May 1, 1928. 1,667,744

F. C. SKILES

LOOSE LEAF BINDER

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Fig. 1.

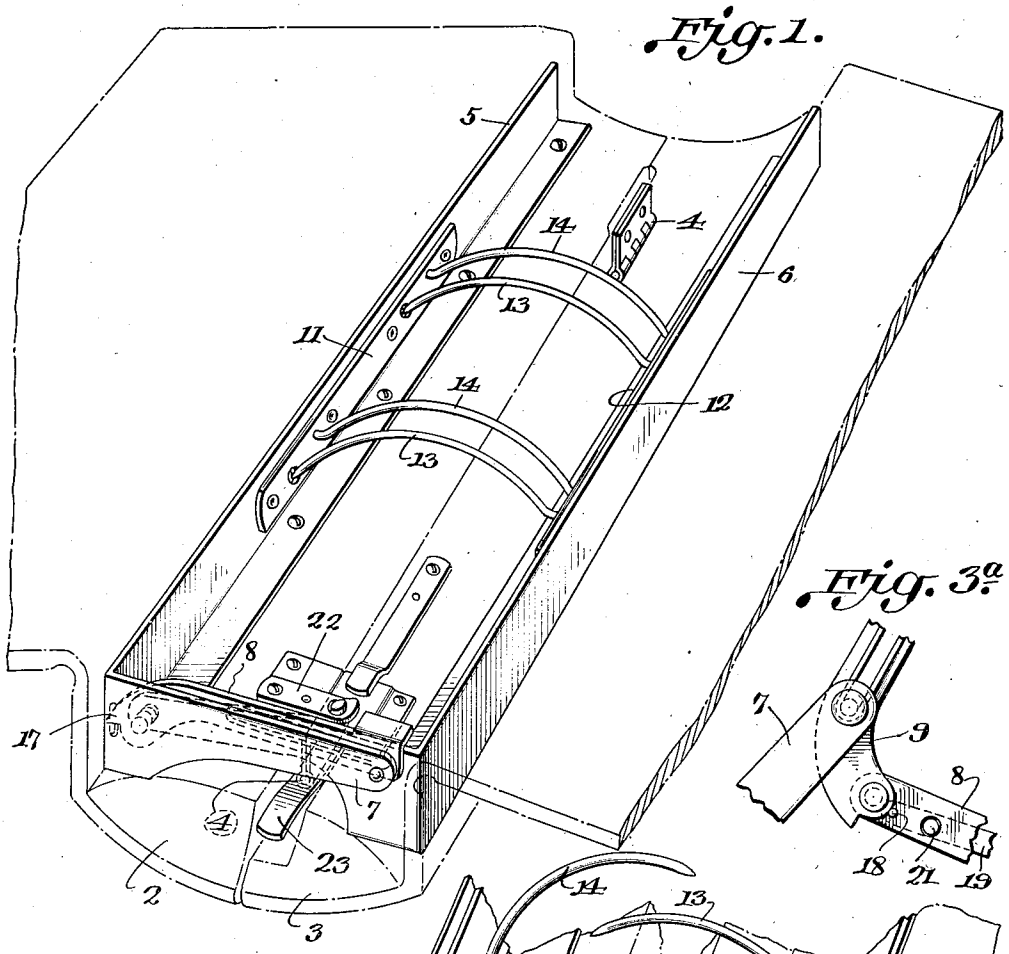
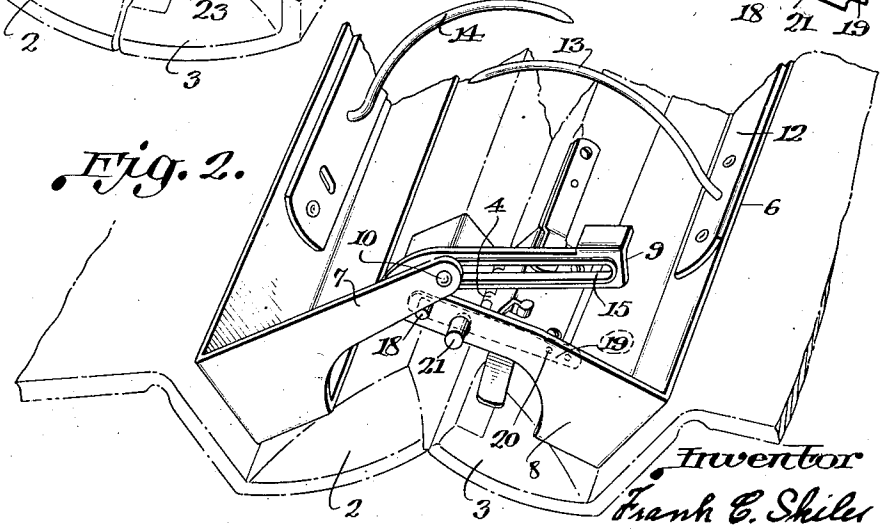


