

Nov. 5, 1935.

F. D. WEDGE

2,020,129

LOOSE LEAF BINDER

Filed Oct. 9, 1933

2 Sheets-Sheet 1

FIG. 1

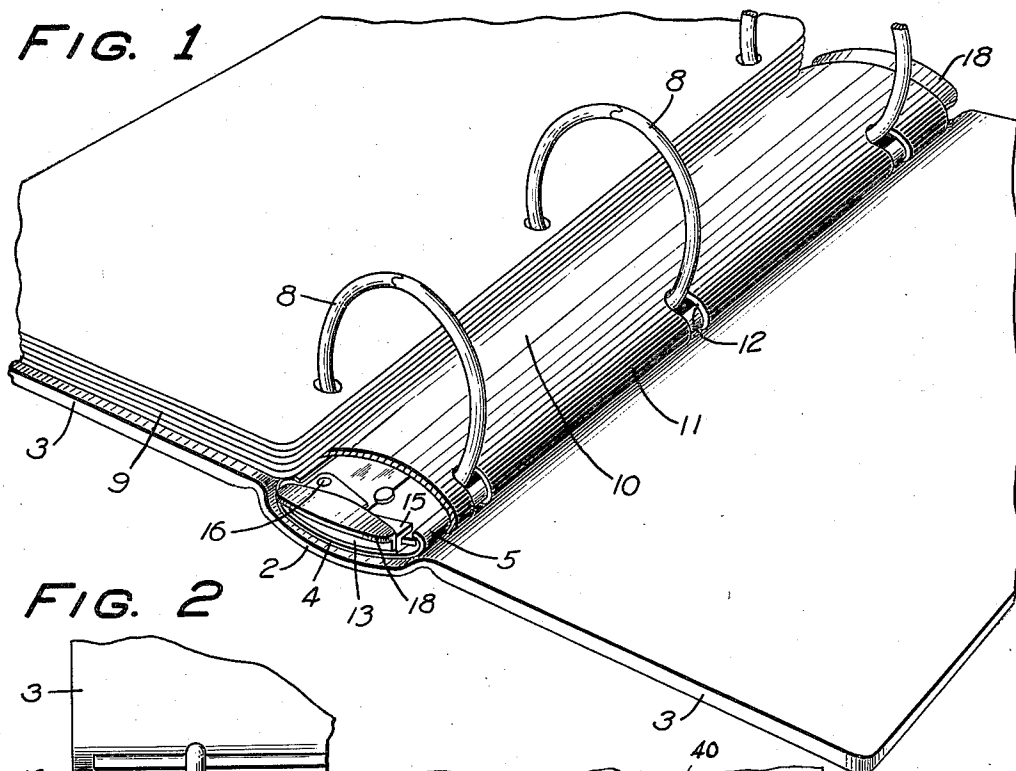


FIG. 2

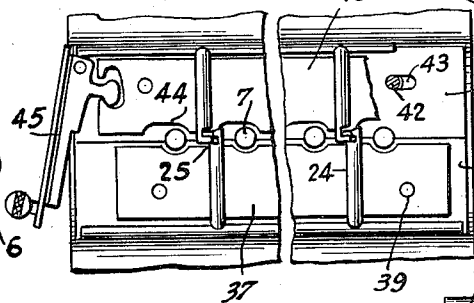
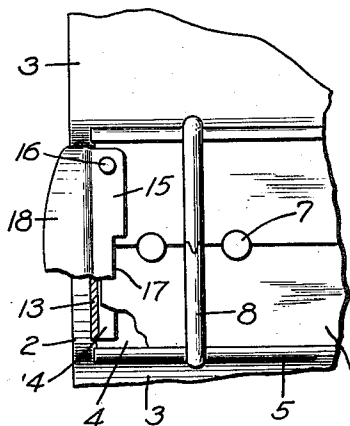


FIG. 9.

