

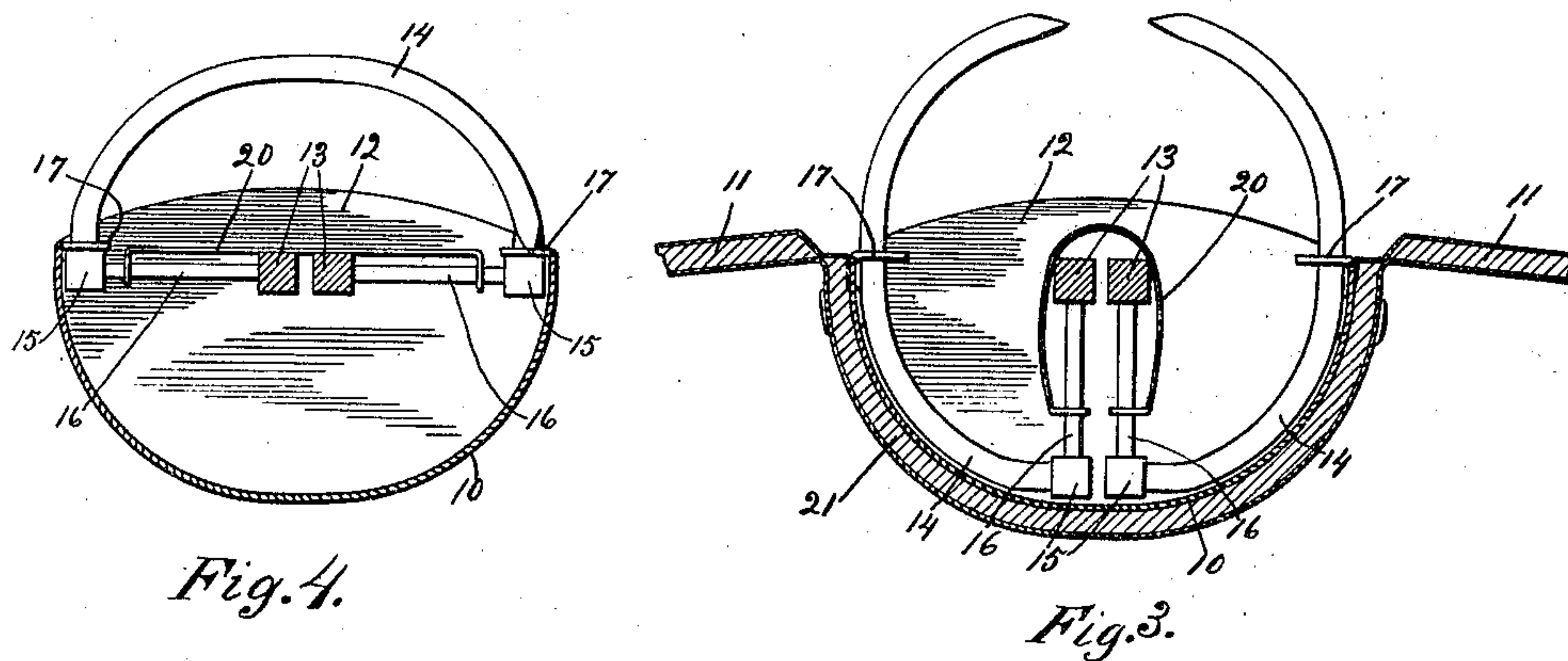