Fig. 3a.

Fig. 2.



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Fig. 3.

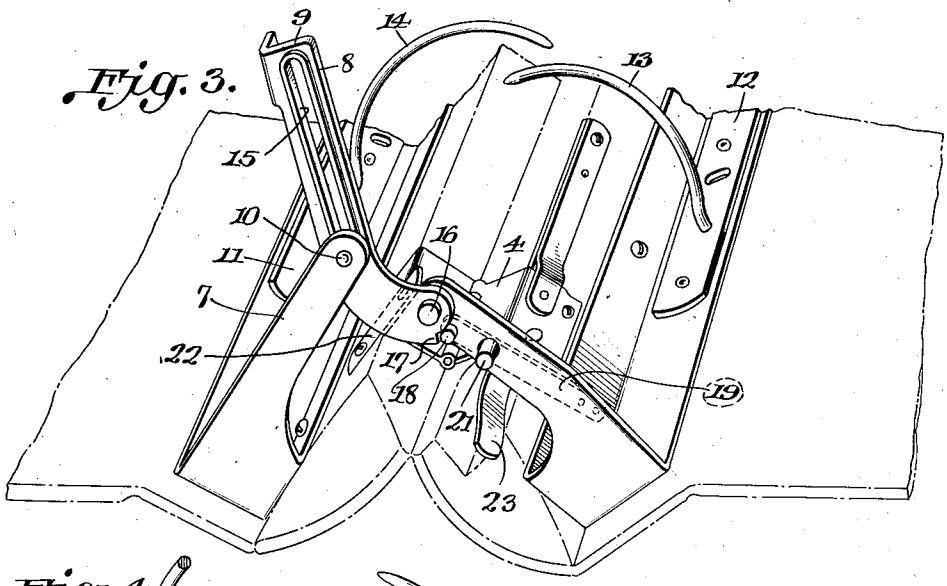


Fig. 4.

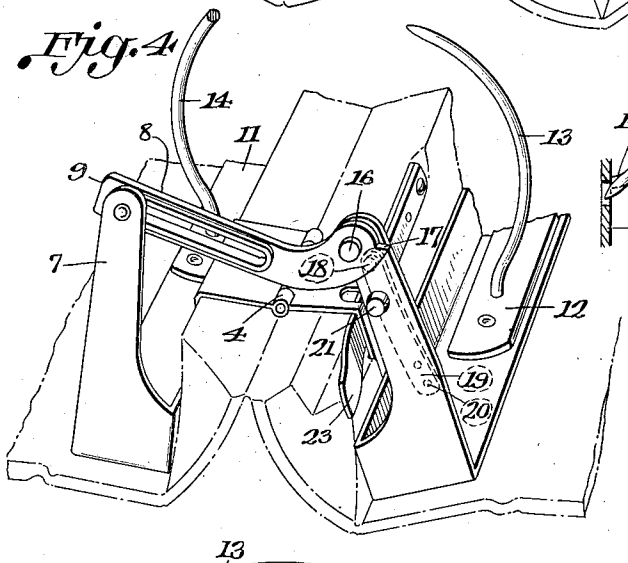


Fig. 5.

