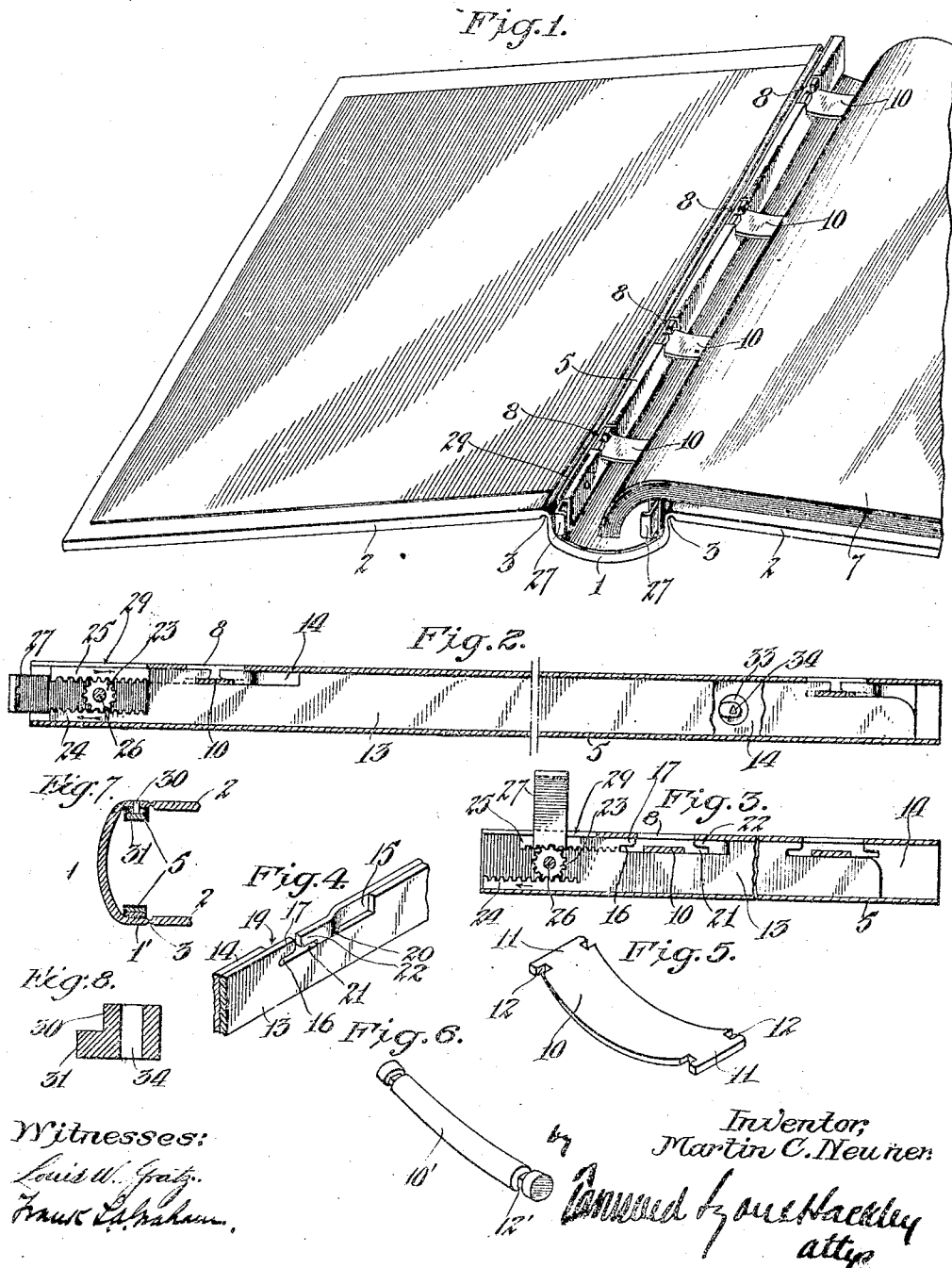


M. C. NEUNER.
LOOSE LEAF BINDER.
APPLICATION FILED MAR. 15, 1909.

951,544.

Patented Mar. 8, 1910.



UNITED STATES PATENT OFFICE.

MARTIN C. NEUNER, OF LOS ANGELES, CALIFORNIA.

LOOSE-LEAF BINDER.

951,544.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed March 15, 1909. Serial No. 493,609.

To all whom it may concern:

Be it known that I, MARTIN C. NEUNER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Loose-Leaf Binder, of which the following is a specification.

The main object of the present invention is to provide a loose leaf binder with means whereby sheets can be readily inserted or removed at either side of the book.