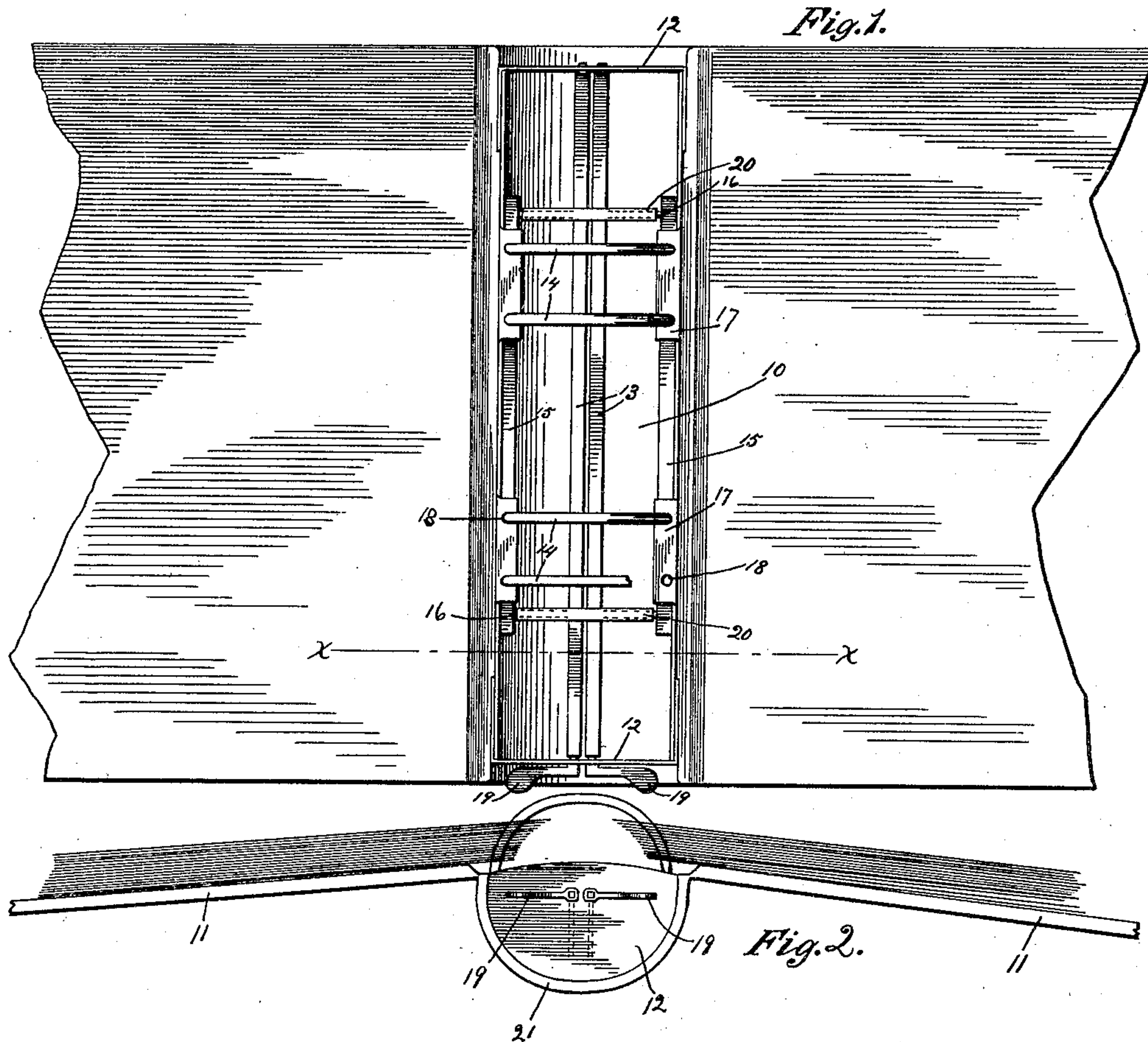
No. 770,020.

