Aug. 31, 1937. F. D. WEDGE ET AL 2,091,619

LOOSE LEAF BINDER

Filed Sept. 13, 1934 2 Sheets-Sheet 1

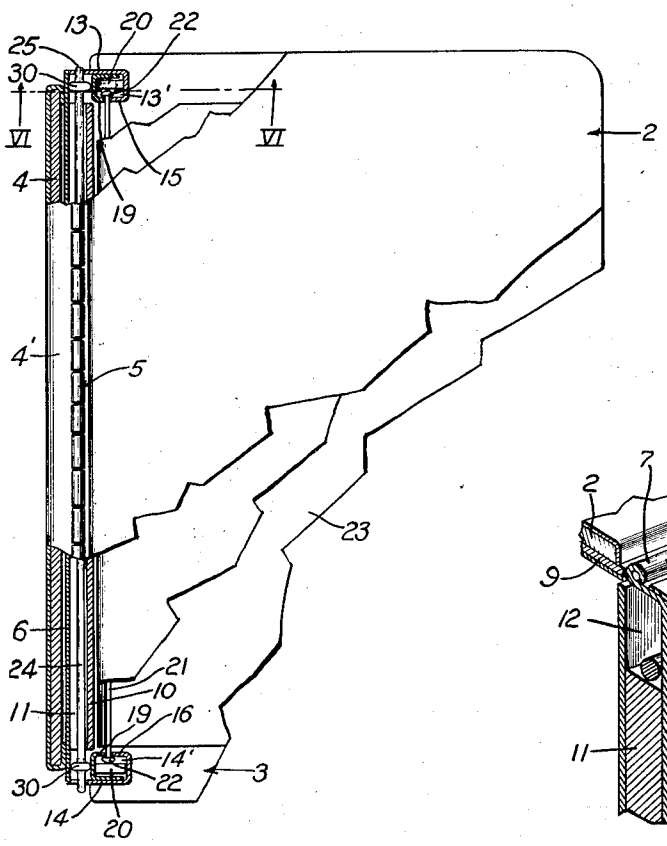
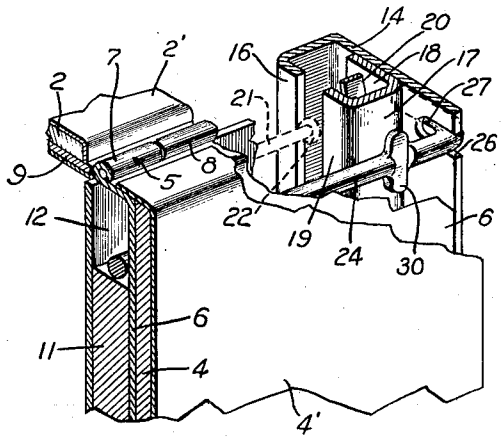


