July 12, 1938. C. C. CRUZAN 2,123,846

BINDER

Filed Sept. 4, 1936

Fig. 1.

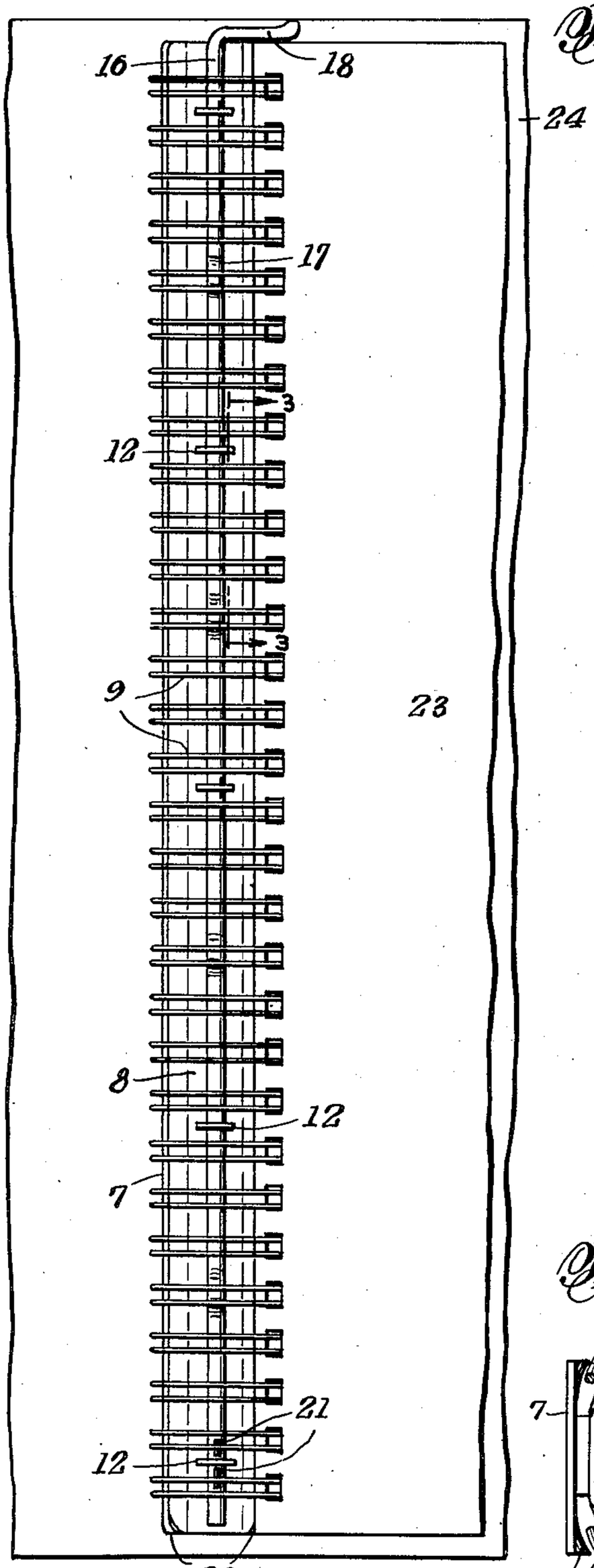


Fig. 2.

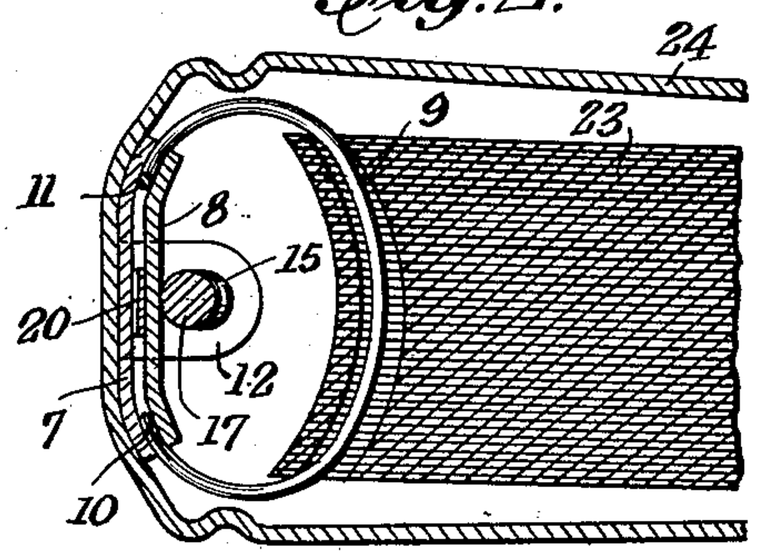


Fig. 3.