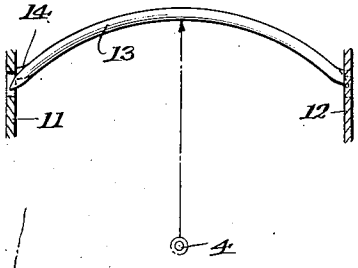


Fig. 6.

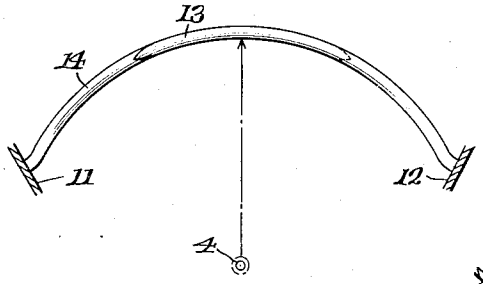
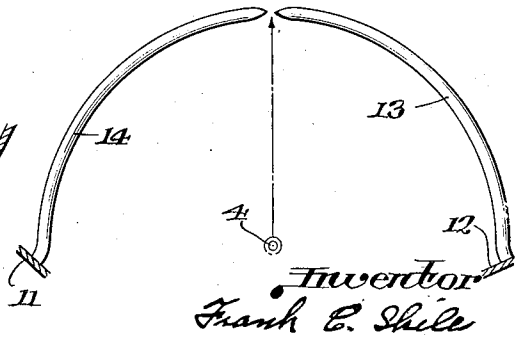


Fig. 7.



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Patented May 1, 1928. 1,667,744

UNITED STATES PATENT OFFICE.

FRANK C. SKILES, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

Application filed September 2, 1919. Serial No. 321,012.

My invention relates to loose leaf binders in general, but more particularly it relates to improved mechanism for use in connection therewith.

Among the objects of my invention are the following: to provide a loose leaf binder having in addition to the open and closed positions one or more intermediate positions; to provide means for holding the binder in a plurality of these positions; to provide a binder of this type of a very simple design; and to provide details of improvement in tending to increase the efficiency and serviceability of a binder of the above general character.

To accomplish the foregoing and other useful ends, my invention consists of means hereinafter more fully set forth and claimed.

Fig. 1 is a perspective view of the hinge and mechanism of the binder with the lock mechanism on the forward end in No. 1 position.

Fig. 2 is a perspective view with the lock in No. 2 position.

Fig. 3 is a detail view of certain of the locking elements with the lock in third position.

Fig. 3ª is a similar view with the lock in transitory position between the second and third positions.

Fig. 4 is a similar view with the lock in fourth position.

Figs. 5, 6 and 7 are diagrammatic front elevational views showing leaf-holding prongs in first, second and third positions.

Referring to the drawings more in detail it will be seen that the head of the binder is made up of two sections 2 and 3 held together by the hinges 4. Along the edge of these sections 2 and 3 of the head, respectively, I provide angle strips 5 and 6, which are essential members of the locking mechanism. The forward ends of these strips 5 and 6 are folded at right angles to form the arms 7 and 8, Fig. 2. These arms overlap as indicated in Fig. 1. On the left-hand or forward end of the arm 8, I have pivoted a flat link 9 which is slotted at 15 for more than half its length from the free end so as to be held in sliding engagement with the forward end of the arm 7 by the pin 10 carried by the latter.

