to the back portion, such as coil wire binder devices and the like. Instead of having the sheet metal strip 5 flat it may be curved in cross section to make a curved back portion desired in some forms of binder.

A variation in the assembly of the main example illustrated to make a variation in the structure is indicated in Fig. 8. The flexible sheets 3 and 4 of Fig. 3, with the sheet metal strip 5 held centrally between them, may be welded to stiff plastic covers 1 and 2 along bands 12' (Fig. 8). In this case the flexible material of sheets 3 and 4 between the sheet metal strip 5 and the welded bands 12' will act as hinge bands in the finished structure. The hinge bands 10 and 11 (Fig. 7) will be absent then in the final product (see Fig. 8). A weld is made, however, along the end bands 14 at the same time as the welded bands 12' are made so as to close off these ends. The main example first described is the preferred form but for one reason or another the modified example of Fig. 8 may be wanted and when used embodies the invention from its broadest aspect.

It will be noted from what has been said that the new binder case construction has these features of advantage. It is easy to make up as a low cost high quality binder of fine appearance. The main feature of the construction is seen in the parts which are in the subassembly of the back portion and their relation to one another which adapt them for the function of the back and hinge portions and for joining with the covers, all resulting in the improved binder as a whole.

Considering the nature of the material and its assembly, the hinge bands 10 and 11, when they

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are made as shown in Fig. 4, provide the open lips 12 and 13. The covers 1 and 2 are put in between these lips and can be fastened down most conveniently after the hinge bands are made. The time the covers are welded integrally in place between their holding lips in the back portion, is the most convenient time to finish off the laminated back portion all around its perimeter as by the welded perimeter band margin made up of side portions 12' and end portions 14 to make the simple neat appearance in the material as built into the new construction.

The result is the low cost, high quality, and fine appearing binder construction of the invention.

What I claim is:

1. A binder construction made with a back portion having two flexible sheets of plastic material and a stiffener strip of smaller area laminated between them, spaced pins mounted in said strip and extending through one sheet for fastening a sheet binder device to the back portion, two covers of plastic material one on each side of the back portion with the inner marginal side edge of each cover located between the outermost edge portions of the side margins of the flexible material and welded therewith in laminated form, said covers being thinned down along said marginal weld, said back portion having its end edges flush with edges of the covers, a flexible hinge band made by a welding of portions of the flexible sheet material together between the side edges of the said stiffener strip and the cover material and a welded band of the flexible material at each end portion of the back portion.

2. A binder construction made of two cover sheets of stiff plastic material and a back portion joining the cover sheets and made of two laminated sheets of flexible plastic material with a smaller sheet of stiffening material between

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the sheets of flexible material, said flexible sheets having marginal edge portions extending beyond the stiffener material and meeting at their outer edges the inner edges of said cover sheets, separate hinge bands positioned on each side of said stiffener material to enclose the same and consisting of flexible material of single thickness is welded form made from the material of the two flexible sheets along such hinge bands, the outermost marginal edge portions of said flexible sheets forming short lips enclosing between them the innermost marginal edge portions of the stiff cover sheets, said lips being welded with the cover sheet to form a laminated border for each side of the back portion of flexible material, each cover sheet being thinned down in said laminated border, said hinge bands and said laminated borders being in spaced relation and each having between them a strip inwardly of each side of the laminated border with said two flexible sheets separated, said flexible sheets at the end edges thereof being flush with the edge portions of the cover sheets, and in said end edge portions being welded into a single band of single thickness between the two cover portions to form with said welded side borders a welded band around the perimeter margin of the flexible sheets.

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