May 20, 1924. 1,494,730

J. E. BOLLING

BINDER

Filed June 23, 1923

Fig.1.

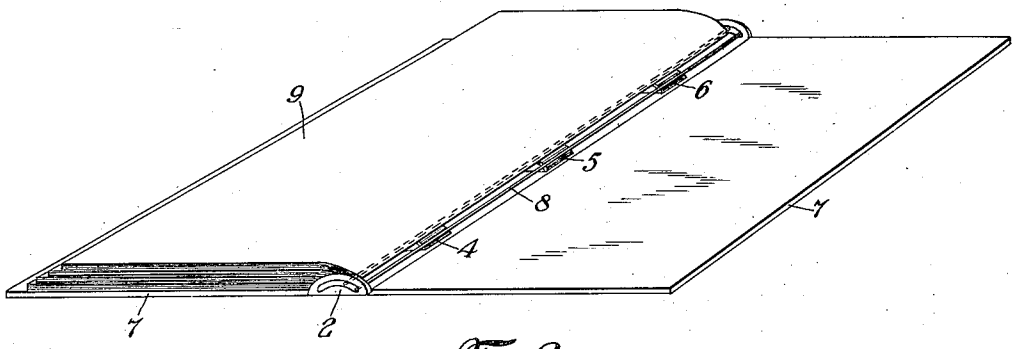


Fig.2.

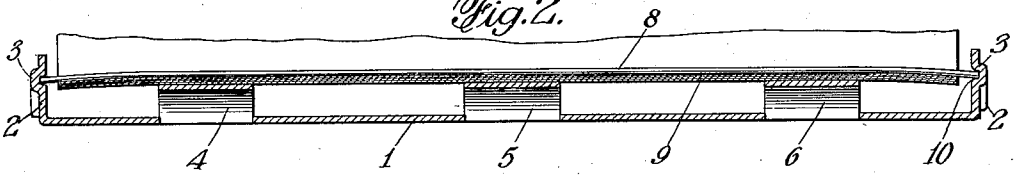


Fig.3.

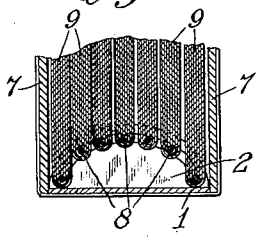


Fig.4.

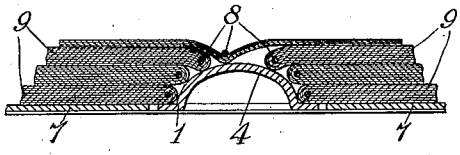


Fig.5.

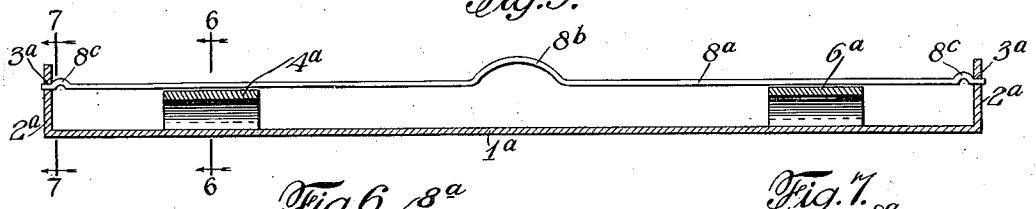


Fig.6.

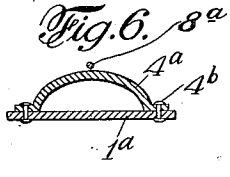
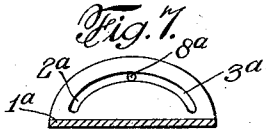


Fig.7.



Inventor
John Estew Bolling
By his Attorney
Louis Prevost Whitaker.

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UNITED STATES PATENT OFFICE.

JOHN ESTEN BOLLING, OF NEWARK, NEW JERSEY.

BINDER.

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To all whom it may concern:

Be it known that I, JOHN E. BOLLING, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawing, which shows one embodiment of the same, selected by me for purposes of illustration, and the said invention is fully disclosed in the following description and claims.

