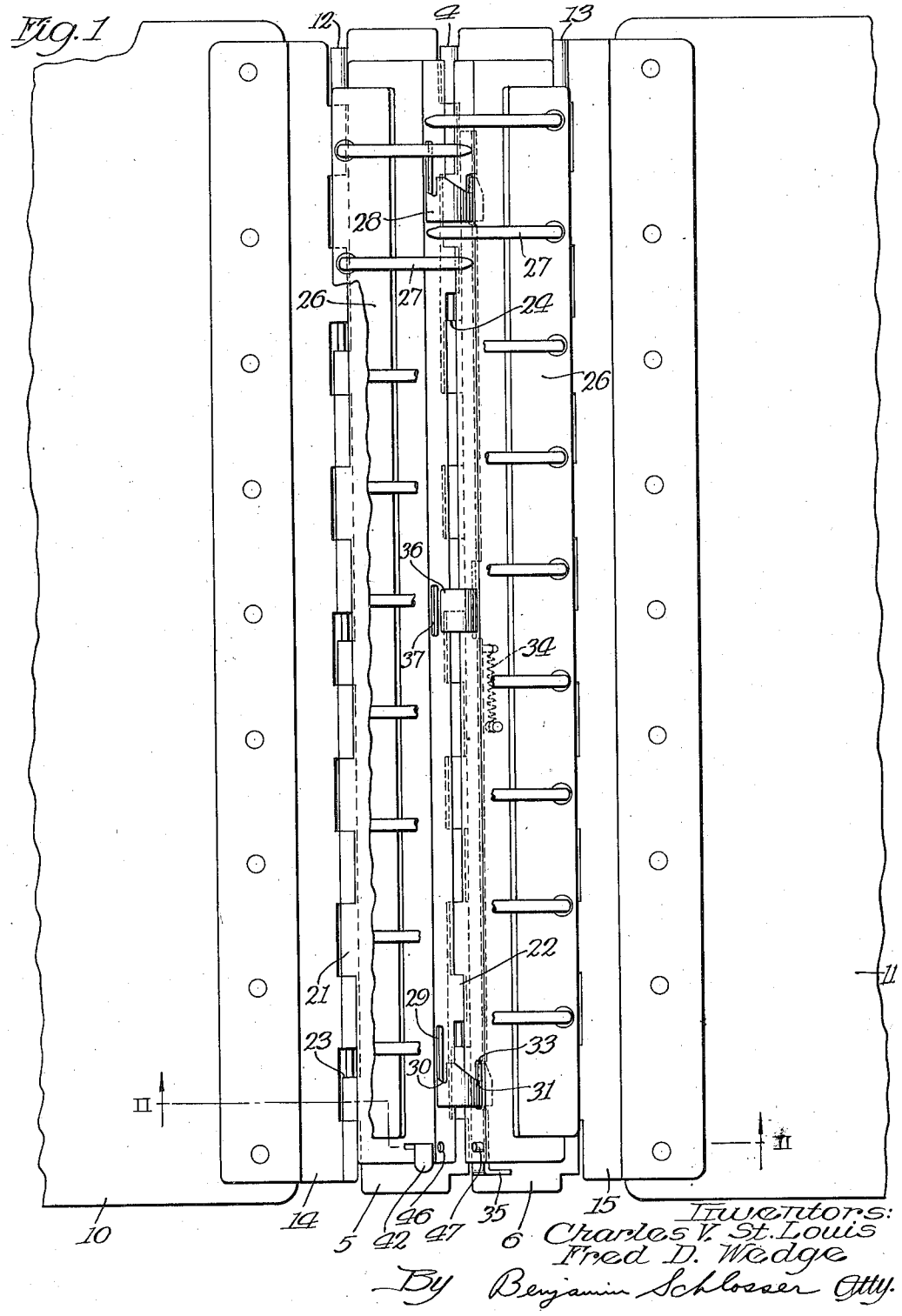
April 22, 1941. C. V. ST. LOUIS ET AL 2,239,121