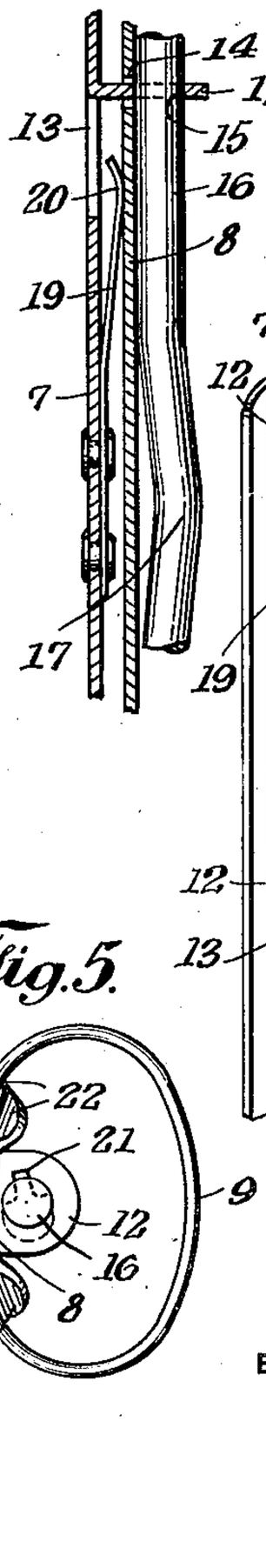


Fig. 4.

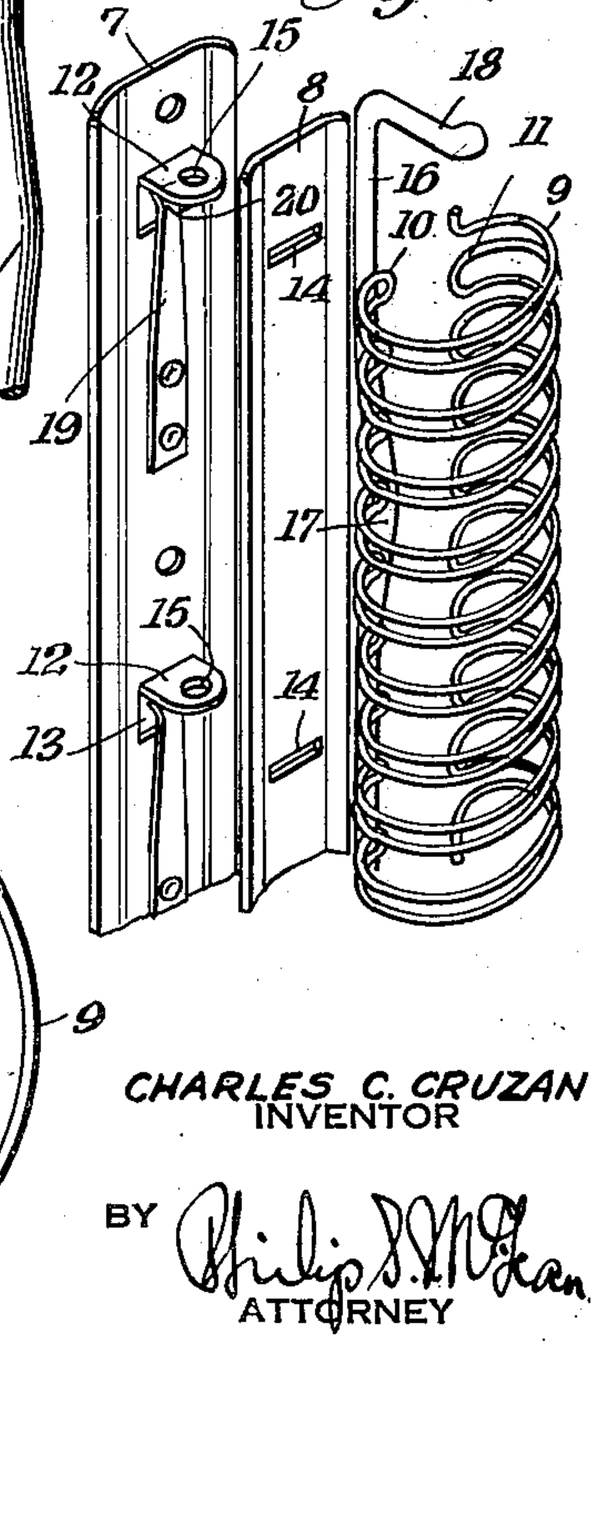
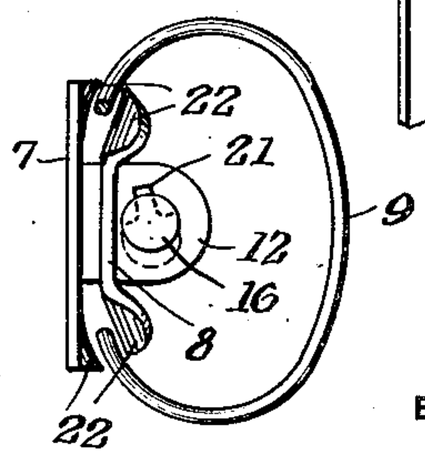


Fig. 5.