FIG. 4

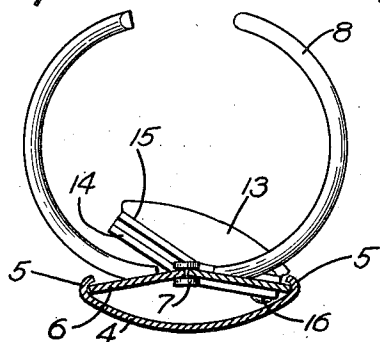
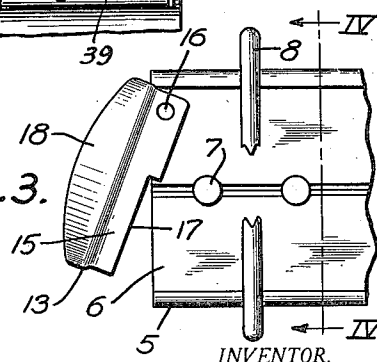


FIG. 3.



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2 Sheets-Sheet 2

FIG. 5

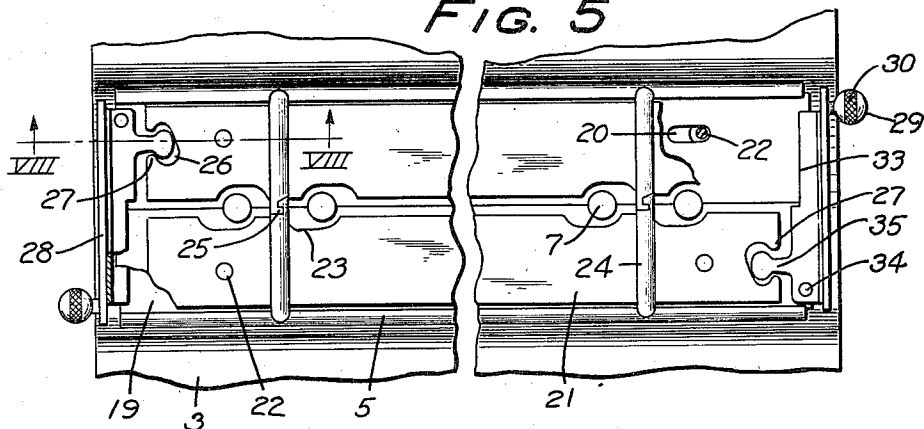


FIG. 6

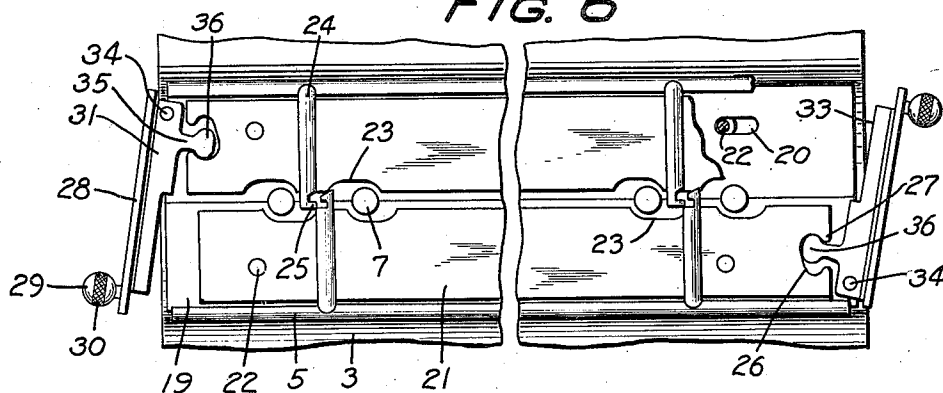


FIG. 7

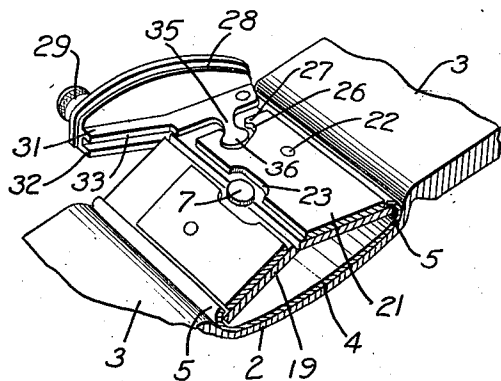
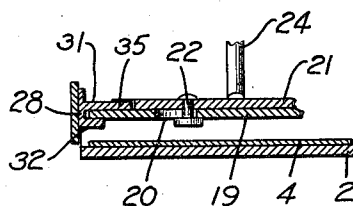


FIG. 8



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2,020,129

LOOSE LEAF BINDER

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Application October 9, 1933, Serial No. 692,737

15 Claims. (Cl. 129—24)

This invention relates to a loose leaf binder, and more particularly to means for opening, closing and locking the sheet retaining prongs of the binder in closed position.