FIG. 1

FIG. 4



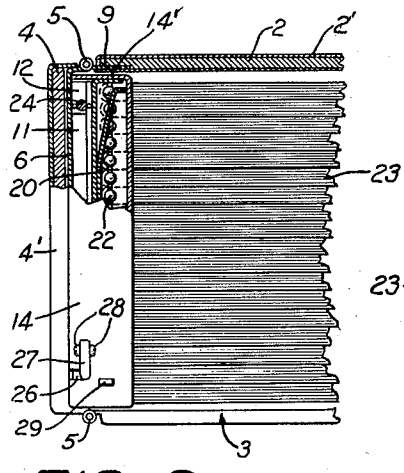


FIG. 2

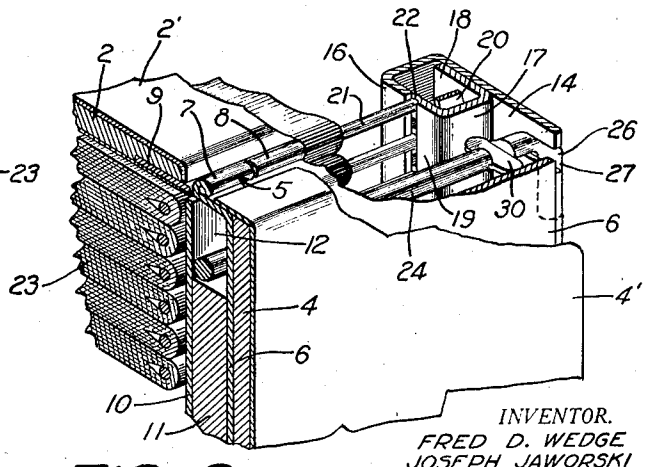


FIG. 3

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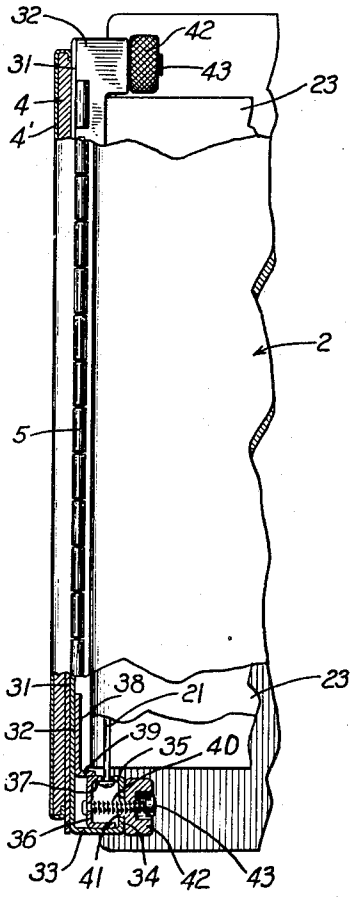
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LOOSE LEAF BINDER

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FIG. 7



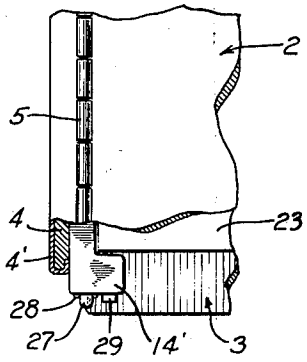
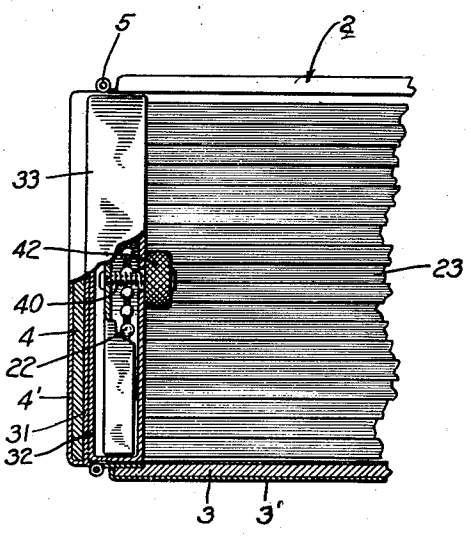


FIG. 5

FIG. 8



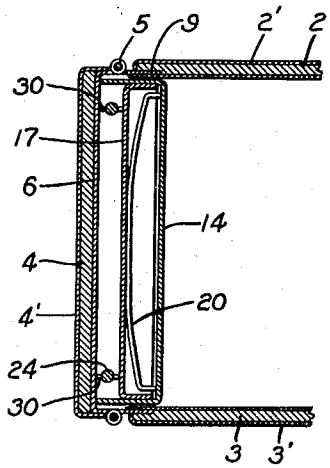


FIG. 6

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Patented Aug. 31, 1937 2,091,619

UNITED STATES PATENT OFFICE

2,091,619

LOOSE LEAF BINDER

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Application September 13, 1934, Serial No. 743,780

19 Claims. (Cl. 129—38)

This invention relates to a loose leaf binder particularly adapted to hold groups of sheets bound as units, such as catalogs, magazines or pamphlets, and individual sheets provided with a folded inner edge.