The object of my invention is to provide a binder for pamphlets, magazines and other papers or paper articles, in which the sheets have a vertical fold at one side. Various attempts have been made heretofore to provide binders for one or more magazines, pamphlets and the like, in which a vertical binding rod, or rods, is, or are, employed, but these have been open to objections. The principal objections to binders of this kind have been that there was no adequate means provided for preventing the pamphlets or the like from slipping out sideways with respect to the binding rod, or rods, and becoming disengaged therefrom; secondly that where a number of pamphlets were bound together, there was no adequate provision for permitting them to accommodate each other laterally so as to permit any one of the pamphlets to be opened at any page thereof, and remain in flat, open position; and thirdly, no provision is made for binding pamphlets of different vertical lengths in the same binder so as to hold them from slipping off of the rods and getting out of position with respect to the other pamphlets.

In carrying out my invention, I provide a simple and very inexpensive construction by which these objections are overcome, and additional advantages secured, as will be hereinafter more fully set forth.

In the accompanying drawing,

Fig. 1 is a perspective view of one embodiment of my improved binder, showing it in open position, with several pamphlets bound and held in place therein.

Fig. 2 is a longitudinal section through the back plate of the binder, showing one of the binding rods, and friction retaining devices on the back plate,

Fig. 3 is a partial transverse sectional view through the binder, adjacent to one of the end brackets of the back plate, showing it filled and in closed position.

Fig. 4 is a similar section through one of the friction retaining devices of the back plate, showing the binder in open position.

Figure 5 is a detail longitudinal sectional view showing a modified form of back plate and binding rod.

Fig. 6 is a section on the line 6—6 of Fig. 5.

Fig. 7 is a section on line 7—7 of Fig. 5.

In the drawing, 1, represents the back plate of my improved binder, which is preferably formed of metal, although it may be formed of any other suitable material. At each end of the back plate it is provided with an upturned bracket, indicated at 2—2 having a curved upper edge. Each of the brackets, 2, is provided with a curved slot or recess, 3, on its inner face. I prefer to provide this slot or recess by impressing it into the metal of which the bracket, 2, is formed, but it can be formed in any other desired manner. Between the upper and lower ends of the back plate I provide transversely disposed friction devices, indicated at 4, 5, and 6, in the drawing, having their upper faces curved in substantially the same line of curvature, transversely of the back plate, as the curved slots or recesses, 3—3, and being in substantial alignment with the lower edges of said recesses. I prefer to form the entire back plate of sheet metal stamped into shape by means of suitable dies, and to form the friction devices by pressing upwardly, portions of the metal back plate, as indicated in this drawing, but it is to be understood that the back plate and its appurtenances may be formed in other ways if desired, and for example, the end brackets, 2, and friction devices, 4, 5 and 6, may be made separately and connected to the plate by soldering, brazing, riveting or otherwise, if found desirable. Any desired number of the transversely curved friction devices may be employed as desired. Ordinarily, if the binder is intended for binding pamphlets of uniform size, it is necessary to employ only two of these friction devices, located in the positions of the friction devices, 4 and 6, shown in the drawing, that is to say, be-

tween the center of length of the back plate and the brackets, 2—2. Where pamphlets of different vertical lengths are to be bound, I prefer to provide one or more intermediate friction devices, as the friction device, 5, shown in Figs. 1 and 2, in order that the shorter pamphlets may engage at least two of these friction devices. The back plate, 1, will preferably be covered with cloth, paper, leather or other suitable material, and united by suitable hinge connections in any usual or preferred manner with the lateral cover members, 7—7, of the desired size to accommodate the pamphlets or other matter to be bound therein.