5 It is an object of this invention to provide simple and efficient means for moving the prongs of a loose leaf binder to open or closed position and for locking the prongs in closed position. It is a further object of this invention to provide an end cap pivotally secured to one of the toggle plates and capable of acting as a booster lever to perform the above mentioned functions. It is a further object of this invention to provide longitudinally slidable means for interlocking the meeting ends of the sheet retaining prongs in a loose leaf binder. Other objects of this invention will become apparent upon reading the following description taken in conjunction with the accompanying drawings in which:

10 Figure 1 is a fragmentary perspective view of a loose leaf binder embodying my invention;

15 Figure 2 is a top plan view, with parts broken away, showing the binder mechanism in closed position;

20 Figure 3 is a top plan view, with parts broken away, showing the binder mechanism in open position;

25 Figure 4 is a cross sectional view taken on the line IV—IV of Figure 3 looking in the direction of the arrows;

30 Figure 5 is a top plan view showing a modified embodiment of my invention with the prongs in closed position.

35 Figure 6 is a view similar to Figure 5 showing the binder mechanism in unlocked position;

40 Figure 7 is a fragmentary detail view showing the toggle plates in open position;

45 Figure 8 is a cross sectional view taken on the line VIII—VIII of Figure 5 looking in the direction of the arrows; and

50 Figure 9 is a top plan view of a modified embodiment of my invention similar to that shown in Figure 5, the binder being provided with a booster lever at one end only.

55 In the drawings the reference numeral 2 indicates a back member having a pair of cover members 3 hingedly connected to its longitudinal edges. A back plate 4 is secured to the back member in any suitable manner. The longitudinal edges 5 of the back plate are curved to embrace the outer edges of a pair of toggle plates 6 arranged on said back plate in side by side relation. The inner edges of the toggle plates 6 are maintained in abutting relationship by means of a plurality of buttons 7. A plurality of sheet retaining prongs 8 are

secured to the toggle plates 6 in any suitable manner. It is preferable to provide mating prongs that meet at their free ends to form rings, but other prongs may be used if desired. A plurality of sheets 9 may be impaled on the sheet retaining prongs 8. A cover plate 10 has its longitudinal edges 11 curved to embrace the edges 5 of the back plate. The cover plate is provided with a plurality of notches 12 to allow the sheet retaining prongs 8 to pass therethrough.

The ends of the binder mechanism are closed by a pair of end caps 13 which function as booster levers. The end cap or booster lever 13 is provided with a pair of flanges 14, 15 which project inwardly toward the binder mechanism and are spaced vertically a distance substantially equal to the thickness of the toggle plates 6. A pin 16 passing through both flanges 14 and 15 pivotally secures the end cap to one of the toggle plates 6. The flange 15 is cut away, as indicated at 17, to provide clearance for the toggle plate 6 to which it is not pivoted, when the booster lever 13 is in the position shown in Figure 3, so that when the lever is lifted both toggle plates may move to open position. The lever 13 is provided with a finger piece 18 to facilitate manipulation of the lever.

It will be seen that when the prongs 8 are closed, the booster lever 13 may be swung inwardly around the pivot 16 so that the flanges 14 and 15 embrace the ends of the toggle plates 6 and hold them against rocking movement. When the booster lever has been swung to its outermost position the ends of the lever away from the pivot 16 may be lifted to open the prongs or depressed to close them. Since the lever is secured directly to one of the toggle plates, it is always in position for the proper movement of the prongs even though the prongs may have been moved manually. For example, if the booster lever is in its outermost position and the prongs are opened by hand, the lever is automatically moved to the position shown in Figure 4 so that pressure on the lever will close the prongs. It is preferred to secure the booster levers 13 at opposite ends of the binder to opposite toggle plates, but this is not essential, and in some cases one booster lever may be sufficient for the entire binder. In binders having only one lever the cover plate 10 is extended downwardly to cover the other end of the binder mechanism.

