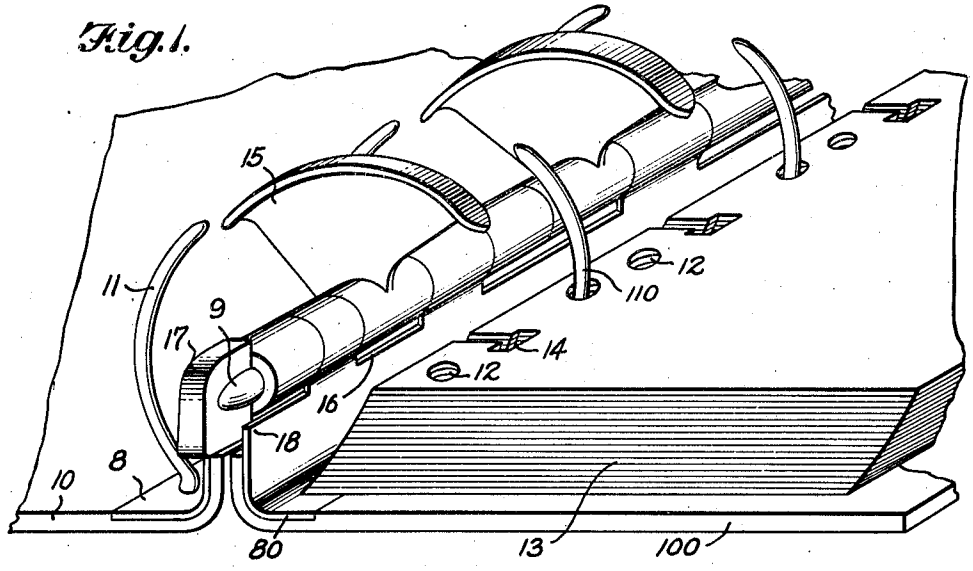
Sept. 14, 1943. B. V. KORVIN-KROUKOVSKY 2,329,351

LOOSE LEAF BINDER

Filed June 20, 1942

Fig. 1.



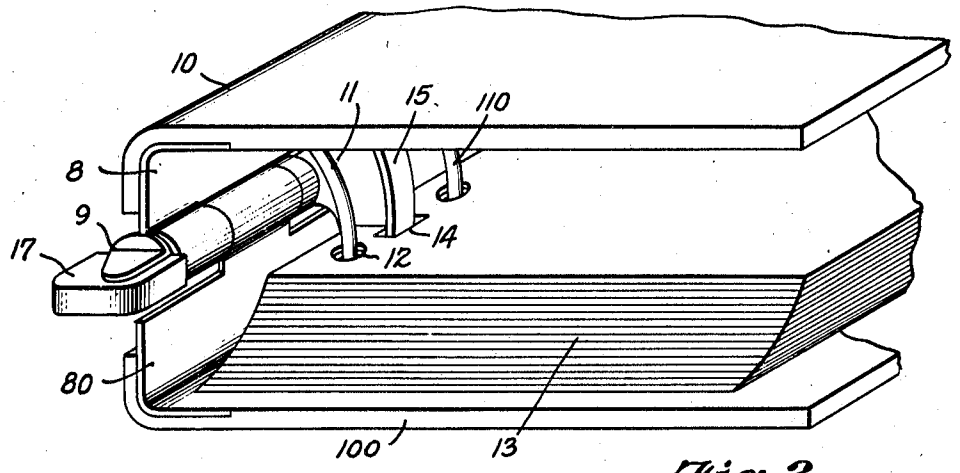


Fig. 2.

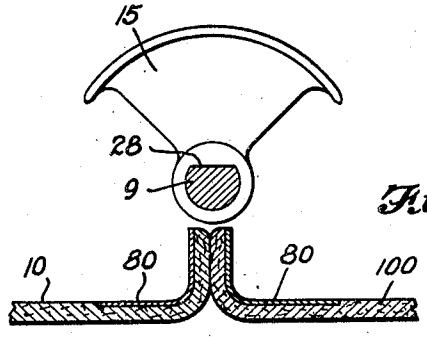


Fig. 3.

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LOOSE-LEAF BINDER

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Application June 20, 1942, Serial No. 447,804

5 Claims. (Cl. 129—17)

This invention relates to loose-leaf binders, devices for making loose paper leaves into books from which the leaves may be easily removed or new leaves inserted.

It is the object of my invention to provide an improved loose-leaf binder capable of having the entire space between the two covers filled with leaves, in which the leaves lie flat in all positions of the covers, open or closed, and which allows the turning over of the pages and the insertion and removal thereof in an improved fashion.

It is another object of my invention to provide an improved loose-leaf binder having paper engaging members such as prongs or peripheral flange retainers or both in combination to constitute an extendible leaf retaining mechanism, in which the total arc through which the leaves are held widens when the binder is opened and contracts when it is closed.

These and other desirable objects and advantages of the present invention will be illustrated in the accompanying drawing and described in the specification, a certain preferred embodiment being disclosed by way of illustration only; for, since the underlying principles may be incorporated in other specific devices, it is not intended to be limited to the one here shown, except as such limitations are clearly imposed by the appended claims.

In the drawing, like numerals refer to similar parts throughout the several views, of which

Fig. 1 represents a fragmentary perspective view of the binder in open position having leaves inserted on the right hand side,

Fig. 2 represents a fragmentary perspective view of the same binder in closed position, and

Fig. 3 represents a cross section through the back of the binder made at right angles to the binder hinge line.

