Dec. 16, 1941. B. OSBORN 2,266,472

LOOSE-LEAF BINDER CLAMP

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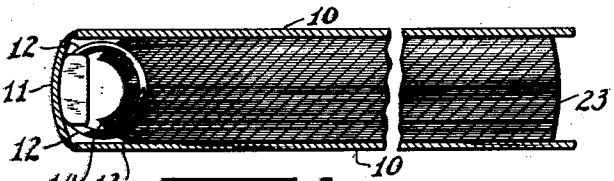


FIG. 1

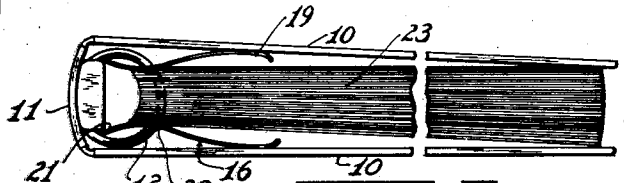


FIG. 2

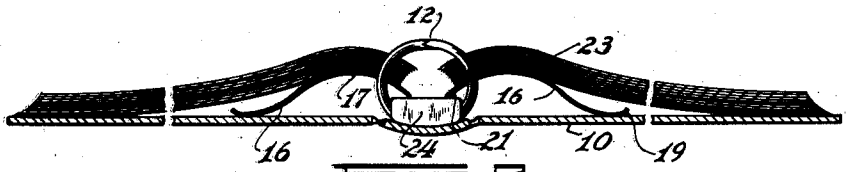


FIG. 3

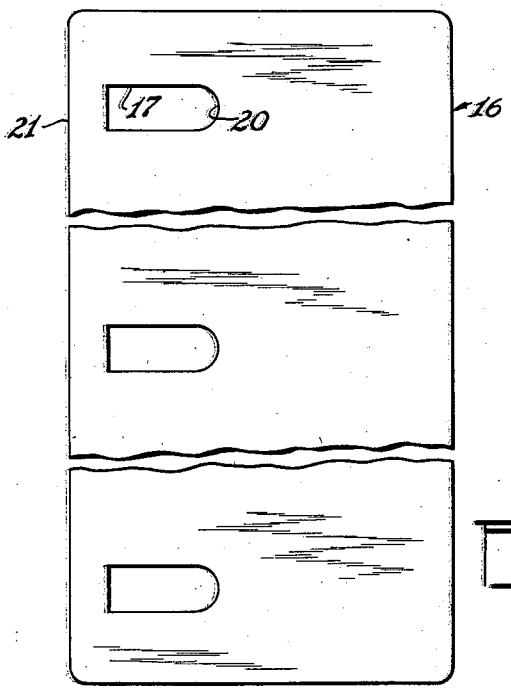


FIG. 4

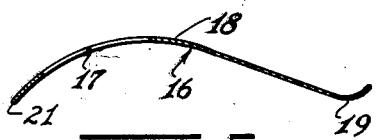


FIG. 5

INVENTOR.
Baldwin Osborn.

BY Godfrey B. Spain

ATTORNEY

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LOOSE-LEAF BINDER CLAMP

Baldwin Osborn, Clifton, N. J.

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6 Claims. (Cl. 129—4)

This invention relates to improvements in clamping devices adapted for use in conjunction with loose leaf binders.

An object of the invention is to provide an elastic clamping plate of metal or of such material as will resiliently retain a pre-formed shape for the purpose of holding loose leaf sheets in a ring binder in such position that they will not bulge, curl or tear out when the binder is repeatedly opened and closed. A further object is to provide a spring clamping device which is adapted for use with simple forms of ring binders to the end that it may be used with conventional ring binders not equipped with special sheet clamping devices, and to the further end that the utility of such simple ring binders will be greatly increased.

Further objects will be apparent from a reading of the annexed specification and claims, together with the accompanying drawing, in which:

Fig. 1 is an end view in section of a conventional ring binder;

Fig. 2 is an end view of a conventional ring binder with my clamping plates installed, the binder being shown in the closed position;

Fig. 3 is a view of a ring binder with the clamps installed shown in the open position;

Fig. 4 is a plan of the clamping plate; and

Fig. 5 is an end section through one of the clamping plates.

As will be noted in Fig. 1, a conventional ring binder comprising cover boards 10 hinged to a back 11 is provided with split rings 12 which, as is well known in the art, may be snapped open and shut to receive suitably perforated filler sheets. As will be noted at 13 and 14, the end sheets of the filler pack tend to ride around the rings when the binder is closed, so that they are curled at the ends and are strained upon repeated use of the binder so that the perforations pull out and the sheets become loose. Furthermore, whether or not the binder is completely filled with sheets, the end sheets will curl and tear and will tend to climb around the rings 12 so that the covers of the binder may not be firmly closed. There have been various proposals made to alleviate this troublesome condition which is well known to all users of ring binders. Among intended solutions for the problem are fiber board end sheets of greater stiffness than the filler paper which are intended to reinforce the paper and to ride around the rings as the binder is closed. These are only partly and temporarily effective, for these boards do not prevent straining of the paper, and gradually take up a permanent set which renders them useless. In addition, they do not have any particular effect in clamping the loose leaf sheets closely together when the binder is closed and they, along with outer sheets of paper in the binder, tend to ride around the rings after the manner of Fig. 1. Further proposals for correcting the outlined problem consist in set mechanisms built into the binder clamp, which add complications and cost to the binder and make same relatively cumbersome to use.

