July 13, 1943. C. D. TRUSSELL 2,324,460

RING BINDER

Filed Nov. 11, 1942

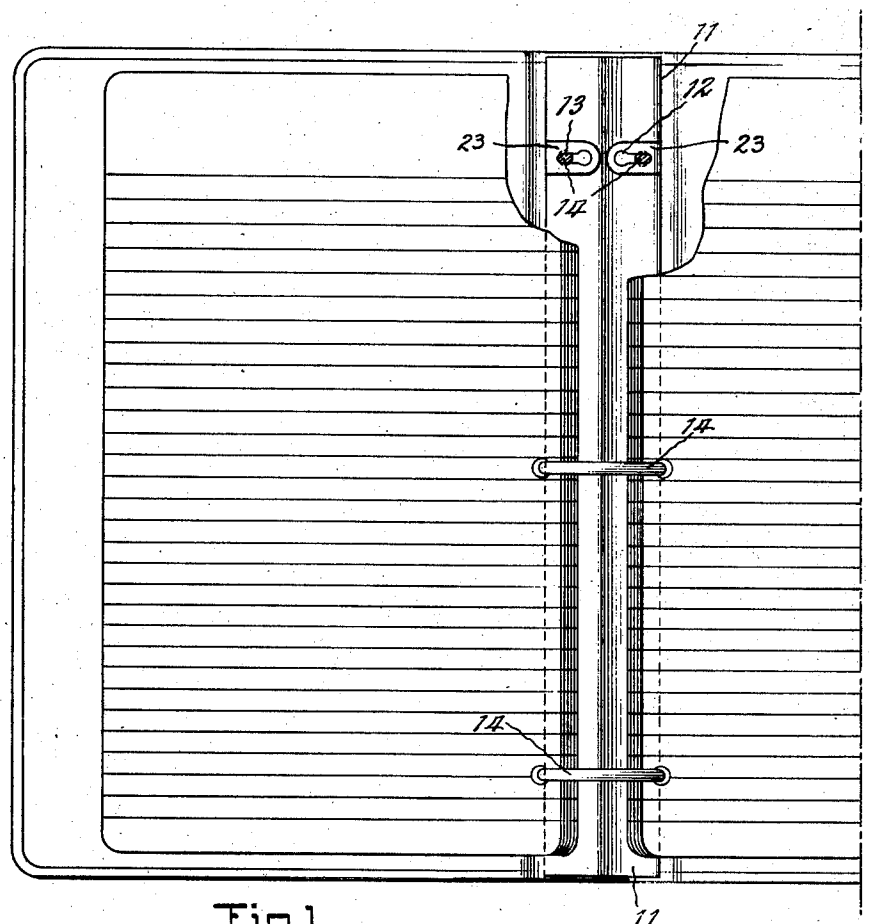


Fig. 1.

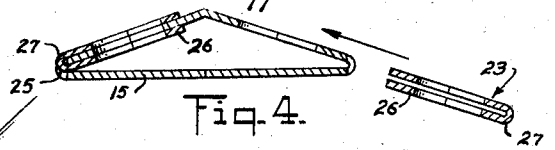


Fig. 4.

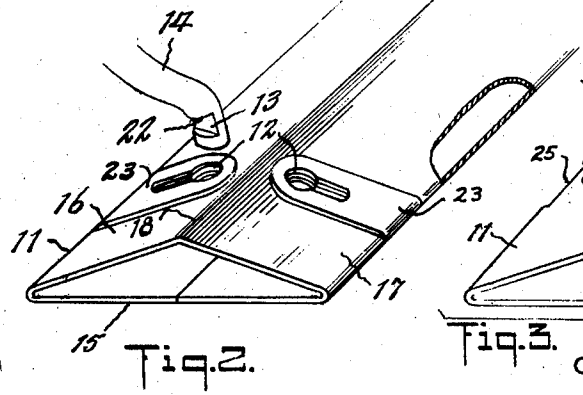


Fig. 2.

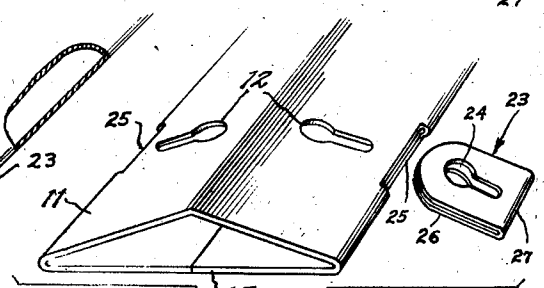


Fig. 3.

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RING BINDER

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Application November 11, 1942, Serial No. 465,289

3 Claims. (Cl. 129—1)

The invention here disclosed relates to ring binders, particularly to those of the type disclosed in copending patent applications Ser. No. 452,111 filed July 23, 1942, and Ser. No. 465,288 filed Nov. 11, 1942, in which the back of the binder is of tubular formation and made up of cardboard, fiberboard or other sheet material, or in some cases of plastic, extruded or otherwise produced in the tubular shape.