Another object of the invention is to provide improved fastening means for securing the leaves in place whereby engagement and detachment of the fastening means is facilitated.

Other objects of the invention will appear hereinafter.

Referring to the drawings: Figure 1 is a perspective of a portion of the binder. Fig. 2 is a longitudinal vertical section of one of the clamping members at the back of the binder. Fig. 3 is a fragmental section showing the position of the locking parts in unlocked position. Fig. 4 is a perspective of the locking means for the leaf retainers. Fig. 5 is a perspective of a leaf retainer. Fig. 6 is a perspective of another form of leaf retainer. Fig. 7 is a vertical section through the back portion of the binder. Fig. 8 is a detail section of the lock arbor.

The binder comprises a back member 1 and two outer leaves or covers 2, the back member being connected to the covers by the usual flexible connections or hinges 3 and being formed as a channel member.

At each side of the channel shaped back member 1 is provided a clamping means for holding in place the devices which engage with and secure the loose leaves. Each of such means comprises a tubular member 5 formed, for example, of sheet metal rectangular in cross section and extending the full length of the back member, this tubular member being secured to the channel shaped back member at the up-turned edge thereof, so that two tubular members are on edge with reference to the back member and extend parallel to and opposite one another, the inner end of the pile of loose leaves 7 being received between these two tubular members. Each of the tubular members 5 is provided with notches 8 in its upper edge to receive and fit the ends of the leaf retainers 10. Each leaf retainer consists of a

flat strip of metal preferably bent conformably to the back member 1, the end portions 11 of said strip being bent directly outward in the same plane so as to enable them to lie flat in the notches 8 aforesaid. Each end portion 11 has, at each side of the strip, an indentation or notch 12.

Within each tubular member 5 slide two locking bars 13, 14 formed as flat strips sliding side by side within and guided by the tubular member. Locking bar 13 has a plurality of notches 15 in its upper edge adjacent to the several notches 8 in the tubular member and at one end of said notch, which will be termed the forward end, the said bar or slide is provided with a longitudinally extending slot 16 at the bottom of the notch 15 forming above said longitudinally extending slot a rearwardly projecting pin or detent 17. The other slide 14 has a plurality of notches 19 in its top and a portion of said slide at the rear end of each notch 19 is bent laterally to extend into the notch 15 of the other slide 14 and then forwardly at 20 to extend along said notch in the same plane with said other slide 13. This longitudinally extending portion 20 is cut away as at 21 to form a tongue, pin or detent 22 directly opposite the pin or detent 17 on the other slide. The slides or locking bars 13, 14 are operated simultaneously and in opposite directions by suitable means, consisting, for example, of a gear wheel 23 engaging racks 24, 25 extending from the forward ends of said slides, said gear wheel being carried by a shaft 26 having an operating lever or handle 27 working through a slot 29 in the top of the tubular member 5. At the back of each notch 8 in the tubular member the back wall 28 is left at the full height to aid in guiding the paper retainers 10 into position as they are being inserted within the notches.

The binder is used as follows: Each loose leaf 7 has a plurality of slots near its inner edge and a leaf retainer 10 is slipped through each of these slots with its ends projecting beyond the paper. In inserting the leaf with the retainers in the binder the levers 27 are first operated to separate the detents or pins 17, 22 as far as possible, this being effected by turning the levers to upright position, as shown in Fig. 3, the result being that each slot 8 in the tubular member is left unobstructed for the insertion of a leaf retainer. The leaf retainers may then

be pushed into place with their ends fitting in these notches and on then moving the operating lever 27 to depressed position, shown in Fig. 1, the two slides are moved
 5 in opposite directions so that the detents 17, 22 thereon approach one another. The effect of this is to cause each detent 17, 22 to pass over the adjacent portion of the leaf retainer 10 thereby holding the paper
 10 retainer from outward movement. At the same time the portion of the bars 13, 14 at the back of and directly adjacent to said detent passes into the notch 12 of the leaf retainer, holding the parts against relative
 15 movement in a lateral direction and enabling each leaf retainer to form a bridge across the back member.

The leaf retainers above described being flat, and conforming to the general shape of
 20 the binder back, engage advantageously with the leaves to hold the same firmly in position. If desired, said leaf retainers may be made so thin as to be elastic or flexible, and in that case it is preferred to make
 25 the back member 1, including the metallic channel shaped lining 1' thereof, sufficiently thin to be flexible, so that the entire structure is flexible at the back and the binder with the inclosed leaves can open flat at any
 30 position. It is not essential, however, that the leaf retainers should be flat as they may be of any cross section, for example, they may be in the form of bars shown at 10' in Fig. 6, said bars being notched as at 12'
 35 near the ends thereof, said notches extending into each side of the bar and also extending in the top or bottom, or both, so that the locking devices above described can engage laterally with the bar and may extend
 40 over the bar.

