June 27, 1939. F. S. SCHADE 2,163,856

LOOSE LEAF RING BINDER

Filed Dec. 18, 1937

Fig. 1.

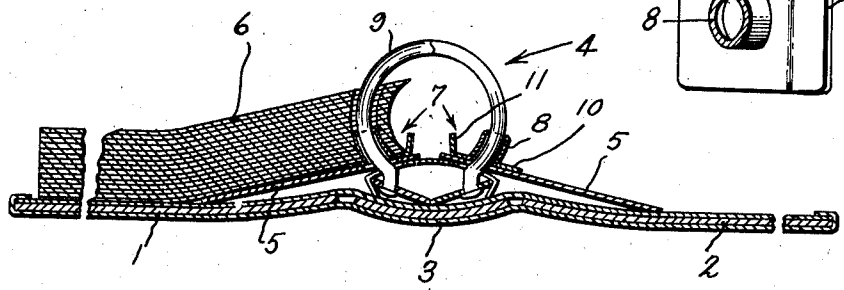


Fig. 4-A.

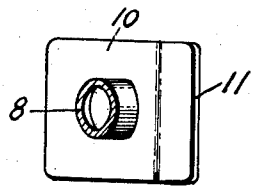


Fig. 2.

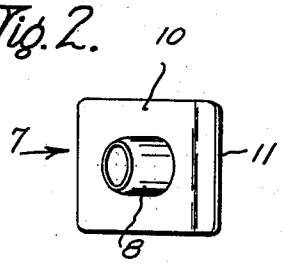


Fig. 3.

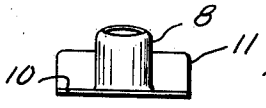


Fig. 4.



Fig. 5.



Fig. 6.

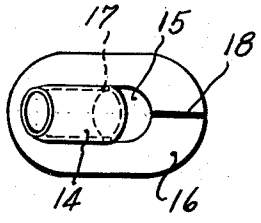


Fig. 7.

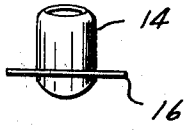


Fig. 9.

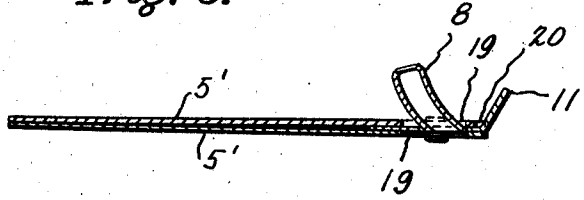
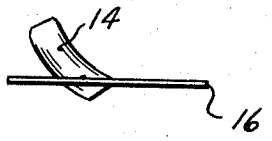


Fig. 8.



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LOOSE LEAF RING BINDER

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Application December 18, 1937, Serial No. 180,588

9 Claims. (Cl. 129—4)

This invention relates to improvements in loose leaf ring books, particularly in structure operable with the fly sheets to help move the filler sheets or sheet pack on the rings.

The specific purpose of the invention can be best understood from an illustration of a few forms such as have been reduced to actual practice and tested.

In the drawing:

Fig. 1 is a cross-section of a ring binder with parts broken away and with the invention applied;

Figs. 2, 3 and 4 are respectively top, end, and side views of one form of carrier structure for cooperation with flyleaf and sheet pack;

Fig. 4—A is a sectional view on line 4—A—4—A of Fig. 4;

Fig. 5 is a side view of a modified form;

Figs. 6, 7 and 8 are respectively top, end, and side views of another modified form;

Fig. 9 is a cross sectional view of a special mounting in the flyleaf of the carrier structure form of Figs. 2, 3, and 4, and suggesting also how the other forms may be mounted.

