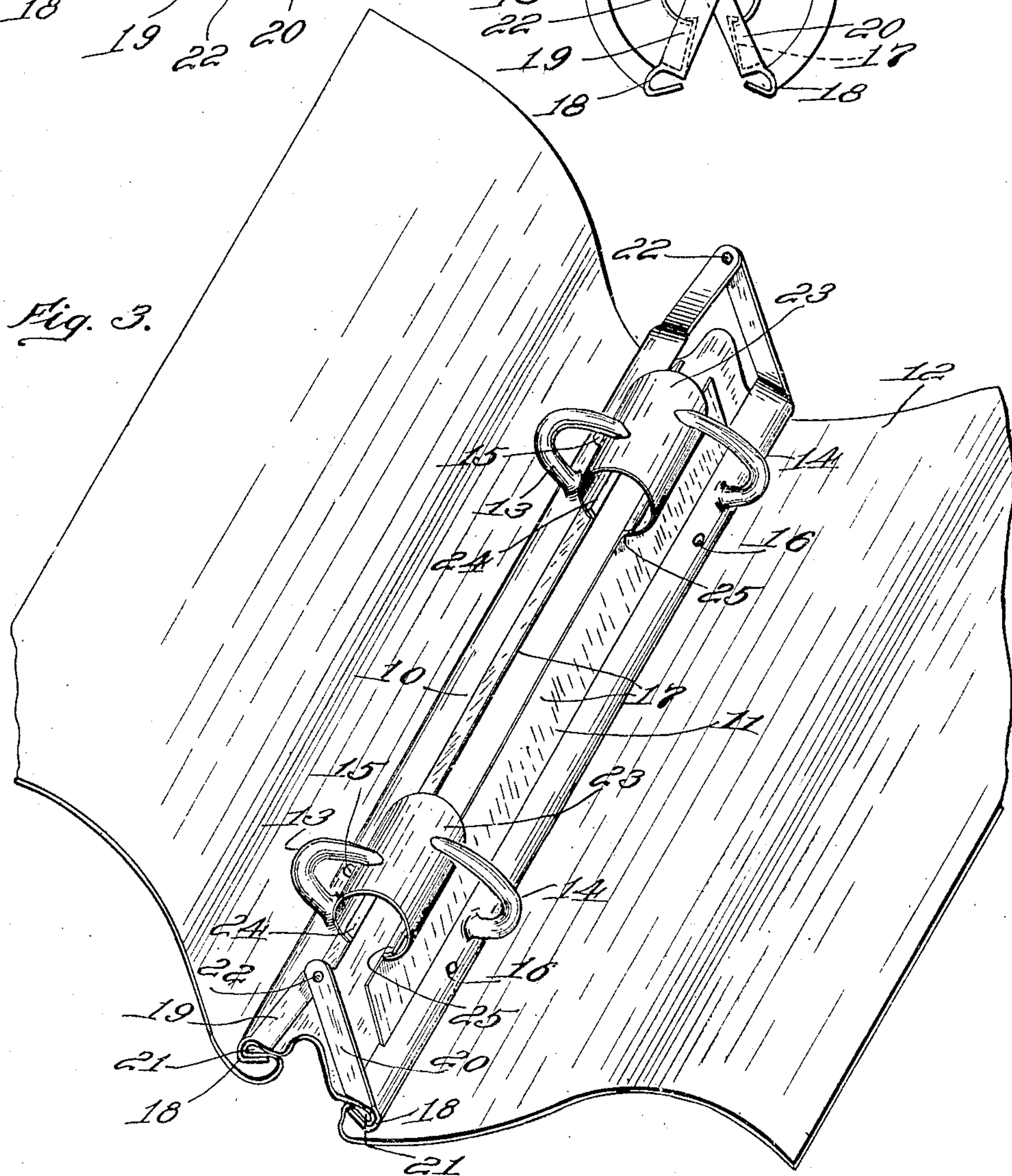