In case the binder is used for permanent record a lock may be provided therefor, consisting of a hollow arbor 30 mounted to turn in the outer side wall of the casing or tubular
 45 member 5 and extending through the edge portion of the back member 1, as shown in Fig. 7, so as to be accessible from the outside of the binder, said arbor carrying a lug or arm 31 which when placed in the position
 50 shown in Fig. 2 opposes and prevents the opening movement of the sliding bar 13. Said bar is provided with a circular opening 33 wherein said arm 31 may be turned to a position opposite that shown in Fig. 2, al-
 55 lowing the bar 13 to be moved freely to open position. A key or suitable instrument may be inserted through the opening 34 in the arbor 1 to turn the same so as to lock or unlock the binder. By constructing the binder
 60 as shown with the tubular guide members 5 on the inside of the lateral extensions 1' of back member 1, as shown in Fig. 7, a more compact construction and a flatter lay of the leaves is secured than with projecting
 65 guide members, and in case a permanent

lock is desired it is secured in connection with this construction by making the locking device extend through the side member 1' of the back, as stated.

What I claim is:—

1. A loose leaf binder comprising a channel shaped back member, a cover attached to each side thereof, curved flat thin leaf retainers notched at each end and bridging the back member, and locking means at each
 75 side of the back member to detachably engage over each end of the leaf retainers to hold the same in position.

2. In a loose leaf binder, a channel shaped back member, a plurality of curved flat thin leaf retainers notched at each end and extending across the back member, a tubular
 80 member at each side of the back member notched to receive the notched ends of said leaf retainers, a longitudinally movable locking means within said tubular member, provided with means for engaging over the
 85 leaf retainers to hold the same in position.

3. A loose leaf binder comprising a back member having side extensions, tubular
 90 guide members attached to said side extensions, a pair of oppositely movable locking bars slidable longitudinally in the tubular guide members, leaf retainers secured by said locking bars, an arbor revoluble in the
 95 wall of a tubular guide member, one of the bars in the guide member having a circular orifice, an arm in said arbor lying in the circular orifice and bearing against the wall of the orifice to prevent movement of the bar
 100 but allowing movement of the bar when turned into the opposite position, said arbor having key receiving means.

4. In a loose leaf binder, the combination with a channel shaped back member of a
 105 plurality of leaf retainers, each formed of sheet metal having its end portions notched at each side, and clamping means therefor on each side of the back member, the said clamping means consisting of a tubular
 110 member notched at its top to receive the leaf retainers, and two locking bars slidable in the tubular member, said locking bars having oppositely directed detents to engage over the leaf retainers and having portions
 115 to engage within notches of the leaf retainers and means for simultaneously operating said locking bars in opposite directions.

5. In a loose leaf binder, the combination with a channel shaped back member of a
 120 plurality of leaf retainers, each formed of sheet metal having its end portions notched at each side, and clamping means therefor on each side of the back member, the said clamping means consisting of a tubular
 125 member notched at its top to receive the leaf retainers, and two locking bars slidable in the tubular member, said locking bars having oppositely directed detents to engage over the leaf retainers and having portions
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to engage within notches of the leaf retainers and means for simultaneously operating said locking bars in opposite directions, said operating means consisting of racks on said locking bars, a gear wheel engaging said racks, and a handle lever connected to said gear wheel.

6. In a loose leaf binder, a channel shaped back member, a plurality of leaf retainers extending across the back member, a tubular member at each side of the back member notched to receive said leaf retainers, a pair of longitudinally disposed oppositely movable locking bars within said tubular member, provided with means for engaging over the leaf retainers to hold the same in position, a lever, means operated by the lever for simultaneously moving both bars in opposite directions, and a key operated lock for preventing the movement of the longitudinally movable locking bars.

7. A loose leaf binder comprising a back member having side extensions, tubular guide members within and attached to said side extensions of the back member, a pair of oppositely movable locking bars contained and guided by each tubular guide member, curved leaf retainers secured by said locking bars, and a key operated locking means cooperating with said locking devices and having a key receiving portion extending through the said side extensions of the back member for access from the outside of the binder.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 19th day of February 1909.

MARTIN C. NEUNER.

In presence of—

G. T. HACKLEY,

FRANK L. A. GRAHAM.