Referring to Fig. 1, the ring binder is indicated by covers 1 and 2, back panel 3, ring metal structure 4, fly sheets 5, and sheet pack 6. These parts are shown in one known form of ring binder and of course there are other known forms. The new thing of Fig. 1 is shown in position as the carrier structure 7. It is preferred to use a pair of such structures for each ring as shown. The detail of this structure is shown in Figs. 2, 3, and 4. It consists of a tubular part 8 having an oval cross section to telescope on a ring half 9 which likewise has an oval cross section. Part 8 acts as a bushing for the perforations of the outside group of sheets in pack 6, one on each side of the ring. Flange part 10 forms a skirt on the bottom of the tubular part 8, and a shelf part 11 is also provided. The top end of the tubular part 8 is slightly reduced in all over circumference to fit the ring closely and aid the bushing to slip easily through the perforations of a bound sheet. The whole makes up a sort of sled on which, when the book is open, the filler sheets on one side may rest their weight adjacent the ring half on which the "sled" is mounted to slide.

With a similar "sled" or carrier on each ring half of the book the following action will be evident. When the two covers are lifted to close the book, the two fly sheets 5 will engage the filler sheets resting on them to lift these sheets and move them to closed position on the binding rings. The action will be according to the customary fly sheet action except that each "sled" or carrier at each ring half will carry the weight adjacent the perforations in the sheets, the bushing part 8 will penetrate the binding holes in the outer loose leaf sheets to align them and prevent any wearing of the perforated sheets as they move on the ring halves, the shelf part 7 will hold the outermost sheets from sagging, and the whole action of closing will be smoothed out by the presence of the new structure associated with the old parts for closing the book. The result thus obtained by the simple sled structure will be not only an avoidance of cramping but a substantial avoidance of the severe wear on the outermost groups of sheets where the ordinary ring book first wears out.

As indicated in the drawings in Figs. 2–8, the structure of the carrier may be varied considerably to obtain the desired result. While the form indicated in Figs. 2–4 telescopes on a ring half and has its tubular part 8 curved to conform to the arc of the ring half, a simpler structure which is satisfactory in many respects is shown in Fig. 5. In that figure, the construction of the sled or carrier consists of a straight cylindrical tubular part 12 with an attached skirt 13. The bore of the tube is large enough to allow the carrier to slip easily around the ring without interference as the flyleaf lifts the sheets when the book is closed.

While there is no shelf part in this construction and the sheets of the pack 6 are not supported as positively as with the structure of Fig. 2, the structure has the advantage of extreme simplicity and smaller cost of manufacture.

In Figs. 6–8, a further modification is indicated wherein an oval tubular member 14 conforming to the shape of the ring half 9 passes through a slot 15 cut in a skirt member 16 and is pivoted on nibs 17 formed out of the material of skirt 16 and passing into holes cut in the walls of member 14. The skirt member 16 has a slit 18 extending along its longitudinal axis from the slot 15 to the outer edge of the member to allow the skirt member to be sprung enough for assembly of the parts.

The holes in the flyleaves do not ordinarily fit the rings of the binder closely, for some excess play is desirable for satisfactory lifting of the sheet pack by the flyleaf. When carriers of the type indicated in Figs. 2–5, wherein the skirt member is fixed rigidly to the tubular member, are used, the surface of the flyleaf may not be parallel to the lower surface of the skirt member during the closing of the book. This may

tend to make the carriers slide hard on the rings because the flyleaf is exerting a pry on them. In the carrier of Figs. 6 to 8 where the skirt is pivoted to the tubular member, the flyleaf surface and skirt will lie together during the closing of the books and this type of carrier is very smooth in its action. It is in fact the most satisfactory construction with respect to applying the fly leaf lift in the best manner. In large books it is desirable to have a shelf, as the shelf 11, on whatever form is used.

It may be desirable to mount the carrier or sled of Fig. 2 or any of the other forms, for each ring, directly on the flyleaf, and in Fig. 9 is indicated a method of doing this. In that figure, two flyleaf sheets 5' are laminated and have holes 19 cut near one edge, the holes being considerably larger in diameter than that of the tubular member 8. The upper lamination is cut back as at 20 to provide a notch slightly wider than the carrier near its inner edge. The laminations 5' are held together in any suitable manner, as by a couple of spaced rivets which will not interfere with insertion of the structure at the holes. The carrier is assembled with the flyleaf by separating the laminations slightly and slipping the carrier in between. There is preferably, of course, a carrier on the flyleaf for each ring section of the binder and by having the holes 19 oversize and providing the notch 20, the carriers can adjust themselves to small inaccuracies in the spacing of the rings.