In the modification illustrated in Figures 5 to 8, inclusive, the toggle plates 19 are provided with a plurality of slots 20. A pair of prong carrying plates 21 are secured to the toggle plates 19 by means of pins 22 that are fixed to the plates 21

and pass through the slots 20 to permit limited longitudinal movement between the plates 19 and 21. The plates 21 are provided with a plurality of notches 23 at their inner edges to provide clearance for the buttons 7. The sheet retaining prongs 24 are secured to the prong carrying plates 21 in any suitable manner and are shaped to interlock at their meeting ends 25. As shown in Figure 6, the prongs must be moved longitudinally relative to each other before they can be opened.

The opposite ends of the binder are similar, except that the booster lever at one end of the binder is connected to one toggle plate, and the lever at the opposite end of the binder is connected to the other toggle plate. Accordingly, only one end of the binder will be described. One prong carrying plate 21 is provided with an irregularly shaped cut out portion 26 having a restricted neck 27 opening at the end of the prong carrying plate.

The end cap or booster lever 28 is provided with a finger piece 29 which may have a roughened area 30. If desired, a finger piece similar to the finger piece 18 shown in the preferred embodiment might be substituted for the finger piece 29. The lever is provided with a pair of flanges 31, 32 which are adapted to embrace the ends of the toggle plates 19. One edge of the flange 31 is cut away, as indicated at 33, to allow clearance for one toggle plate. The other end of the lever is pivotally secured to the other toggle plate 19 by means of the pin 34.

The flange 31 is provided with an integral extension 35 having an enlarged head 36. The enlarged head portion 36 is positioned in the cut out portion 26. When the lever is swung outwardly from the position shown in Figure 5 to the operative position shown in Figure 6 the underside of the enlarged head portion engages the restricted neck portion 27 and moves the prong carrying plate 21 longitudinally of the toggle plate 19. The booster lever may then be lifted or depressed to open or close the prongs just as in the case of the preferred embodiment. When it is desired to lock the prongs in closed position the lever 28 is swung inwardly till the flanges 31 and 32 embrace the ends of the toggle plates 19. This inward movement causes the top portion of the head 36 to engage the edge of cut out portion 26 of the prong carrying plate 21 to move it inwardly so that the ends 25 of the prongs 24 become interlocked.

In the embodiment of my invention illustrated in Figures 5 to 8, inclusive, it is preferred to provide a lever at each end of the binder so that each lever moves one prong carrying plate half the distance required to clear the prong ends. However, the binder may be provided with a lever at one end only, as illustrated in Figure 9. In this embodiment one prong carrying plate 37 is rigidly secured to one toggle plate 38 by means of a plurality of rivets 39. The other prong carrying plate 40 is secured to the other toggle plate 41 by means of pins 42 that are fixed to the plate 40 and pass through slots 43 provided in the toggle plate 41. The slots 43 are long enough to permit the plate 40 to move a sufficient distance to disengage the interlocked ends 25 of the sheet retaining prongs 24. The prong carrying plate 40 is provided with a plurality of notches 44 to provide clearance for the buttons 7. The booster lever 45 and the method of operating it are the same as the booster lever 28 except that the lever 45 is adapted to move the plate 40 twice the

distance each plate 21 is moved. The end of the binder opposite the lever 45 may be closed in any desirable manner.

While I have described a few embodiments of my invention in detail, it will be understood that the description thereof is illustrative rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. Accordingly, I do not desire to be restricted to the exact construction described, except as limited by the appended claims.

