Jan. 28, 1941. M. GUDIS 2,229,847

LOOSE-LEAF BINDER

Filed Dec. 7, 1938

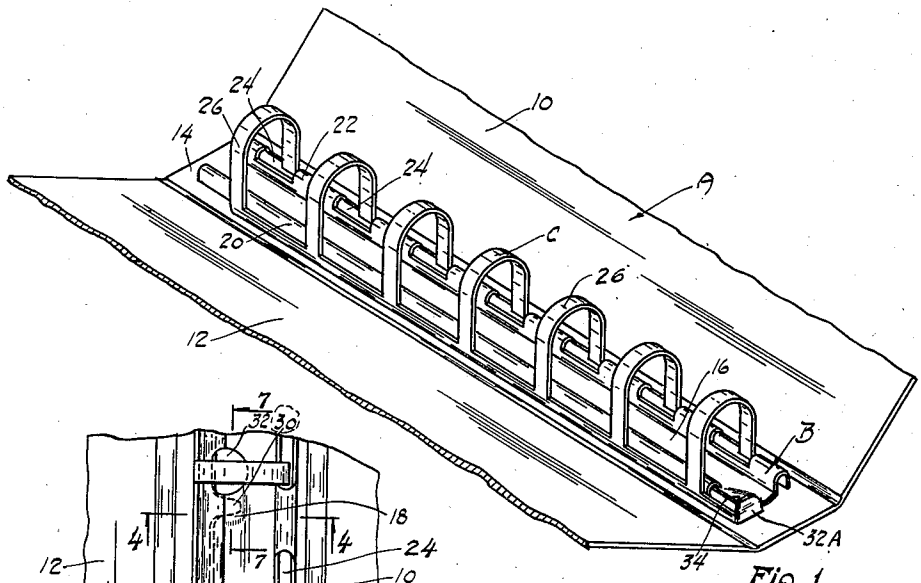


Fig. 1

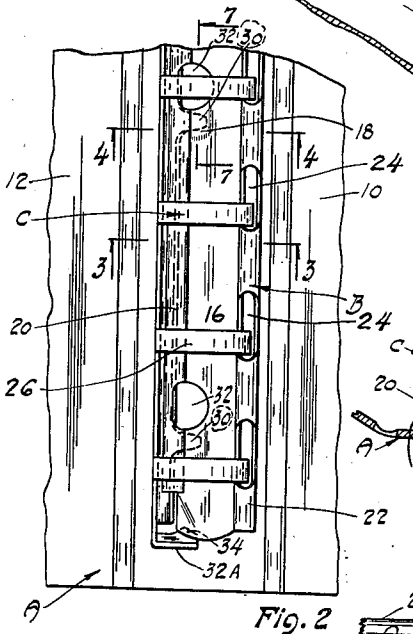


Fig. 2

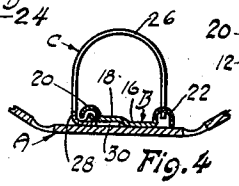


Fig. 4

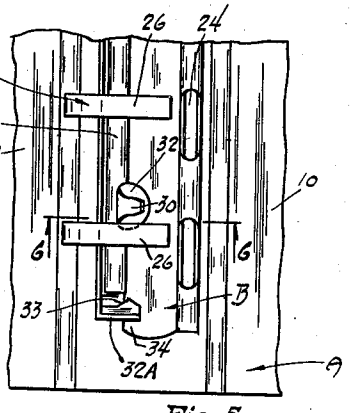


Fig. 5

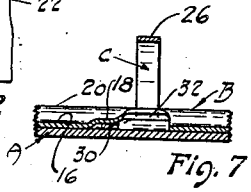


Fig. 7

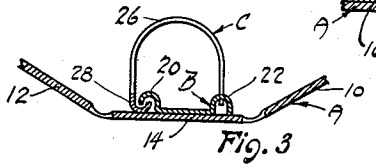


Fig. 3

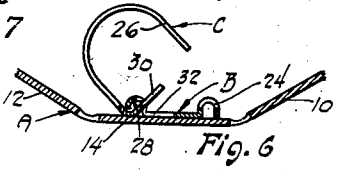


Fig. 6

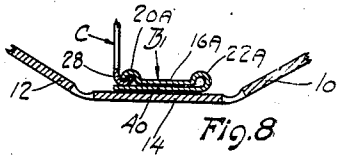


Fig. 8

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LOOSE-LEAF BINDER

Max Gudis, Philadelphia, Pa.

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3 Claims. (Cl. 129—24)

My invention relates to a loose-leaf device particularly adapted for interchangeable sheets, such as price lists, catalogue sheets, sheets for school work, etc. My invention serves a purpose between that of the loose-leaf ring binder and the permanent mechanical binder.

The mechanical binder is adapted because it strongly holds the leaves to the binder, but it does not permit the interchange or replacement of leaves unless the leaves are slotted adjacent the opening near their binding edges. The slot in the leaves permits the leaves to be pressed around the binder; however, the slotting of the leaves weakens the paper adjacent the fastening points so that the leaves are frequently torn from the binder.

It is, therefore, an object of my invention to provide a two-piece loose-leaf binder, each of which is made of an integral piece of material.

Another object of my invention is to make a loose-leaf binder wherein the interfitting portions are accurately aligned and whereby they may be easily and accurately assembled.