It is an object of this invention to provide a loose leaf binder capable of securely retaining a plurality of unpunched groups of sheets regardless of whether the binder is filled to capacity or is only partially filled. It is a further object of this invention to provide a loose leaf binder for unpunched groups of sheets in which substantially the entire space between the covers may be utilized for holding such sheets. 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 perspective view of a binder embodying the invention, with parts broken away to facilitate illustration of the structure;

Figure 2 is an end view of the binder, partly in elevation, and partly in section;

Figure 3 is a fragmentary detail view of one end of the binder;

Figure 4 is a view similar to Figure 3 showing the mechanism in open position;

Figure 5 is a fragmentary plan view of one corner of the binder;

Figure 6 is a cross sectional view taken along the line VI—VI of Figure 1 looking in the direction of the arrows;

Figure 7 is a perspective view of a modified embodiment of the invention, with parts broken away to facilitate illustration of the structure; and

Figure 8 is an end view of the modified embodiment of Figure 7, partly in elevation, and partly in section.

In the drawings, the reference numerals 2 and 3 indicate a pair of cover members secured to opposite edges of a back member 4 by means of hinges 5. The cover members and back member may be covered with any suitable binding material as indicated at 2', 3' and 4', respectively. A metal plate 6 extending across the inner face of the back member 4 is provided at its edges with curled portions 7 adapted to cooperate with similar curled portions 8 of a pair of metal plates 9 bound in the covers to form the sleeves for the hinges 5. The edges of the metal plate 6 are bent upwardly to space the hinges 5 above the back member.

A flat plate member 10, spaced from the plate 6 by a filler member 11, covers the inner surface of the back member 4. The filler member 11 is of less width than the plates 6 and 10 and is spaced centrally to provide a longitudinal space 12 adjacent each edge of the back member.

The ends of the back member 4 are provided with end closure plates 13 and 14. The closure plate 13 has its upper edge bent inwardly and then downwardly to provide a flange 15 spaced inwardly of the end of the binder and above the plate 10. The closure plate 14 is provided with a similar flange 16. The end closure members 13 and 14 are provided with side walls 13' and 14', respectively, to close the ends of the space between the flange 15 or 16 and the end of the binder. Each end of the binder is provided with a channel member 17 having one side wall 18 positioned against the inner surface of the end closure plate 13 or 14, and a shorter side wall or flange 19 positioned in the same plane as the flange 15 or 16. The end of the plate 10 abuts the flange 19 and cooperates with the wall of the end closure plate to prevent the channel member 17 from moving longitudinally of the binder.

A flat spring 20 positioned between the end closure plate and the channel member 17 exerts a constant force tending to separate the two and to keep the opposed edges of the flanges 16 and 19 as far apart as the limited separating movement of the channel member 17 will permit. In this open position, illustrated in Figure 4, a plurality of wires 21, provided with headed ends 22, may have their ends inserted through the opening between the flanges 16 and 19. The wires 21 each carry a single folded sheet or a group of sheets 23 which may or may not be bound as a unit. It will be understood that any suitable enlargement may be substituted for the headed ends 22.

The channel member 17 is moved to closed position, illustrated in Figure 3, against the action of the spring 20, by means of a pair of rods 24, one of which is positioned in each longitudinal space 12. The end closure plate 13 is apertured to support one end 25 of each rod. The end closure plate 14 is apertured, as indicated at 26, to allow the other ends of the rods 24 to project therethrough. The ends of the rods passing through the apertures 26 are bent, as shown at 27, to form handles for conveniently rotating the rods. The plate 14 is provided with a plurality of bosses 28 to aid in holding the handle 27 in position when the mechanism is in closed position. A stop 29 is provided to prevent the handle from moving past its full opening position in the other direction. The rods 24 are provided with

a plurality of ears 30 spaced between the channel members 17 and the plate 6 to move the channel members into closed position when the rods 24 are rotated to the position of Figure 3. When the rods are turned away from the position of Figure 3, the springs 20 force the channel members 17 to open position.