LOOSE-LEAF BINDER

Filed Feb. 8, 1939 2 Sheets-Sheet 1

Fig. 1



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LOOSE-LEAF BINDER

Filed Feb. 8, 1939 2 Sheets-Sheet 2

Fig. 2

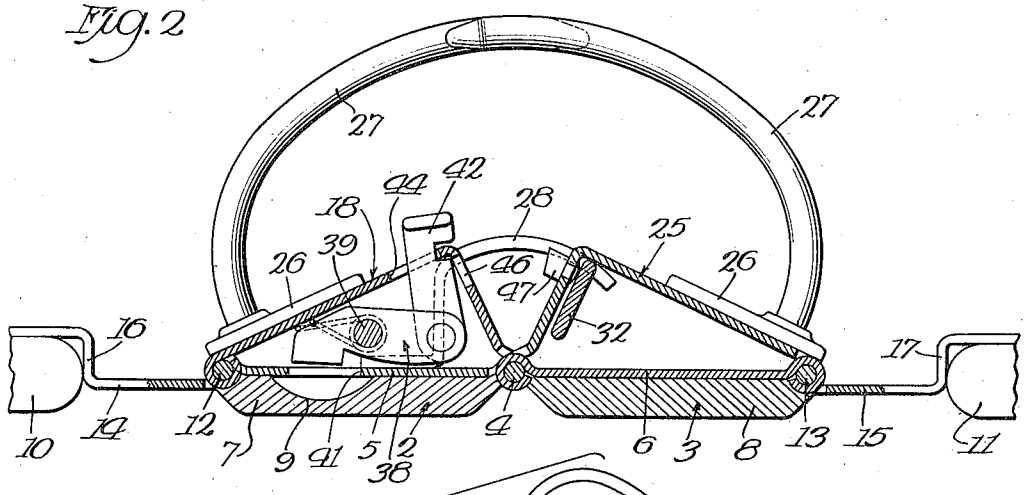


Fig. 4

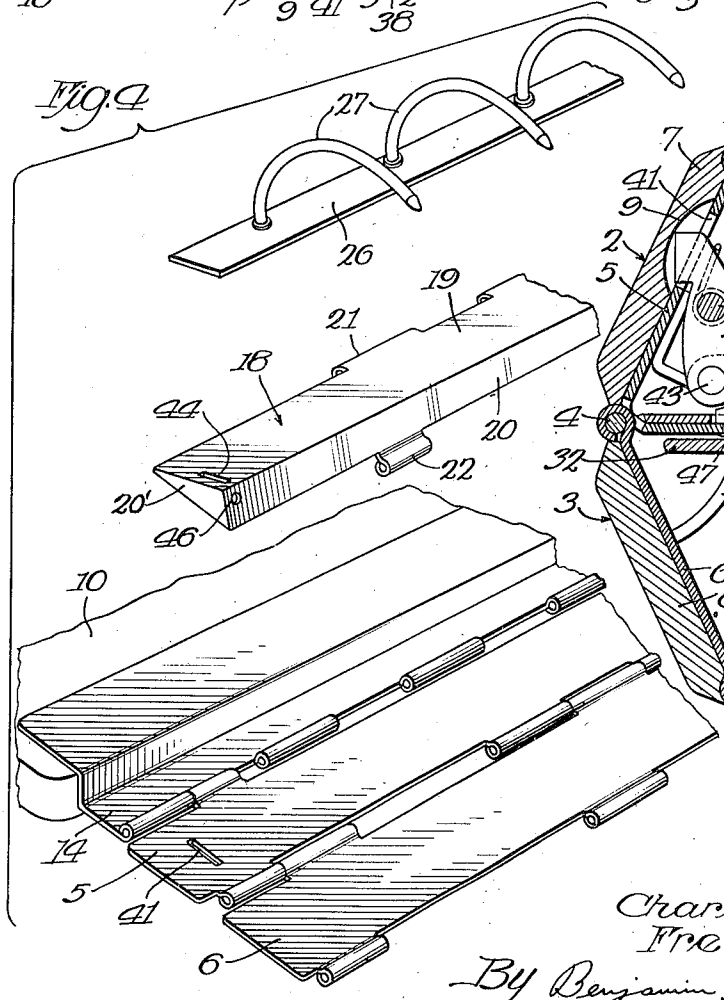
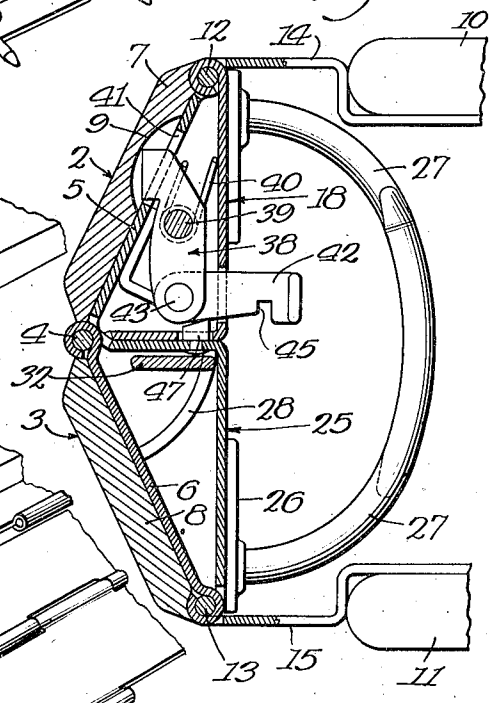