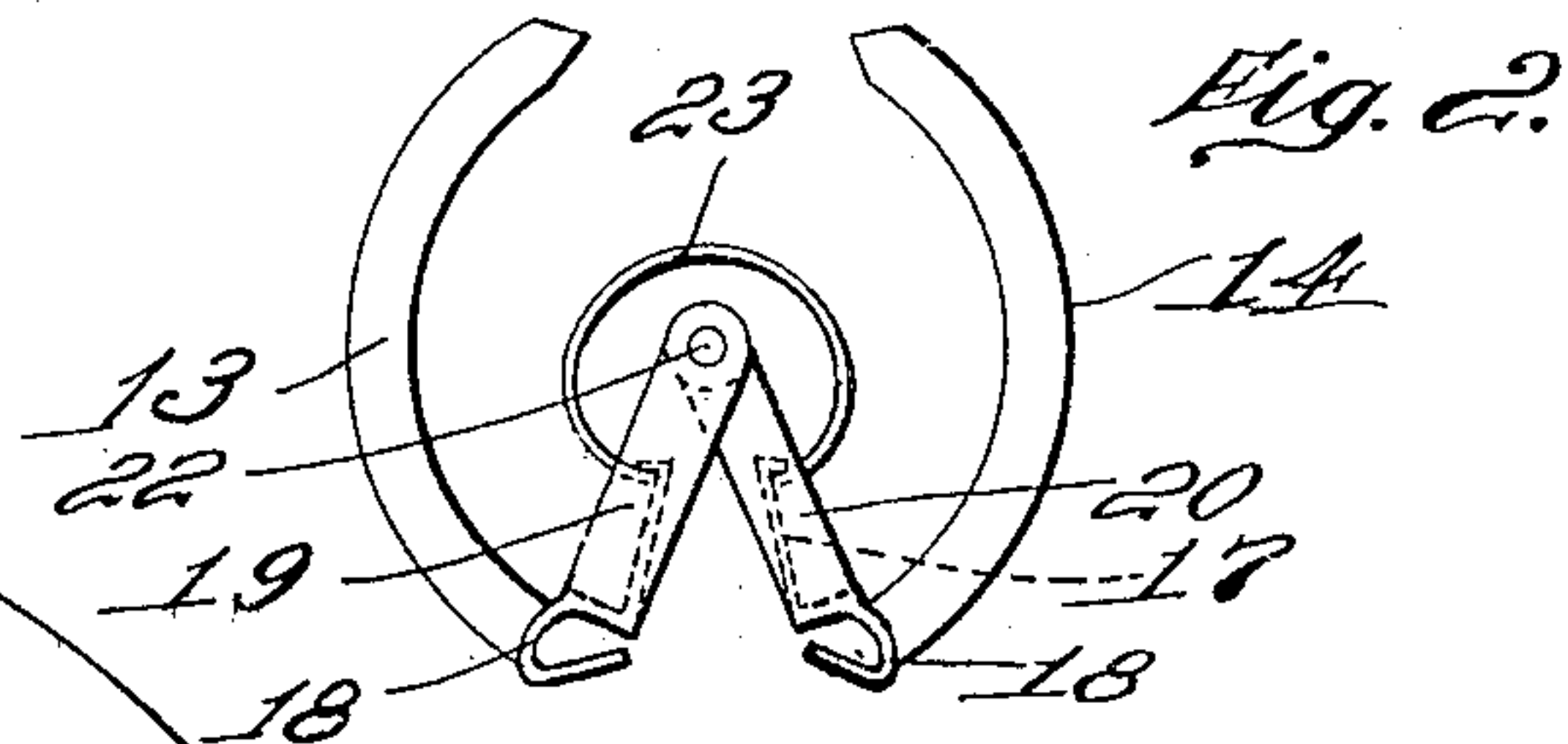