The ends of the binder are similar, and are preferably arranged so that both channel members are moved simultaneously. When the channel members are in open position, the headed ends of the sheet retaining wires may be inserted or removed without any difficulty regardless of how full the binder may be. After the channel members have been moved to closed position, the flanges 15, 16 and 19 form jaws that are adapted to positively prevent removal of the headed ends of the wires. Inasmuch as this positive retention of the headed ends of the sheet carrying wires is not dependent upon any factor except the impossibility of moving the channel member 17 accidently, it will be seen that the contents of the binder are securely held against accidental displacement regardless of whether the binder may be completely filled or nearly empty. The side walls 13' and 14' prevent the wires from being slid transversely out of the space between the end of the binder and the flanges 15 or 16 and 19.

In the embodiment of Figures 7 and 8, the structure of the binder is similar to that of the preferred embodiment except for the means for retaining the ends of the sheet holding wires. Accordingly, the detailed description will be limited to the structural features differing from the preferred embodiment.

A metal plate 31, similar to the metal plate 6 of the preferred embodiment, has its edges curled to form hinge sleeves. A second plate 32 has each end bent to form an end closure 33, horizontal wall portion 34, and depending flange 35. A channel member 36 positioned adjacent each end closure 33 has an upstanding flange 37 in the same plane as the flange 35. A bracket 38 welded or riveted to the plate 32 has an upturned lip 39 abutting one surface of the channel member 36 to prevent the channel member from moving longitudinally of the binder.

Each channel member 36 is provided with a threaded stud 40. The horizontal wall portion 34 is apertured, as indicated at 41, to allow the stud to pass therethrough. A nut 42 is permanently retained on the stud 40 above the horizontal wall portion 34 by means of an enlarged head 43. Normal rotation of the nut 42 moves the channel member 36 to open or close the jaws formed by the flanges 35 and 37.

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

We claim:

1. In a loose leaf binder, a plurality of wires adapted to carry the sheet contents of the binder, said wires having enlarged ends, a fixed flange adjacent one end of the binder, and a flange movable in the plane of said fixed flange, said movable flange being adapted to cooperate with said fixed flange to retain the enlarged ends of said sheet carrying wires.

2. In a loose leaf binder, a back member, a flange adjacent each end of said back member and extending transversely thereof, a movable flange adapted to cooperate with each of said first mentioned flanges to form jaws adapted to retain the ends of sheet carrying wires, and means adjacent one end of the binder for closing both sets of jaws simultaneously.

3. In a loose leaf binder, a back member, a flange fixed with respect to said back member, a movable flange adapted to cooperate with said fixed flange to retain the ends of a plurality of sheet carrying wires, means to hold said movable flange in closed position, and spring means to move said movable flange to open position automatically upon release of said holding means.

4. In a loose leaf binder, a back member, an end closure plate provided with a wall and with a flange spaced from the end of said binder, a channel member having one side wall positioned adjacent the wall of said end closure plate and having a flange positioned in the same plane as said first mentioned flange, and a rod having a projecting ear positioned between said channel member and said back member, said ear being adapted to move the flange of said channel member towards said first mentioned flange when said rod is rotated.

5. In a loose leaf binder, a back member, a pair of flanges spaced from one end of said back member, spring means positioned between said flanges and tending to separate said flanges, and means to move one of said flanges against the action of said spring.

6. In a loose leaf binder, a back member, a pair of flanges secured adjacent one end of said back member, screw means for moving one of said flanges toward and away from said other flange so that said pair of flanges may retain the ends of a plurality of sheet carrying wires when in closed position and allow the insertion or removal of said wires when in open position, and means to prevent sidewise removal of said sheet carrying wires when said pair of flanges is in closed position.