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2,123,846

BINDER

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Application September 4, 1936, Serial No. 99,350

12 Claims. (Cl. 129—1)

This invention relates to binders generally.

Special objects of the invention are to provide a ring form of binder which, for a given size of ring will hold a maximum of leaves and will hold them securely with closely spaced rings; to provide a binder construction in which the rings may be readily released to enable removal or insertion of leaves and to provide a binder possessing such characteristics which will be relatively simple and inexpensive in construction and attractive in appearance.

Other objects and the novel features of construction, combinations and relations of parts by which such objects 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 one practical embodiment of the invention, but it will be appreciated that changes in construction may be made all within the intent of the invention as covered in the claims hereinafter.

Fig. 1 is an inside view of the binder in closed position with the leaves and cover construction broken away;

Fig. 2 is an enlarged, broken, sectional view of the binder in closed position;

Fig. 3 is an enlarged, broken, longitudinal sectional detail as on line 3—3 of Fig. 1 but with the binder in the open or released position;

Fig. 4 is a broken perspective view illustrating the parts in separated relation;

Fig. 5 is an end view of the binder parts in the released relation.

In the form of the invention here shown the binder is made up of an outer, hollowed or concaved back plate member 7, an inner, similarly hollowed, opposed back plate member 8 and open binder rings 9 having relatively separated ends 10—11 connected together and held between opposite edge portions of said back plate members.

The outer back plate 7 is shown as having bearing lugs 12 struck inwardly therefrom, leaving openings 13 and the inner back plate 8 is shown as transversely slotted at 14 to slide over said bearing lugs toward and away from the outer plate.

Journalled in the openings 15 in the bearing lugs 12 is a rock shaft 16 having at intervals the relatively angled or cranked portions 17 to thrust against the adjacent face of the inner back plate. An angularly projecting handle 18 at one end of this shaft serves as a lever for rocking the shaft to thrust the inner plate toward the outer plate or release it for gripping or releasing the ends of the binder rings.

Flat springs 19 are shown secured on the inner face of the outer back member having bent ends 20 in line with the bearing lug openings 13, pressing inwardly against the inside back plate 8.

To longitudinally locate and retain the rock shaft in its bearings the same is shown in Figs. 1 and 5 as having lugs or key elements 21 struck therefrom at opposite sides of one of the bearing lugs 12.

To direct the open rings longitudinally in between the back plates, the latter are indicated in Figs. 1 and 5 as having flared guiding portions 22.

In operation the rock shaft may be turned in one direction to throw the crank portions 17 away from the inside back plate, as in Fig. 3, to permit the springs 19 to thrust the inner plate away from the outer back plate and cause the ends of the open rings to be released from the grip of the two plates substantially as shown in Fig. 5. When thus released the rings carrying the leaves 23 may be slipped downwardly in Fig. 1, to free the rings and leaves from the back plates and clear of the cover structure 24. The leaves may then be slipped off or engaged over the open ends of the rings to any desired extent.

In the reversal of the operation described the open ends of the rings may be slipped up between the separated back plates through the entering guide 22 and the rock shaft be turned back to the Fig. 2 position to grip and clamp the ends of the rings between the edges of the back plates, where the rings will then be firmly held until the rock shaft is turned to release the same. In practice the rock shaft may be turned past the dead center position of the cranked portions so as to become locked in such position, or, if desired, a suitable form of locking means may be provided to retain the rock shaft in this securing position.

The binder rings are shown as formed from a continuous length of wire bent in zig-zag fashion to form closely spaced, parallel strand open ring elements of substantially C-shape. This open substantially elliptical C form of ring will hold a maximum of sheets for a particular ring size and the openings at the back permit the leaves to be added or taken out with the greatest ease.

The rings being closely spaced, as indicated in Fig. 1, will hold a thick body of leaves and the substantially elliptical shape provides a relatively flat form of arc desirable for holding the thick mass of leaves in alignment. The wide separation of the ends of the rings at the back of the leaves enables the rings to be readily slipped into and out of place between the back plates and these back plates by their clamping action strengthen and brace the rings, giving them the desired strength and rigidity for holding a heavy mass of leaves. Refills constructed as disclosed, can be produced at relatively low cost and the gripping and supporting structure for holding such refills also is a simple and relatively inexpensive construction.