PATENTED SEPT. 13, 1904.

C. R. NELSON.
LOOSE LEAF BINDER.

APPLICATION FILED NOV. 4, 1902.

NO MODEL.



WITNESSES:

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LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 770,020, dated September 13, 1904.

Application filed November 4, 1902. Serial No. 130,101. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. NELSON, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, 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.

This invention relates particularly to improvements in loose-leaf binders adapted for removably securing letters, bills, and other memoranda, and has for its primary object to provide a binder of this character in which the leaves when the binder is open shall spread out flat in order to facilitate the inspection of the same.

Other objects of the invention are to simplify the construction of the binder, to provide one permitting of the ready insertion and removal of the letters or other sheets held thereby; and it also contemplates the provision of means for automatically locking or securing the contents of the binder after the latter has been opened to remove or insert a letter or other sheet.

The invention comprises generally a back and a rock shaft, journaled on and longitudinally of the back and provided with impaling-prongs projecting laterally therefrom and extending to one side of the back and then curving backwardly and extending beyond the shaft to or near the opposite side of the back. Preferably a pair of rock-shafts are employed, and in the specific construction illustrated the binder consists of a chambered rigid back having covers secured thereto in the manner of an ordinary book and end pieces in which the rock-shafts are journaled, to which the impaling pins or prongs are attached, the arrangement being such that when the rock-shafts are oscillated the prongs of one shaft will be caused to move away or recede from the prongs of the other shaft.

The invention also consists of the combination and arrangement of parts hereinafter particularly described, specifically designated

in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a view of the binder with the covers thereof thrown open. Fig. 2 is an end view of the same. Fig. 3 is a section on the line $x x$ of Fig. 1, and Fig. 4 is a transverse section of the back of the binder with the usual facing removed.

The back of the binder is indicated at 10 and consists of a rigid member which may be semicircular in cross-section or of other suitable shape and is chambered or hollowed out to provide a space for the movable parts of the leaf or sheet clamping and securing mechanism hereinafter described. Attached to the back in the manner of the ordinary book are covers 11 11, and the back in order to give the binder an ornamental appearance may be provided with a covering of leather or canvas 21 in the usual manner.

Journaled in the end pieces or plates 12 12 of the back between the side walls of the same and suitably spaced from the bottom thereof is a rock-shaft 13, and carried by the said rock-shaft are one or more curved impaling pins or prongs 14, which are substantially arc-shaped and each of which extends when the binder is in its locked or closed position laterally from the shaft toward one side wall of the back and then arches over the chamber of the back and the rock-shaft in the direction of the opposite side of the back. Two such rock-shafts having impaling-prongs, as described, are shown and preferably used, the said shafts being journaled side by side in the end pieces or plates 12 12. In the construction illustrated the prongs 14 are attached at their inner ends to parallel bars 15, which in turn are connected to the rock-shaft by rods 16. As thus constructed and as shown in Fig. 3, when the prongs are separated or opened for the insertion or removal of sheets the bars 15 lie in the bottom of the chamber of the back and the prongs 14 of each extend outwardly from the said bar along the side wall of the back adjacent thereto and then project inwardly toward the ends of the prongs of the

other bar, a narrow space intervening between the pointed ends in order to permit of the removal or insertion of the sheets. In their closed or locked position of the binder the bars 15 are disposed at opposite sides of the side walls of the back and the prongs then arch the chamber of and extend above the plane of the top of the back. An advantage in this construction is that when the leaves or sheets in the binder are opened to permit of the inspection of the contents thereof the leaves or sheets lie in the position illustrated in Fig. 2—that is to say, they flatten out and do not curve over the edges of the back as they do when the impaling pins or prongs are located below the plane of the top of the back.

The back is preferably provided at the inner upper edges thereof with plates or inwardly-extending flanges 17, provided with apertures coinciding with the prongs and which serve to guide the prongs and also keep the ends thereof in alinement with apertures 18 in the said plates or flanges, which may be provided to receive the ends of the prongs. These plates may also be utilized as stops to limit the movement of the rock-shafts, being engaged by the bars 15 when the binder is locked or closed, Fig. 4.