Fig. 3



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UNITED STATES PATENT OFFICE

2,239,121

LOOSE-LEAF BINDER

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Application February 8, 1939, Serial No. 255,196

12 Claims. (Cl. 129—17)

This invention relates to a loose-leaf binder of the type having a pair of hinged back sections and particularly to means for increasing the stability of the binder during use.

In binders of this general type it is customary to provide latching means for holding the back sections in closed or in intermediate position. When the latching means is released the back sections may be moved to fully open position. It has long been known in the art that a binder of this type balanced so that the back sections may be moved up and down throughout the range of its fully open position with a minimum expenditure of energy is very desirable in the efficient use of the binder. This result has been accomplished to some extent by providing hinged supporting members adapted to swing laterally about the hinges connecting the covers to the back sections as described in the Martin Patent No. 1,722,812 issued July 30, 1929, or by extending the back sections to provide projecting portions extending beyond the planes between which the sheets are confined.

It is an object of this invention to provide a loose-leaf binder with hinged back sections that may be easily moved up and down throughout the range of its fully open position without the intervention of any extra parts and without adding to the width of the binder. It is a further object of this invention to provide means for absolutely preventing rocking movement of the back sections of the binder when pressure is applied to either cover, as in writing on the sheets, when the binder is in either intermediate or fully open position. It is a further object of this invention to provide improved means for preventing accidental longitudinal shifting of the binder parts relative to each other. Other objects of this invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawings, in which

Figure 1 is a top plan view of the loose-leaf binder in a fully open position just beyond the intermediate position;

Figure 2 is a cross sectional view taken along the line II—II of Figure 1;

Figure 3 is a cross sectional view of the binder in closed position; and

Figure 4 is a fragmentary detail view of various parts of the binder in disassembled position.

In the drawings, the reference numerals 2 and 3 indicate a pair of flat back sections hinged together, as indicated at 4. Each back section includes a flat metal plate 5, 6, and a strip 7, 8 of fiber, Bakelite or similar material to provide an attractive outer back. The strip 7 is recessed, as indicated at 9, for a purpose hereinafter disclosed. A pair of cover members 10, 11 is hinged to the outer edges of the back sections 2 and 3, as indicated at 12 and 13 respectively. The hinge plates 14, 15 connecting the cover members to the back sections are offset a distance from the hinges 12 and 13, as indicated at 16, 17, to minimize the overall thickness of the binder.