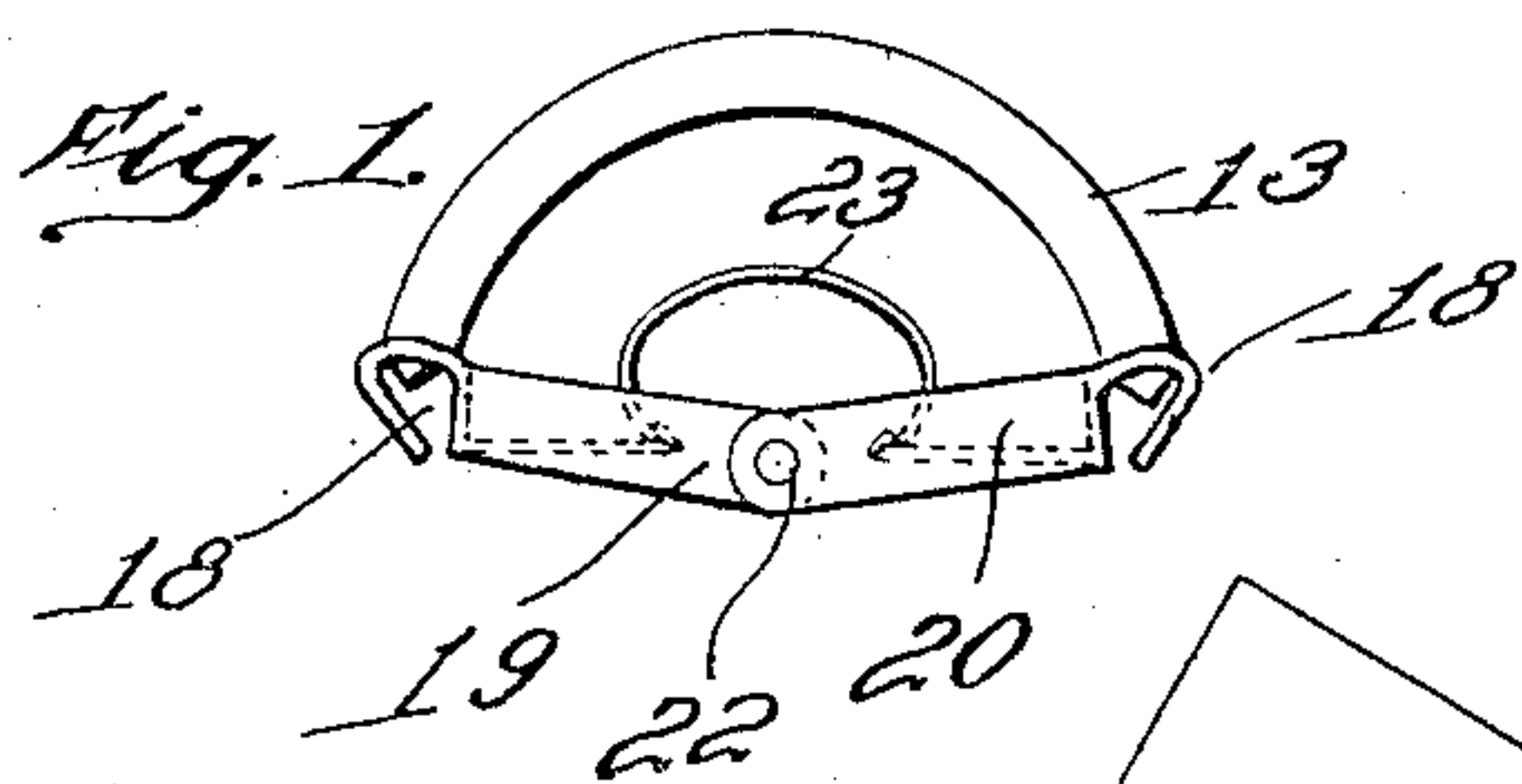