In conjunction with the back plate, I employ a plurality of binding rods, 8, which are preferably made of spring steel and of such diameter as to have considerable stiffness or rigidity, while at the same time they are elastic. These binding rods are of such length that their ends will engage the transversely curved recesses, 3—3, in the end brackets, 2, when they are in straight position, and will be held from disengagement therefrom by the back or bottom portions of the recesses, indicated at 10, which I term the rod retaining portions. The rods can, however, be disengaged from the recesses, 3, by seizing them in the middle of their length and pulling them upward so as to disengage first one end and then the other. The rods can be replaced in the binder by inserting one end in one of the recesses, 3, and flexing them so as to permit the other end to be placed in engagement with the other recess, 3, as will be readily understood. The various pamphlets or folded sheets are bound in the binder by removing a binding rod therefrom, laying the pamphlet open centrally upon the binder, so that the folded portion will engage a plurality of the transverse friction devices, after which the binding rod, 8, is sprung into engagement with the transversely curved recesses, 3—3, thereby fastening the pamphlet, indicated at 9, in the drawing, in the binder and clamping its folded portion or back against the curved transverse friction devices, as indicated in Figs. 2 and 4. The binder will hold one pamphlet or as many as the width of the back plate will accommodate, and it will be noted that the engagement of the back of the pamplet with the transverse friction devices of the back plate will prevent the pamphlet or pamphlets from working laterally when the binder is open and becoming disengaged from the binding rod or rods, holding it or them in position. When a plurality of pamphlets are bound in my improved binder, it will be noted that the ends of the binding rods, 8, are free to move laterally or transversely with respect to the back plate, 1, to accommodate each other so that any variations of thickness of the pamphlets will be accommodated. It is also to be noted particularly that the position of the back portions of the several pamphlets will vary from time to time, in the use of the binder depending upon the particular place at which it is opened, as illustrated, for example, in Fig. 4. The construction is such that the binder may be opened at any page of any pamphlet and the pages will lie substantially flat, the various pamphlets accommodating themselves by a sliding movement of the ends of the binding rods, 8, laterally in transversely curved retaining recesses, 3—3, as indicated in Fig. 4, and when the binder is closed, the binding rods will again move transversely in the curved retaining recesses, 3, so as to enable the pamphlets to accommodate each other within the binder, as indicated in Fig. 3. It will be noted that in all positions of the binder, the backs of the pamphlets will abut against the transverse curved friction devices which will enable them to be held securely between the binding rods and said transversely curved friction devices, so that they will be securely held and prevented from becoming disengaged from the binding rods, while being entirely free to move laterally or transversely with the binding rods, to accommodate themselves in various positions of the binder.

It will be further understood that any one of the pamphlets may be removed at any time by simply opening it centrally in the position in which the uppermost pamphlet is shown in Fig. 4, and seizing the binding rod near center and springing it out of its engagement with the transversely curved recesses, 3, in the end brackets.

In order to facilitate grasping the binding rods for their removal and insertion, I may in some instances form the rod as indicated at 8^a, in Fig. 5, in which a binding rod is shown having a central portion, 8^b, bent or curved out of alignment with the end portions of the rod in order to form a convenient portion to be grasped by the thumb and finger in removing and inserting the binding rod. This central curved portion, 8^b, can be formed in the binding rod before it is tempered and the bending of the rod in this manner will give additional stiffness to the rod.

In Figs. 5, 6 and 7 I have shown a slight modification of the back plate, in which the plate is indicated at 1^a, and is provided with end brackets, 2^a, having transverse, upwardly curved slots, 3^a, therein, as indicated in Fig. 7, instead of the recesses, 3, indicated in Figs. 1 to 4, and the rods, 8^a, are shown provided with retaining portions, 8^c, adjacent to their ends to prevent the rods from slipping endwise with respect to these slots, 3^a. These retaining portions may be formed in various ways, as by small collars,

a small lump of solder, or preferably by making a short bend in the rod, as indicated at 8^c in Fig. 5, but I prefer the construction illustrated in Figs. 1 to 4 inclusive. In Fig. 6 I have also illustrated a further modification of the back plate, in which the friction devices, one of which is here indicated at 4^a, are formed separately from the back plate and united thereto by rivets, 4^b, or by soldering or brazing, it being understood that the transverse friction devices, two of which are shown in Fig. 5, at 4^a and 6^a, will be curved in substantially the same line of curvature as the slot, 3^a, and will be in substantial alignment with the lower edge of the slot.