My solution for the problem, though extremely simple, has been found to be entirely effective, the invention consisting essentially of a spring plate 16 having perforations 17 through which the binder rings may be passed, the plate being pre-formed, as shown in Fig. 5, so that it is curved in section as at 18, the edge of the plate opposite the ring holes 17 being oppositely curved as at 19 to provide a skid which may slide along the binder cover as the binder is opened and closed. The inner edges of the binder holes 17, indicated at 20, are so spaced from the edge 21 of the plate that they will bear upon the outer peripheral surfaces of the rings 12 when the binder is closed, to prevent undue inward movement of the plate and the curvature 18 of the plate will cause the outer plate edge 19 to bear upon the binder cover 10 and the inner plate edge 21 to bear on the ring inner surface or ring mechanism 24 whereby the filler sheets 23 in the binder are securely clamped against one another and are completely prevented from riding around the rings, as would occur without the use of the plates 16. As is shown, one plate 16 is used on each side of the filler sheets 23. When the binder is open at any location in the pack of filler sheets 23, the plates 16 will freely open with the pack and will rest upon the binder covers 10, as shown in Fig. 3. Due to the resilience of the plates 16, the open sheets may be pressed flat for writing upon the filler sheets. As the binder is closed, the edge 21 of the plate 16 will first bear upon the ring retaining mechanism 24 of the binder and, by the action of closing the cover 10, the plate will be swung about the edge 21 as a fulcrum carrying the sheets 23 with it until the edge 21 engages the inner surface of the ring 12 to firmly clamp the sheets. In producing these plates I prefer to cut them or stamp them from thin sheet spring steel of about .012 inch thickness, then punch the ring holes 17, and then deform the initially flat sheets to secure the curvatures 18 and 19 above indicated. It will be apparent that the plates may be made in sizes and shapes appropriate to any size and shape of loose leaf ring binder, and it is also

apparent that the plates can be fabricated at low cost. They will, no doubt, be slightly more expensive than the conventional fiber board end plates for ring binders but their life will be infinite as compared with the extremely short life of the fiber board plates whose initial utility is greatly inferior to the subject spring plates. Furthermore, the plates of this invention are fully as effective as more complex devices intended to accomplish the same purpose which may be built into the binder proper, and obviously are more simply and easily fabricated than built in appurtenances in ring binders.

While I have described my invention in detail in its present preferred embodiment, it will be obvious to those skilled in the art, after understanding my invention, that various changes and modifications may be made therein without departing from the spirit or scope thereof. I aim in the appended claims to cover all such modifications and changes.

I claim as my invention:

1. In a loose leaf binder, rings to hold a plurality of leaves, covers hinged to the rings, follower plates disposed between the covers and the outermost leaves adapted to support the leaves as the binder is opened and closed, said follower plates each having openings engaged by the binder rings and having an inner edge bearing upon the inner surfaces of the rings, an outer edge bearing upon a binder cover, and edges of the binder ring holes bearing upon outer surfaces of the binder rings, said follower plates comprising resilient metallic elements preformed to a curved shape whose convex curved portions, when the binder is closed, press against the leaves in the binder holding them centrally between the binder covers.

2. In a loose leaf binder, covers and rings hinged thereto to retain a plurality of leaves, a curved sheet of spring material having perforations engaged by the binder rings and so disposed that its edges bear upon the binder rings and upon the cover and its convex curved part engages the leaves, the concave part of the sheet facing the adjacent cover.

3. In a ring type loose leaf binder, a resilient follower plate between the inner surface of the binder cover and the outer leaves in the binder having its opposite edges bearing respectively upon the inside of the binder cover and upon the binder rings and having its mid-portion convexly curved to resiliently engage the outer binder leaf to press the binder leaves against one another.

4. In a ring type loose leaf binder, a back strip having leaf holding rings thereon, covers hinged to the back strip, an edge perforated resilient metal follower plate the perforations of which are engaged loosely by the binder rings, said plate being transversely curved so as to rest at one edge upon the binder rings and at its other edge upon the binder cover, the portion between said edges being the curved portion of the plate disposed with its concave surface facing an adjacent binder cover inner surface, the convex portion of said plate bearing upon filler leaves between the binder covers and held by the binder rings.

5. A ring binder assembly comprising a back strip having rings, covers hinged to the back strip, spring follower plates articulated to and slidable upon the rings and extending one along each of the cover surfaces, the outer edges of said follower plates resting on and being slidable along the respective cover surfaces, said plates being curved in section with their concave sides facing their adjacent covers and with their convex sides facing one another, whereby to clamp filler sheets engaged by the rings between the convex portions of said plates as the binder is closed.

6. In a ring type binder, a resilient curved follower plate engaged by the binder rings, said plate engaging the binder leaves at a convex curved part of the plate and engaging the cover of the binder at another portion of the plate which is spaced from the rings and from said curved part.

BALDWIN OSBORN.