No. 869,378.

PATENTED OCT. 29, 1907.

W. M. S. MILLER.  
LOOSE LEAF BINDER.  
APPLICATION FILED DEC. 3, 1906.



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Fig. 4.



# UNITED STATES PATENT OFFICE.

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## LOOSE-LEAF BINDER.

No. 869,378.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed December 3, 1906. Serial No. 346,112.

*To all whom it may concern:*

Be it known that I, WILLIAM M. S. MILLER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to loose leaf binders of that type in which there is provided a plurality of parallel sheet receiving prongs which are curved to form filing arches, and some of which spring from each of two plates hinged together and adapted to be applied to the inner face of the back member of a book cover. In binders of this type the opening of the sheet holding mechanism to permit the insertion or removal of leaves is accomplished by flexing the hinge connecting the plates or frame members which support the filing prongs, to open the arches. This movement of the plates involves the flexing of the back member of the book cover, which as usually made is too stiff to allow the binder mechanism to retain its open position, while if it be made limp for that purpose, it affords so little resistance to the flexing of the hinge that the binder mechanism may be accidentally opened by the ordinary use of the book.

The object of the invention is to increase the efficiency and convenience in use of binders of the type described and contemplates means for retaining the binder mechanism in either its open or closed position.

In the accompanying drawings Figure 1 is a detail end elevation of a binder mechanism constructed according to the invention and illustrates the parts in the closed position. Fig. 2 is similar to Fig. 1 but shows the parts in the open position. Fig. 3 is a perspective view of the binder mechanism illustrated in Figs. 1 and 2 showing also a book cover to which it is applied in use; and Fig. 4 is a sectional detail illustrating a modified form of construction.

The binder mechanism illustrated in the drawings comprises a pair of frame members 10, 11, each substantially equal to the height of a book cover 12 and each carrying a plurality of parallel sheet receiving prongs 13, 14, curved to arch form. To provide a completed arch for retaining the sheets to be bound the prongs 13, 14 of the two frame members 10, 11 are oppositely directed and each preferably has its outer end normally engaged with an aperture 15, 16 in the other frame member than that by which it is carried.

Each of the frame members 10, 11, as shown, comprises a table portion 17, having along one of its marginal edges a channel or beading 18, and a hinge plate 19, 20 at each end of the table formed by overturning a portion of the wall of the beading 18. In use, the binder mechanism and the book cover 12 will be per-

manently united, preferably by securing a longitudinal fold 21 in the material of the cover within the beading 18 of each of the frame members 10, 11, and the hinge plates 19, 20, will be pivotally united at 22 to provide a hinge connection between the frame members for opening and closing the filing arches.

As so far described this device is not new but is similar in all respects to a temporary binder for which Letters Patent Number 693086 were granted to E. A. Trussell February 11, 1902. By means of the invention provision is made for maintaining the binder mechanism in either its open or closed position. As shown, this is accomplished by means of a contractile spring 23, (two of which are employed upon the device as illustrated) normally reacting between the frame members 10, 11 to close the binder but preferably so disposed that in opening the binder the pivots 22 cross the plane of action of the spring, whereby it then reacts upon the frame members to open the binder. Preferably each of the springs 23 takes the form of a bowed plate most clearly shown in Fig. 3 and bears upon a shoulder 24, 25 formed upon the inner edge of the table portion 17 of each of the frame members 10, 11.

The pressure of the springs 23 against the shoulders 24, 25 will ordinarily serve to hold them in place. If desired, however, longitudinal displacement of the springs upon their seats may be further prevented by overturning the ends 26, 27 of the shoulders, as 24, upon the ends of the spring, as shown in Fig. 4 of the drawings.

I claim as my invention:

1. In a loose leaf binder in combination, a frame comprising two members having inwardly-directed arms hinged together, a sheet receiving prong curved to arch form springing from one of the frame members and having its end normally engaged with the other, and a bowed spring inclosed by the arch of the prong reacting between the frame members to resist the flexing of the hinge.

2. In a loose leaf binder in combination, a hinged frame comprising two parallel members having inwardly directed hinge arms united by a pivot, a sheet receiving prong curved to arch form springing from one of the frame members and having its end normally engaging the other, and a contractile spring inclosed by the frame and reacting between its members, the plane of action of the spring being crossed by the pivot of frame in flexing the hinge.

3. In combination, a book cover, a hinged binder frame comprising two parallel members, each attached to the back member of the cover adjacent one of its marginal edges and having a hinge arm extending across the back member of the cover, a sheet receiving prong curved to arch form springing from one of the frame members and normally having its end engaged with the other member, a contractile spring located between the back of the cover and the arch of the prong and reacting between the frame members, the plane of action of the spring being crossed by the pivot of the hinge in flexing the frame.

4. In combination, a book cover, a hinged binder frame comprising two parallel frame members and an openable

- filing arch, a part of the arch being carried by each of the frame members and each of the frame members being attached to the back member of the book cover adjacent one of its marginal edges and having a hinge arm extending
- 5 across the back member of the cover, and a contractile spring located in front of the cover and within the arch, and reacting between the frame members, the plane of action of the spring being crossed by the pivot of the hinge in flexing the frame.
- 10 5. In a loose leaf binder in combination, a hinged binder frame comprising a pair of parallel members having inwardly directed hinge arms united by a pivot, and a bowed plate spring reacting between the members of the binder frame to resist the flexing of the hinge, each of the frame members having a flange for engaging one edge of the spring and the ends of the flange of one of the members being overturned on the ends of the spring. 15
- WILLIAM M. S. MILLER.
- Witnesses:  
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EMILIE ROSE.