It will be understood that the cover 24 may

be attached over the outer back plate 7 in any usual way as by rivets or glue.

I claim:

1. A binder comprising opposed back plates, a cranked member for forcing said back plates toward each other, and open binder rings having separated ends entered between said opposed back plates.

2. A binder comprising outer and inner opposed back plates, bearings carried by the outer back plate and extending through the inner back plate and a shaft journalled in said bearings and having cranked portions engaging the inner back plate for forcing the latter toward the outer back plate.

3. A binder comprising outer and inner opposed back plates, bearings carried by the outer back plate and extending through the inner back plate and a shaft journalled in said bearings and having cranked portions engaging the inner back plate for forcing the latter toward the outer back plate, and open binder rings having spaced ends engageable between opposite edge portions of said back plates.

4. A binder comprising outer and inner opposed back plates, bearings carried by the outer back plate and extending through the inner back plate and a shaft journalled in said bearings and having cranked portions engaging the inner back plate for forcing the latter toward the outer back plate, and spring means for separating said back plates in opposition to the thrust of said cranked portions.

5. A binder comprising outer and inner opposed back plates, bearings carried by the outer back plate and extending through the inner back plate and a shaft journalled in said bearings and having cranked portions engaging the inner back plate for forcing the latter toward the outer back plate, open binder rings having spaced ends engageable between opposite edge portions of said back plates, and means at one end of said back plates for slidingly guiding the spaced ends of said open binder rings between said opposed back plates.

6. A binder comprising outer and inner opposed back plates, bearings on the outer back plate projecting through the inner back plate, a shaft journalled in said bearings and having cranked portions engageable with the inner back plate to thrust the same toward the outer back plate, handle means for rocking said crank shaft and open binder rings having separated ends engageable between opposite edge portions of said opposed back plates.

7. A binder comprising an outer back plate having bearing lugs struck forwardly therefrom, an inner back plate slidable over said bearing lugs, a shaft journalled in said bearing lugs having cranked portions engageable with the face of the inner back plate, and open binder rings having separated ends engageable between opposite edge portions of the two back plates.

8. A binder comprising an outer back plate having bearing lugs struck forwardly therefrom, an inner back plate slidable over said bearing lugs, a shaft journalled in said bearing lugs having cranked portions engageable with the face of the inner back plate, open binder rings having separated ends engageable between opposite edge portions of the two back plates, a handle on the shaft at one end of the back plates for rocking the same in opposite directions, and guide means at the opposite end of the back members for directing the ends of the open binder rings between said back members.

9. A binder comprising an outer back plate having bearing lugs struck inwardly therefrom and leaving openings in said back plate, spring means at the inner face of said back plate, and entered in said openings, an inner back plate slidable over said bearing lugs and engageable with said spring means, a rock shaft journalled in said bearing lugs and having cranked portions engageable with the inner face of said inner back plate, and open binder rings having separated ends engageable between said back plates.

10. A binder comprising substantially C-shaped binder rings connected together in spaced relation and having spaced inwardly extending ends at the open side of the same separated to enable the engagement of correspondingly perforated loose sheets thereover, opposed back plates in face-to-face relation and of a width to bridge the open side of said rings and having opposed edges for receiving and clamping between them said inwardly extended ends of the rings and means for shifting said opposed back plates toward and away from each other and for securing said plates together in gripping clamping engagement with said inwardly extended ends of said open rings.

11. A binder comprising substantially C-shaped binder rings connected together in spaced relation and having spaced inwardly extending ends at the open side of the same separated to enable the engagement of correspondingly perforated loose sheets thereover, back plates bridging the open side of said rings and having opposed edges receiving between them said inwardly extended ends of the rings and means securing said plates together to close the open side of said rings and thereby prevent removal of sheets engaged on said substantially C-shaped open rings, said plate securing means including structure for guiding one plate toward and away from the other and a device for forcibly clamping the guided plate in holding engagement with the inturned ends of the rings entered between the two plates.

12. A binder comprising substantially C-shaped binder rings connected together in spaced relation and having spaced inwardly extending ends at the open side of the same separated to enable the engagement of correspondingly perforated loose sheets thereover, back plates bridging the open side of said rings and having opposed edges receiving between them said inwardly extended ends of the rings, means securing said plates together to close the open side of said rings and thereby prevent removal of sheets engaged on said substantially C-shaped open rings, said plate securing means including structure for guiding one plate toward and away from the other, a device for forcibly clamping the guided plate in holding engagement with the inturned ends of the rings entered between the two plates and spring means for yieldingly thrusting the guided plate away from the companion plate.

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