This loose-leaf binder is made of a front cover 10 bent into L-shape and of a similar back cover 100. To either cover is fastened an L-shaped metal strip 8 and 80 respectively. A first plurality of prongs 11 are riveted into strip 8 and thus fastened or fixed to front cover 10. A second plurality of prongs 110 are riveted into strip 80 and thus fastened or fixed to the rear cover 100. The two covers are hinged to each other at the back of the binder on a hinge line occupied by a hinge pin 9. The paper retaining prongs 11 and 110 are substantially concentric to the center line of pin 9, forming circular arcs in a plane at right angles to said pin, the center of the arc being positioned at the center line of the pin. Pin 9 is axially shiftable or slidable relative to the two covers.

A third plurality of paper retainers, namely peripheral-flange type retainers 15 are hinged to the covers by the pin 9, their paper retaining flanges being in like concentric relation to the pin as the prongs 11 and 110. As shown in Fig. 3, the cross section of pin 9 is not circular, but constitutes a flattened circle 28. Retainers 15 have corresponding perforations for engagement with the pin. They are therefore constrained to turn together with the pin and with each other, but the pin is left free for axial motion relative to the covers and to all retainers.

At the end of the pin is provided a crank means 17, which in the open position of the covers abuts against the corners 18 of the strips 8 and 80. By virtue of this, the turning motion of the pin and in consequence that of the retainers 15 is restricted.

In the usual and known manner, the paper leaves 13 have to be prepared for insertion into the binder by being provided with holes 12 for engagement with the prongs and with T-slots 14 for engagement with the peripheral-flange type retainers.

As will be seen from the drawing, the covers can be turned relative to each other through an angle of 180 degrees. All retainers extend through arcs larger than 90 degrees. When the binder is closed, they form together, and each of them by itself, a retaining assembly extending through more than 90 degrees. When the binder is all the way opened, they form together a retaining assembly extending without interruption or gap through 270 degrees. In that position, the arcs of retainers 15 are in angular overlapping relation with the prongs 11 and 110, as can be clearly seen in Fig. 1. This placing of retainers 15 into overlapping relation with both groups of prongs, 11 as well as 110, is brought about and secured by the abuttal of corners 18 and crank member 17.

For inserting or removing of pages, this overlapping relation is temporarily suspended by pulling pin 9 slightly outwardly. Thereby crank member 17 is disengaged from corners 18, and retainers 15 can now be rotated into fuller overlapping relation with either prongs 11 or 110, and out of overlapping relation with either prongs 110 or 11 respectively, making space for sliding the pages on prongs 110 or 11.

No specific latch means for holding pin 9 axially are shown as it is considered sufficient to depend for this on friction.

I claim:

1. In a loose-leaf binder, a front cover, a rear cover hinged thereto on a hinge axis extending along the back of the binder, a first plurality of paper retainers mounted on the front cover and adapted to guide paper sheets substantially concentrically to said axis, a second plurality of paper retainers mounted on the rear cover and adapted to guide paper sheets substantially concentrically to said axis, a third plurality of paper retainers hinged to the covers on said common hinge axis and adapted to retain and guide paper sheets substantially concentrically to said axis, and disengageable means for keeping the third plurality of retainers automatically within angular operlapping relation to the first and to the second plurality regardless of the relative position of the two covers.

2. In a loose-leaf binder, a front cover, a rear cover hinged thereto on a hinge axis extending along the back of the binder, a first plurality of paper retainers mounted on the front cover and adapted to guide paper sheets substantially concentrically to said axis, a second plurality of paper retainers mounted on the rear cover and adapted to guide paper sheets substantially concentrically to said axis, a third plurality of paper retainers hinged to the covers on said common hinge axis and adapted to retain and guide paper sheets substantially concentrically to said axis, and disengageable abutting means for keeping the third plurality of retainers automatically within angular overlapping relation to the first and to the second plurality regardless of the relative position of the two covers.

3. In a loose-leaf binder, a front cover, a rear cover hinged thereto on a hinge axis extending along the back of the binder, a first plurality of paper retainers mounted on the front cover and adapted to guide paper sheets substantially concentrically to said axis, a second plurality of paper retainers mounted on the rear cover and adapted to guide paper sheets substantially concentrically to said axis, a third plurality of paper retainers hinged to the covers on said common hinge axis and adapted to retain and guide paper sheets substantially concentrically to said axis, abutting means on the two covers and on said hinge axis adapted to restrict the motion of said third plurality of retainers and dimensioned and arranged to keep said third plurality automatically within angular overlapping relation to said first and to said second plurality regardless of the relative position of the two covers, and means for disengaging said abutting means.

4. In a loose-leaf binder, a front cover, a rear cover hinged thereto on a hinge axis extending along the back of the binder, a first plurality of paper retaining prongs substantially concentric to said axis fixed to the front cover, a second plurality of paper retaining prongs substantially concentric to said axis fixed to the rear cover, a plurality of flange-type paper retainers hinged to the covers on said hinge axis having paper retaining peripheral flanges substantially concentric to said axis, and disengageable means for keeping the flange-type retainers automatically within angular overlapping relation to the two pluralities of prongs regardless of the relative position of the two covers.

5. In a loose-leaf binder, a front cover, a rear cover hinged thereto on a hinge axis extending along the back of the binder, a hinge pin extending along said axis and being axially slidable relative to the covers, a first plurality of paper retaining prongs substantially concentric to said axis fixed to the front cover, a second plurality of paper retaining prongs substantially concentric to said axis fixed to the rear cover, a plurality of flange-type paper retainers having paper retaining peripheral flanges substantially concentric to said axis hinged to said covers and being rotationally engaged with but axially slidable relative to said pin, crank means on the pin, and abutting means on the two covers engageable with said crank means and arranged and dimensioned to keep the flange-type retainers automatically within angular overlapping relation to the prongs regardless of the relative position of the two covers.

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