In the following claims I have used the term "transversely disposed slot" with respect to the end brackets of the back plate, as defining either a form in which the slot extends entirely through the bracket, as in Figs. 5 and 7, or in which the slot is formed by recessing or indenting the metal of the brackets and does not extend entirely through the same, as in Figs. 1 and 2. It will be understood that in the case where the slot does not go through the brackets, the rods will be held from disengagement therefrom by the retaining portion at the back or bottom of the slot, as indicated at 10 in Figs. 1 and 2, while in the construction in which the slot extends entirely through the plate, the rods will be prevented from disengagement by the lateral projections, 8^c, in the rods themselves. While I prefer to provide the means herein shown and described, or other equivalent means for preventing the accidental displacement of the binding rods with respect to the slots, the device may be used for the same purpose without such provision, as the friction devices will prevent the longitudinal movement of the rods to any material extent, and by using open slots in the bracket members, and making the rods slightly longer than the distance between the brackets, the device is capable of practical use without any other means for preventing the disengagement of the binding rods.

What I claim and desire to secure by Letters Patent is:—

1. A binder comprising among its members, a back plate, provided adjacent to each end with a bracket member, having a recess therein the upper wall of which extends in an outward curve transversely with respect to the back plate, a friction device located between said bracket members, and having its outer surface curved outwardly, transversely of the back, and substantially in alignment with said recesses in the bracket members, and binding rods having their ends detachably received in said recesses in engaging relation with said upper walls.

2. A binder comprising among its members, a back plate, provided adjacent to each end with a bracket member, having a slot therein extending in an outward curve transversely with respect to the back plate, a plurality of friction devices located at intervals on the inner face of the back plate extending transversely thereof and having their outer faces curved outwardly in substantial alignment with the inner edges of said slots, and binding rods having their ends detachably engaging said slots.

3. A binder comprising among its members, a back plate, having an integral bent up bracket member at each end, each provided with a transversely and outwardly curved slot, formed in its inner face without perforating said bracket members, and providing an integral rod retaining wall on the outer side of said slot, a friction device located on said back between said bracket members, having its outer face curved transversely and outwardly with respect to the back plate, and elastic binding rods engaging said transversely curved slots, and held from accidental disengagement therefrom by said retaining walls on the brackets.

4. A binder comprising among its members, a back plate of sheet material having an integral bent up bracket member at each end, each provided with a transversely and outwardly curved slot on its inner face, formed by indenting the same in the metal of the bracket, a friction device located on said back between said bracket members, and having its outer face curved transversely and outwardly with respect to the back plate, and in substantial alignment with the inner edges of said curved slots, and elastic binding rods engaging said transversely curved slots and held from accidental disengagement therefrom.

5. A binder comprising among its members, a back plate of sheet material, provided adjacent to each end with a bracket member having a slot therein, extending in an outward curve, transversely with respect to the back plate, a friction device located between said bracket members and formed by bending upwardly, portions of the back plate extending transversely thereof, and having an outwardly curved friction surface substantially in alignment with the slots in said brackets, and flexible metal binding rods detachably engaging said slots and held from accidental disengagement therefrom.

6. A binder comprising among its members, a back plate provided adjacent to each end with a bracket member having a slot therein, extending in an outward curve, transversely, with respect to the back plate, a friction device located on the back plate adjacent to each of said brackets, said friction devices having their outer surfaces curved outwardly and transversely of the back, and in substantial alignment with said slots in the bracket member, one or more friction

devices located between the first mentioned friction devices to accommodate articles of less vertical length than the binder, and binding rods having their ends detachably engaging the slots in said bracket members.

7. A binder comprising among its members, a back plate provided adjacent to each end with a bracket member, having a slot therein extending in an outward curve, transversely, with respect to the back plate, friction devices extending transversely of the back plate, located between said brackets and having their outer surfaces curved outwardly, substantially in alignment with said slots, elastic binding rods having their ends detachably engaging said slots, and having their central portions bent out of alignment with their end portions to form a finger piece to facilitate the removal and replacing of said rods.

In testimony whereof I affix my signature.

JOHN ESTEN BOLLING.