7. In a loose leaf binder, a back member, a plate extending transversely of said back member at one end thereof, said plate having a downwardly extending flange spaced inwardly of the end of the binder, an upwardly extending flange adapted to cooperate with said downwardly extending flange to retain the ends of a plurality of sheet carrying wires, a screw extending above said plate, and means adapted to cooperate with said screw to raise or lower said upwardly extending flange.

8. In a loose leaf binder, a back member, a plurality of sheet carrying wires provided with enlarged ends, a pair of upright flanges adjacent one end of said back member, said flanges being spaced to receive said enlarged ends therebetween, and means to move one of said flanges toward the other to prevent removal of said enlarged ends.

9. In a loose leaf binder, a back member, a plurality of sheet carrying wires, and a pair of upright flanges adjacent one end of said back member adapted to receive said wires therebetween, said flanges being relatively movable toward each other, the ends of said wires being formed to engage said flanges to prevent removal of the wires when said flanges are in position closest to each other.

10. In a loose leaf binder, a back member, a pair of upright flanges adjacent one end of said

back member, one of said flanges being movable vertically in a plane perpendicular to the plane of said back member, a plurality of sheet carrying wires insertable between said flanges when said movable flange is in one position, and means to prevent removal of said wires from said flanges when said flange is in another postion.

11. In a loose leaf binder, a back member, an upright flange fixed adjacent one end of said back member, a second flange positioned between said first mentioned flange and said back member, and means to move said second flange against said first mentioned flange, said means being adapted to hold said second flange against said first mentioned flange.

12. In a loose leaf binder, a back member, an upright flange fixed adjacent one end of said back member, a second flange positioned between said first mentioned flange and said back member, means to hold said second flange against said first mentioned flange, and spring means to force said second flange away from said first mentioned flange when said holding means is released.

13. In a loose leaf binder, a plurality of wires adapted to carry the sheet contents of the binder, each of said wires having enlarged ends, a fixed flange adjacent each end of the binder, and a movable flange positioned adjacent each end of the binder, said movable flanges being adapted to cooperate with said fixed flanges to retain the opposite ends of said sheet carrying wires.

14. In a loose leaf binder, a back member, a flange adjacent each end of said back member and extending transversely thereof, a movable flange adapted to cooperate with each of said first mentioned flanges to form jaws adapted to retain the ends of sheet carrying wires, and means for opening both sets of jaws simultaneously.

15. In a loose leaf binder, a back member, a flange adjacent each end of said back member, a movable flange adapted to cooperate with each of said first mentioned flanges to form jaws adapted to retain the ends of sheet carrying wires, means for closing both sets of jaws simultaneously, said closing means being adapted to retain said jaws in closed position, and means for opening both jaws simultaneously upon release of said closing means.

16. In a loose leaf binder, a back member, a pair of flanges extending transversely of said back member, and screw means for moving one of said flanges toward and away from said other flange, said pair of flanges being adapted to retain the ends of a plurality of sheet carrying wires when in closed position, and to allow the insertion or removal of said wires when in open position.

17. In a loose leaf binder, a back member, an end member secured at one end to said back member, a set of jaws adjacent said end member, said jaws being adapted to retain one end of each of a plurality of sheet carrying wires, a rod rotatable to close said jaws, a handle to facilitate rotation of said rod, and means on said end member to prevent accidental movement of said handle when said jaws are in closed position.

18. In a loose leaf binder, a back member, a pair of cooperating flanges adjacent each end of said back member, and means to simultaneously move one flange of each of said pairs of flanges perpendicularly to the plane of said back member.

19. In a loose leaf binder, a back member, an upright flange fixed adjacent one end of said back member, a second upright flange positioned between said first mentioned flange and said back member, said second mentioned flange being movable towards and away from said first mentioned flange, a plurality of sheet carrying wires insertable between said flanges when said second mentioned flange is in its position farthest from said first mentioned flange, and means to prevent removal of said wires from said flanges when said second mentioned flange is in its position closest to said first mentioned flange.

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