Any suitable means may be provided for oscillating the rock-shafts in opposite directions to recede the prongs when it is desired to open or close the binder, and such means may consist of a crank-arm or finger-piece 19, fixed to each of the adjacent ends of the rock-shafts 13, as illustrated in Fig. 2. When a letter is to be inserted, for example, the covers 11 are first thrown open and the leaves or sheets divided at the place where the new sheet is to be put in. The crank-arm then being turned to the dotted-lines position, Fig. 2, the prongs will recede from each other; but the leaves or sheets being separated will be retained by the prongs extending from that side of the back to which they are laid or turned. The new letter provided with proper apertures is then impaled on one set of prongs and the shafts turned back to their normal position, the prongs of each shaft then passing through the apertures in all the sheets provided therefor.

For convenience and in order to automatically close or lock the binder a spring may be provided and so arranged as to be wound up or have its tension increased during the opening or separating of the prongs and react to close the same as soon as they are released. Such spring may take the form of a flat bar 20, crossing the rock-shafts, and each of whose ends slidably engages one of an adjacent pair of rods 17, connecting the rock-shafts 13 with the bars 15. The tension of this spring should be sufficient to maintain the prongs in their closed position, as shown in Fig. 4, and when

the prongs are separated it will have its tension increased to such a degree that it will immediately force the prongs to their closed position when the finger-pieces 19 are released.

I claim as my invention—

1. In a loose-leaf binder, in combination, a back having end pieces, impaling-prongs, a pair of independently-oscillatable frames to which the prongs are fixed and the pivots of which are journaled in the ends and spaced from the back a distance at least as great as the radius of the arc described by the prongs when the frames are rocked.

2. In a loose-leaf binder, in combination, a rigid back having end pieces, a pair of rock-shafts journaled in the end pieces and adjacent the longitudinal median line of the back, impaling-prongs projecting laterally from each shaft and curved backwardly to the opposite side of the back, each rock-shaft being spaced from the back a distance at least as great as the radius of the arc described by the prongs when the shafts are oscillated.

3. In a loose-leaf binder, in combination, a chambered back, a pair of parallel longitudinally-disposed oppositely-oscillatable rock-shafts journaled on the back, curved impaling-prongs carried by each rock-shaft and normally extending from the side of the back adjacent thereto toward the opposite side of the back, means for withdrawing the inner ends of the prongs into the chamber of the back, and a spring for returning the prongs when the withdrawing means are released.

4. In a loose-leaf binder, in combination, a chambered back, a pair of longitudinally-disposed parallel rock-shafts journaled between the sides of the back and in the ends thereof near the top, curved impaling-prongs carried by each rock-shaft and extending when in normal position from one side of the back to the opposite side, and crank-arms for oscillating the rock-shafts in opposite directions to recede the prongs.

5. In a loose-leaf binder, in combination, a chambered back, a pair of parallel longitudinally-disposed oppositely-oscillatable rock-shafts journaled between the sides of the back and in the end walls thereof, curved impaling-prongs carried by each rock-shaft and extending when in normal position from one side of the back toward the opposite side, crank-arms fixed to the rock-shafts for oscillating the same, and a spring for returning the prongs to normal position when the crank-arms are released.

6. In a loose-leaf binder, in combination, a chambered back, a pair of parallel longitudinally-disposed oppositely-oscillatable rock-shafts journaled between the sides of the back and in the end walls thereof, a pair of bars parallel with the rock-shafts and normally located at the opposite sides of the back, rods

connecting each of the bars with the rock-shaft adjacent thereto, prongs fixed in each bar and curving over the rock-shafts to the opposite side of the back, a crank-arm fixed
5 to each rock-shaft, and a bar-spring crossing the rock-shafts and having its ends slidably engaging adjacent connecting-rods.

7. In a loose-leaf binder, in combination, a chambered back having end pieces, a pair of
10 oppositely-oscillatable frames the pivots of which are journaled in the end pieces and adjacent the longitudinal median line of the back

and spaced from the bottom thereof, curved impaling-prongs carried by each frame and normally extending from the side of the back
15 adjacent such frame to the opposite side and the inner ends of which are movable into and out of the chamber of the back when the frames are oscillated in opposite directions.

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