The strips 5 and 6 it will be seen are secured to the binder by suitable screws. On the inner side of these strips, I have provided other strips 11 and 12 to which are secured suitable prongs 13 and 14, curved to circular arcs about the hinge as a center and on which the loose leaves of the binder are threaded. It will be understood that I may have as many of these prongs on each side as necessary, depending upon the size of the book. These prongs are provided in sets of two. Although I have shown these prongs as working side by side, they may be arranged to work one inside the other telescope-fashion. The prong strips 11 and 12 I secure to the angle strips in any suitable manner as by rivets or screws. When the binder is closed the lock and prongs are in the position indicated in Fig. 1 and when it is desired to open it only for the purpose of shifting the leaves back and forth, the lock may be set in the position indicated in Fig. 2. In this position the pin 10 catches at the bottom of the slot 15 in the link 9, the centers of the pins 10 and 16 being so close as to necessitate the arms 7 and 8 being sprung apart before the binder can be opened any further. To open the binder from position 2, Fig. 2, to position 3, Fig. 3ª, the link 9 is used as a lever to spring the arms 7 and 8 apart so that pin 10 may be thrown off center to permit link 9 to be rotated to the position shown in Fig. 3ª with the tail 17 against the latch pin 18. This pin 18 is mounted on a spring 19 riveted to the inner side of the arm 8 by the rivets or screws 20. The pin 18, it will be understood projects through an opening in the arm 8. In a similar manner and through a second similar opening the button 21 projects through, which button controls the position of the spring 19 and consequently that of the pin 18 also. Therefore, it will be seen that by pressing the button 21 the pin 18 may be retired so that the link 9 is unlatched from the third position and the binder can then assume a full open position as indicated in Fig. 4.

Although I have shown the lock on only one end it will be understood that it may be applied at both ends of the binder.

With reference to the prongs 13 and 14 they are set about an inch apart, whereas the sets may be spaced any suitable distance, from 4 to 6 inches on the average.

I wish to point out that when the binder is in first position it is held latched by the spring-latch members 22 and 23, the latter projecting beyond the heel so that by pressing down the forward end of the spring member 23 the binder is unlatched as in

U. S. Patent No. 1,138,019 of which this is an improvement. I wish to point out also that the prongs 13 and 14 may be secured directly to the strips 5 and 6 if desired. This may be done in any suitable manner.

What I claim as my invention is:

1. In a book binder, a hinged back comprising two wings, an arm on each wing, a link pivotally fixed to one of said arms and slidably pivoted to the other, said link and arms forming means for holding said binder in an intermediate position, and a latch on one of said arms for latching the binder in a second intermediate position.

2. In a book binder, a hinged back comprising two wings, an arm on each wing, a link pivotally fixed to one of said arms and slidably pivoted to the other, whereby the binder may be either completely opened or completely closed, and a latch on one of said arms for latching the binder in an intermediate position.

3. In a book binder, a hinged back comprising two wings, an arm on each wing, a link pivotally fixed to one of said arms and slidably pivoted to the other, and a latch on one of said arms for latching the binder, said latch having a button projecting through said arm, whereby when the button is pressed the binder opens one step further.

4. In a book binder, a hinged back comprising two wings connected through a lost-motion linkage mechanism whereby the binder may be held in an intermediate position between the open and closed positions.

5. In a book binder, a hinged back comprising two wings connected through a lost-motion linkage mechanism whereby the binder may be held in an intermediate position between the open and closed positions, and a releasable latch associated with said linkage whereby the binder may be held in a second intermediate position and manually operable to release the binder to the fully-open position.

6. In a book binder, a hinged back comprising two wings, a co-operating latch mechanism to lock said binder in a closed position; a lost motion link mechanism joining said wings to allow the opening thereof to an intermediate position, one member of said link mechanism comprising a lever which may be operated to allow the opening of the binder to a second intermediate position, and a second latch associated with said link mechanism to allow the binder to be moved to full open position.

7. In a book binder, a hinged back comprising two wings; an arm on each wing; a link pivotally fixed to one of said arms and slidably pivoted to the other, said link and said arms comprising a resilient link mechanism, to latch the binder in a position intermediate the open and closed positions, and, upon operation of the link, to allow the opening of the binder to a second intermediate position; a latch on one of said arms for latching the binder in said second intermediate position, and operable to release the binder to open position.

8. In a book binder, a hinged back comprising two wings, a plurality of curved prongs secured to said wings for impaling the contents of the binder, a latch mechanism for securing said binder in a closed position; an arm projecting from each wing and connected by a lost-motion link to allow the opening of the binder to an intermediate position, said link serving as a lever which may be manually operated to cause the opening of the binder to a second intermediate position, and a second latch secured to one of said arms whereby the binder may be held in a second intermediate position and manually operable to release the binder to the fully-open position.

Signed by me at Chicago, Cook County, Illinois, this 5th day of August, 1919.

FRANK C. SKILES.