Having described my invention fully, what I claim is:

1. In a loose leaf binder comprising covers, ring mechanism, and a set of flyleaves, a carrier for each ring half consisting of a bushing small enough to enter the binding holes in a loose leaf sheet and a skirt on one end of said bushing, said carrier being telescoped on said ring half with the skirt resting on a flyleaf in position for the bushing to penetrate the binding holes in the outer sheets of a pack of loose leaf paper while the skirt supports said sheets when the carrier is pushed around the ring by the flyleaf as the covers are closed.

2. In a loose leaf binder comprising covers, ring mechanism, and a set of flyleaves, a carrier for each ring half consisting of an arcuate tubular bushing, the radius of the arc of said bushing being the same as the radius of the ring half and the outside diameter of said bushing being small enough to enter the binding holes in a loose leaf sheet and a skirt on one end of said bushing, said carrier being telescoped on said ring half with the skirt resting on a flyleaf in position for the bushing to penetrate the binding holes in the outer sheets of a pack of loose leaf paper while said skirt supports said sheets when the carrier is pushed around the ring by the flyleaf as the covers are closed.

3. In a loose leaf binder comprising covers, ring mechanism, and a set of flyleaves, a carrier for each ring half consisting of an arcuate tubular bushing, the radius of the arc of said bushing being the same as the radius of the ring half and the outside diameter of said bushing being small enough to enter the binding holes in a loose leaf sheet and a skirt on one end of said bushing, said skirt having an upturned shelf along one edge to support the inner edges of the outer sheets of a pack of loose leaf paper, said carrier being telescoped on said ring half with the skirt resting on a flyleaf in position for the bushing to penetrate the binding holes in the outer sheets of a pack of loose leaf paper while the skirt and upturned shelf support said sheets when the carrier is pushed around the ring by the flyleaf as the covers are closed.

4. In a loose leaf binder comprising covers, ring mechanism and a set of flyleaves, a carrier for each ring half consisting of an arcuate tubular bushing, the radius of the arc of said bushing being the same as the radius of the ring half and the outside diameter of said bushing being small enough to enter the binding holes in a loose leaf sheet and a slotted skirt at one end of said bushing, the bushing passing through and being pivoted to the skirt in said slot, said carrier being telescoped on said ring half with the skirt resting flat on a flyleaf for the bushing to penetrate the binding holes in the outer sheets of a pack of loose leaf paper while the skirt supports said sheets when the carrier is pushed around the ring as the covers are closed, said skirt resting flat against said flyleaf during the closing operation.

5. In a loose leaf binder comprising covers and ring mechanism, a set of laminated flyleaves in combination with carriers for each ring half to support the outer sheets of a pack of loose leaf paper when the book is closed, each carrier consisting of a tubular member to telescope over each ring with a skirt at one end of said tubular member, the skirt of each carrier being carried between the laminations of a flyleaf with the tubular member protruding through oversize holes cut in the laminations whereby a slight tolerance is provided to allow the carriers to adjust themselves to small differences in spacing between successive ring halves.

6. An article of manufacture for the purpose described comprising a bushing adapted to slide freely on the ring of a loose leaf book and enter the holes of the sheets of the book to prevent wear of such sheets on the ring, such bushing having a flange at one end by which it may be pushed to slide on the ring of a book when the latter is being closed.

7. The structure of claim 6 in combination with a flyleaf adapted to slide on the book ring with the bushing and push the bushing as the ring book is closed.

8. The structure of claim 6 in which the flange is pivoted on the bushing so as to change the flange angle with the bushing as the latter is pushed on a ring.

9. An article of manufacture for the purpose described comprising, a flyleaf having means at its edge to mount it on the rings of a loose leaf book, said means including bushings adapted to enter the perforations of loose leaf sheets, said bushings being mounted to move with the flyleaf and prevent wear of loose leaf sheets at their perforations as they rest on the flyleaf for turning with it in a ring book.

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