I claim:

1. In a loose leaf binder, a pair of toggle plates and a booster lever pivotally secured to only one of said toggle plates.
2. In a loose leaf binder, a pair of toggle plates and a booster lever secured to one of said toggle plates, said lever normally lying in inoperative position and pivoted to swing in a plane parallel to said one toggle plate to be swung to operative position.
3. In a loose leaf binder, a plurality of sheet retaining prongs, a pair of toggle plates, a booster lever pivotally secured to one of said toggle plates, said lever normally lying in inoperative position, and means integral with said lever to prevent opening of said prongs when said lever is in inoperative position.
4. In a loose leaf binder, a pair of toggle plates, a plurality of sheet retaining prongs secured to said toggle plates, and a lever pivotally secured to only one of said toggle plates, said lever being operable to open and close said prongs.
5. In a loose leaf binder, a plurality of sheet retaining prongs, a pair of toggle plates, and a lever, said lever being pivotally secured to one of said toggle plates in such a manner as to open said sheet retaining prongs when lifted and to close them when depressed.
6. In a loose leaf binder, a plurality of sheet retaining prongs, a pair of toggle plates, a lever pivotally secured to one of said toggle plates, said lever being operable to open or close said sheet retaining prongs when said lever is in operative position, and means to prevent opening of said prongs when said lever is in inoperative position.
7. In a loose leaf binder, a pair of toggle plates, a plurality of sheet retaining prongs secured to said toggle plates, a booster lever pivotally secured to one of said toggle plates, and a flange on said booster lever, said flange engaging with said toggle plates to prevent opening of said prongs when said booster lever is in inoperative position.
8. In a loose leaf binder, a ring metal including a back plate, a pair of toggle plates, a cover plate positioned above said toggle plates and embracing the edges of said back plate, and an end cap closing the end of said ring metal, said end cap engaging said toggle plates to lock them against opening movement.
9. In a loose leaf binder, a pair of toggle plates, a pair of prong carrying plates secured to said toggle plates but movable longitudinally relative to said toggle plates, a lever secured to one of said toggle plates, said lever being adapted to move one of said prong carrying plates longitudinally, and means on said lever to prevent opening of said toggle plates until said last mentioned prong carrying plate has been moved longitudinally.
10. In a loose leaf binder, a pair of toggle plates, a pair of prong carrying plates slidably secured to said toggle plates, a plurality of sheet retaining prongs rigidly secured to said prong carrying plates, the free ends of said prongs each interlocking with the free end of one prong of the op-

posite prong carrying plate, and booster levers secured to said toggle plates to slide said prong carrying plates to disengage the interlocked ends of said sheet retaining prongs.

5 11. In a loose leaf binder, a pair of toggle plates, a pair of prong carrying plates slidably secured to said toggle plates, a plurality of sheet retaining prongs rigidly secured to said prong carrying plates, the free ends of said prongs each
10 interlocking with the free end of one prong of the opposite prong carrying plate, and a booster lever secured to one of said toggle plates, said booster lever being adapted to slide one prong carrying plate longitudinally to disengage the interlocked
15 ends of said sheet retaining prongs and to then open or close said prongs.

12. In a loose leaf binder, a pair of toggle plates and a booster lever secured to one of said toggle plates, said lever being pivoted to swing in
20 a plane parallel to the plane of said one toggle plate.

13. In a loose leaf binder, a back plate, a pair of toggle plates arranged side by side in said back plate, a plurality of sheet retaining prongs secured to said toggle plates, said toggle plates being
25 movable vertically at their meeting edges to open and close said prongs, a booster lever having

a portion normally lying in the path of travel of said toggle plates to prevent opening movement, and means connecting said booster lever to one of said toggle plates, said means permitting movement of said booster lever out of the path of
5 travel of said toggle plates.

14. In a loose leaf binder, a pair of toggle plates, a plurality of sheet retaining prongs secured to said toggle plates, a booster lever secured to one of said toggle plates, said lever being pivoted to swing to and from operative position in
10 a plane parallel to said one toggle plate, and means to prevent opening of said prongs when said booster lever is in inoperative position.

15. In a loose leaf binder, a ring metal including a back plate, a pair of toggle plates, a cover plate positioned above said toggle plates and embracing the edges of said back plate, an end cap for said ring metal pivotally secured to one of
15 said toggle plates so as to swing in a plane parallel with said one toggle plate, said end cap being engageable with said one toggle plate to act as a
20 booster lever to open and close said toggle plates in one position, and operable to prevent movement of said toggle plates in another position.
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