A box member 18 of triangular cross section is slidably mounted on the back section 2. The box member comprises a top wall 19, a side wall 20 and a pair of end walls 20'. The top wall 19 and the side wall 20 are provided with hinge lugs 21 and 22 which form a part of the hinges 12 and 4 respectively. Gaps 23 and 24 in the hinges 12 and 4 are positioned adjacent the lugs 21 and 22 to provide for sliding of the box member 18. The hinge 12 is arranged so that the cover 10 also moves with the box member 18, but the back section 2 remains stationary. A box member 25, similar to the box member 18, is rigidly secured to the back section 3. A prong carrying plate 26, provided with a plurality of curved sheet retaining prongs 27, is permanently secured to the top wall of each box member 18 and 25.

A plurality of curved latching bars 28 project through slots 29 in the side wall 20 of the box member 18. The slots are elongated so as to permit sliding movement of the box member 18 relative to the latching bars 28. The latching bars are secured to the metal plate 5 so they will not move with the box member 18. The free ends of the latching bars are provided with notches 30, 31 adapted to engage a locking slide 32 in the box member 25 to retain the binder in fully closed or in intermediate position respectively. The box member 25 is provided with slots 33 through which the free ends of the latching bars project. When the locking slide 32 is disengaged from the notches 31 the binder may be moved to fully open position. It will be understood that the expression "fully open position" includes all positions of the binder from the most extreme open position to the position shown in Figure 1 when the notch 31 is almost at the point where it would engage the locking slide 32.

The locking slide 32 is provided with a spring 34 urging it toward locking position and a bent finger piece 35 to facilitate the release of the lock slide from the latching bars 28. The box member 25 is provided with a safety prong 36 projecting therefrom. The side wall 20 of the box member 18 is provided with a slot 37 into

which the safety prong 36 projects when the binder is closed. The safety prong prevents closing of the binder when the box member 18 is in its shift position.

Accidental shifting of the box member 18 is prevented by a latch 38 pivoted to one end wall 20' by means of a pin 39. A spring 40 having its central portion wrapped around the pin 39 has one end bearing against the underside of the wall 19 and its other end bearing against the latch 38 to urge one end of the latch through an aperture 41 in the metal plate 5 and into the recess 9 to prevent movement of the box member 18 relative to the back section 2. A finger lever 42 is pivoted to one end of the latch 38, as indicated at 43, and projects through an aperture 44 in the wall 19. Depression of the finger lever 42 causes disengagement of the latch 38 from the aperture 41 so as to permit shifting of the box member 18 relative to the back section 2. The lever 42 is provided with a notch 45 so that the lever may be retained in depressed position, as shown in Figure 2, and the box member 18, and the prongs 27 secured thereto by means of the prong carrying plate 26, may be shifted back and forth as many times as desired without the necessity of releasing the latch for each shifting operation.

The side wall 20 of the box member 18 is provided with an aperture 46 positioned in line with the latch 42. A projection 47 extending from the box member 25 is adapted to enter the aperture 46. Whenever the binder is closed the projection 47 engages the latch 42 to disengage the notch 45 from the edge of the aperture 44 and the spring 40 then forces the latch 42 into shift preventing position. Accordingly, whenever the binder is moved from closed position to its intermediate or fully open position it is impossible for the box member 18 to shift accidentally.

The advantage of the flat back sections and the securement of the prong carrying plates directly to the top wall of the triangular box members is apparent from an inspection of Figure 2. Sheets impaled on the prongs 27 will lie flat against the covers at all times and it is impossible to rock the binder when writing on the sheets contained in the binder.

Although we have described a preferred embodiment of our invention in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many structural features may be modified or changed without departing from the spirit or scope of our invention. Accordingly, we do not desire to be restricted to the exact structure described, except as limited by the appended claims.

We claim:

1. In a loose-leaf binder, a pair of flat back sections and a pair of cover members hinged to lie in a common plane, a pair of box members of triangular cross section mounted on said back sections, one of said box members being shiftable relative to its back section, releasable means to prevent shifting of said box member, and a prong carrying plate mounted on each of said box members.