The rings are held by engagement in "keyhole" or other shaped openings in such tubular backs.

The materials employed for these tubular back pieces are relatively thin and these thin walls provide only a limited grip on the rings. The rings therefore may have a tendency to rock one way or the other, instead of standing up firmly on the back piece. It has also been found that there may be a tendency of the thin walled material to wear or break or tear about the keyhole openings, particularly under the hard usage to which these lightweight note books ordinarily may be subjected.

It is the broad purpose of this invention to overcome objections such as those noted and to provide a ring book of the type considered, in which the rings may be firmly anchored, in fact as firmly as in the backs of solid material and in which the back piece though having a thin wall will be fully strong and wear resisting and capable of carrying all the strains and loads to which ordinarily it may be subjected.

Another object of the invention is to so construct the ring seats in the tubular form of back piece that they will be substantially similar in dimensions to those provided in the so-called solid forms of backs, such as in the wooden backs disclosed in patent application Ser. 452,111, so that the rings for all these binders may be of the same construction and interchangeably used in both the tubular and solid forms of back constructions.

Other desirable objects and the novel features of invention by which all the purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present practical embodiment of the invention, but structure may be modified and changed all within the true intent and scope of the invention as hereinafter defined and claimed.

Fig. 1 is a broken plan and part sectional view of a ring binder of the hollow back form incorporating features of the invention.

Fig. 2 is an enlarged broken and part sectional view of the hollow back shown in Fig. 1.

Fig. 3 is a perspective view illustrating the manner of constructing the hollow back member.

Fig. 4 is a cross-sectional detail illustrating the manner in which the reinforcing clip is slipped into position through a notch in the edge of the tubular back.

Fig. 1 illustrates the invention embodied in a loose-leaf notebook, the tubular back piece appearing at 11, and having keyhole slots 12, in the sides of the same to receive and firmly hold the reduced shank portions 13, of the rings 14.

In Fig. 2, the generally triangular cross-sectional shape of the tubular back is more fully shown, it having a substantially flat base 15, with upwardly convergent flat sides 16, 17, meeting in a central ridge 18.

These tubular backs are usually made up of folded sheet material or plastic and in either event, the material is quite thin, since ordinarily to be salable, the book must be inexpensive and the triangular tubular formation gives all necessary strength, even in a thin wall material.

The reinforcement may be of any inexpensive material and of any desired thickness, for instance, to increase the wall to a total thickness of material which will entirely fill up the grooves 22, in the sides of the rings, thus to hold and in effect "lock" the rings firmly in place against movement in any direction.

The several figures illustrate a form of reinforcement and ring holding structure which can be slipped into position through a notch in the edge of the back. This reinforcement is in the nature of a clip 23, consisting of a folded piece of material such as cardboard, fiber, heavy paper or the like, punched in the upper and lower layers of the same with keyhole openings 24, to match the keyhole openings 12, in the back. The notches 25, in the corner edges of the back are wide enough to admit the lower layer 26, of the folded reinforcement and of a depth to permit the fold 27, of the reinforcement to substantially align with the side edge of the back when the reinforcement is fully seated.

This construction provides reinforcing and thickening layers at both sides of the back material, which may be advantageous, particularly if the clip is of stiffer and harder material than the material of the back. These clips may be secured in their final position by adhesive or other means and while the back and clips are shown as independently perforated, it is contemplated that the clips may be inserted and secured in place

and the back and the reinforcements punched all in the one operation.

Thus the parts, may be so proportioned as to provide a wall thickness equal to that present in the wooden or solid forms of backs, to assure the firmest possible holding of the rings and to enable interchangeable use of the same rings in all these types of binders.

What is claimed is:

1. A ring binder, comprising a tubular back having inclined sides with ring receiving openings therein, said back having notches in the side edges of the same and folded reinforcements having lower layers passed through said notches to position at the undersurface of said inclined sides and upper layers overlying the upper surface of said inclined sides, said upper and lower layers of said reinforcements having openings therein, substantially corresponding to said openings in said inclined sides.

2. A ring binder, comprising a tubular back having inclined sides with ring receiving openings therein, said back having notches in the side edges of the same and folded reinforcements having lower layers passed through said notches to position at the undersurface of said inclined sides and upper layers overlying the upper surface of said inclined sides, said upper and lower layers of said reinforcements having openings therein, substantially corresponding to said openings in said inclined sides and rings having end portions insertable through said openings and shoulders engageable with said upper and lower layers of said reinforcements.

3. A ring binder, comprising a tubular back having inclined sides with ring receiving openings therein, said back having notches in the side edges of the same and folded reinforcements having lower layers passed through said notches to position at the undersurface of said inclined sides and upper layers overlying the upper surface of said inclined sides, said upper and lower layers of said reinforcements having openings therein, substantially corresponding to said openings in said inclined sides, said notches extending inward into said side edges of the back a sufficient distance for the folds of said folded reinforcements to seat substantially flush in said side edges of the back.

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