2. In a loose-leaf binder, a pair of back sections hinged together, said back sections extending angularly to each other when the binder is closed, a box member of triangular cross section mounted on each of said back sections, one of said box members being shiftable relative to its back section, the top walls of said box members lying in a common plane when said binder is closed, and a prong carrying plate mounted on the top wall of each of said box members.

3. In a loose-leaf binder, a pair of flat back sections hinged together, a box member of triangular cross section secured to opposite edges of each of said back sections, one of said box members being movable longitudinally relative to its back section, and a prong carrying plate mounted on each of said box members.

4. In a loose-leaf binder, a pair of flat back sections hinged together, a box member of triangular cross section mounted on each of said back sections in such a manner that their top walls are in a common plane when said binder is closed, one of said box members being movable longitudinally relative to its back section, and a plurality of prongs secured on each of said top walls.

5. In a loose-leaf binder, a pair of back sections hinged together and a cover member hinged to each of said back sections, said back sections and said covers being adapted to lie in a common plane when said binder is partly open, a box member mounted on each of said back sections, said box members having top walls adapted to lie in a common plane when said binder is closed, one of said box members being movable longitudinally relative to its back section, and a prong carrying plate mounted on each of said top walls.

6. In a loose-leaf binder, a pair of flat back sections hinged together, a box member of triangular cross section mounted on each of said back sections, one of said box members being movable longitudinally relative to its back section, a prong carrying plate mounted on each of said box members, and a pair of cover members hinged to said back sections in the plane of said back sections.

7. In a loose-leaf binder, a pair of hinged back sections, a box member mounted on each of said back sections, one of said box members being shiftable relative to its back section, a latch normally operative to prevent shifting of said one box member, means to hold said latch in inoperative position, and means projecting from said other box member engaging said first mentioned means when said binder is closed to move it into position from which it may be moved to operative position.

8. In a loose-leaf binder, a pair of hinged back sections, a box member mounted on each of said back sections, one of said box members being movable longitudinally relative to said other box member, a latch normally operating to prevent said longitudinal movement of said first mentioned box member, means to hold said latch in operative position, and means projecting from said second mentioned box member co-operating with means in said first mentioned box member to move said latch to operative position automatically upon movement of said binder back sections to closed position.

9. In a loose-leaf binder, a pair of hinged flat back sections, a box member secured to each of said back sections, one of said box members being shiftable relative to its back section, means on said one box member co-operating with means on said one back section to prevent shifting of said one box member, release means on said one box member operable to hold said first mentioned means out of shift preventing position, and means projecting from said other box member and engageable with said release means to move said release means out of operative position.

10. In a loose-leaf binder, a flat back section provided with hinges along two opposite edges, a box member slidable along said hinges, a second flat back section hinged to said first mentioned back section by means of one of said hinges, a box member mounted on said second back section, means in said first mentioned box member operative to prevent sliding of said box member along said hinges, release means in said first mentioned box member operative to hold said first mentioned means out of slide preventing position, and means on said second mentioned box member engageable with said release means to move said release means out of operative position.

11. In a loose-leaf binder, a pair of back sections and cover members hinged so as to lie in a common plane when said binder is partly open, a pair of box members mounted on said back sections, the top walls of said box members lying in a common plane when said binder is closed, a prong carrying plate mounted on each of said box members, one of said box members and its prong carrying plate being shiftable relative to said other box member and prong carrying plate, means in said one box member to prevent said shifting, means in said one box member to hold said first mentioned means in inoperative position, and means automatically moving said first mentioned means to operative position when said binder is closed.

12. In a loose-leaf binder, a pair of hinged back sections, a box member mounted on each of said back sections, one of said box members being shiftable relative to its back section, means in said one box member to prevent shifting, a spring engaging said means, release means in said one box member for holding said first mentioned means out of shift preventing position, and means projecting from said other box member and engageable with said release means to move said release means out of holding position, whereby said spring is operable to move said first mentioned means into shift preventing position.

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