Another object of my invention is to economically manufacture a two-piece device loose-leaf binder that can be made by a punch and die.

Another object of my invention is to provide a two-piece binder for a book which may be oscillated to open or closed position.

Another object of my invention is to use a two-piece leaf binder, one part of which may be moved in a rectilinear direction to lock or unlock the two pieces, and then one part may be oscillated to permit the removal or insertion of the leaves of the books.

Other objects of my invention are to provide an improved device of the character described, that is easily and economically produced, which is sturdy in construction, and which is highly efficient in operation.

With the above and related objects in view, my invention consists in the following details of construction and combination of parts, as will be more fully understood from the following description, when read in conjunction with the accompanying drawing in which:

Fig. 1 is a fragmentary sectional view of a cover or binder having my improved loose-leaf device in closed position.

Fig. 2 is a fragmentary plan view of my invention with the binder in a locked position but about to be opened.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a fragmentary plan view showing the binder in open position.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 2.

Fig. 8 is an end view of a modification of my invention wherein the stationary member has a contiguous metal backing.

Referring in greater detail to the drawing, in which like reference numerals designate like parts throughout, the cover, generally designated as A, comprises a pair of lids or boards 10 or 12, which are hinged or united to the central back piece 14, so that they may be swung or flexed thereon in opening and closing the book.

The device for attaching the leaves of paper to the inside of the cover comprises a ring-like member mounted upon the central back piece 14. The paper mounting member comprises two integrally stamped metal members, a stationary member, which is generally designated as B, and a ring or movable member, which is generally designated as C. The stationary member B is suitably attached to the central back piece 14 by means of bolts or rivets (not shown) which pass through the base 16 of member B and the central back piece 14 of the book. One side of the base of the stationary member is substantially flat, and the left-hand ridged edge 20, as Figs. 1 and 4 are viewed, is nearly semi-circular in cross-section. The right-hand edge 22 of the stationary member is likewise semi-circular in cross-section and forms a second ridge. Thus, the left-hand longitudinal ridge edge 20 is convex on its outer surface and concave on its inner surface, and the right-hand longitudinal ridge edge 22 is convex on its outer surface and concave on its inner surface. The function of these parts will be apparent as the description proceeds.

A plurality of short equi-spaced slots 24 are in the semi-circular edge or ridge 22, and the purpose of these slots is to complement the ends of ring-like members 26 on the movable ring member C. The ring-like members 26 together with ridge 22 serve to hold the leaves of paper (not shown) to the binder. The movable member C is comprised of an integrally stamped metal member or other suitable material having the ring-like members 26, one end of the ring-like member being free to lie within the complementary slots 24 and the other end of the ring-like member being joined to a longitudinally-extend-

ing edge 28, which has its upper surface concave and its lower surface convex; thus, the latter is trough-shaped.

Thus, by viewing Fig. 3, it will be seen that the arm 26 and the concave edge 28 on the movable member C complement the stationary member B. The convex edge 20 of the fixed member B and the concave edge 28 of member C interfit to form a pivot whereby the movable member C may oscillate about the stationary member B. The interfitting convex-concave members 20, 28 may not only oscillate one with respect to another, but they may slide in a longitudinal direction with respect to one another. The left-hand portion of the ring member C also has a plurality of spring-like prongs 30 which are adapted to slide beneath the offset portion 18 of the base member 16. The prongs 30 engaging a portion of the lower portion of the offset 18 provide a frictional engaging member. Therefore, when the prongs are engaged beneath the offset 18, the member C will neither oscillate nor slide with respect to the member B.

In order to open the binder so that the prongs 30 of the ring member are not frictionally engaging the stationary member, I place a plurality of recesses 32 in the back member which are adjacent the convex ridge or beaded edge 20. The recesses 32 are located whereby the prongs 30 may freely slip therethrough when the movable member C is oscillated. When the ring member C is moved longitudinally so that the prongs 30 register with the openings then the member C may be oscillated in order that the ends of the rings 26 may be far removed from the ridge or bead 22 in order to insert or remove leaves of paper.

The metal 18 adjacent one of the edges of the opening 32 is inclined upwardly (Fig. 7) in order that the prongs will easily slip under the offset 18. If this were not the case there would be an abutment of the spring-like prongs 30 against the edge defining the opening 32 so that the prongs would serve no useful purpose. Hence, it is desirable for the sake of expediency that the offset 18 be raised in order to permit the prong 30 to easily be moved under the offset.

I provide a small lever handle or booster 32A by which the ring member C may be moved in a rectilinear direction and whereby the ring member also may be oscillated. Adjacent the handle 32A is arranged a pointed or spring catch 33 whereby it may serve as one of two interlocking spring members to limit the movement of the ring member in one rectilinear direction. The catch 33 is adapted to be slipped under the inclined edge 34 of the back member B whereby the resiliency of the catch 33 enables it to slip under the upwardly inclined edge 34.

A brief explanation of the operation of the catch would clarify its function and operation. Assuming that the leaves of paper are locked in place on the binder and it is desired to open the rings to remove or insert sheets of paper held by the rings, the handle 32A is pulled longitudinally so that the handle 32A is positioned as it is shown in Fig. 2. The handle 32A is further moved so that the catch 33 and the upturned spring end 34 are not in frictional engagement. The ring member C is pushed until the prongs 30 register with openings 32, as is illustrated in Fig. 5. In the above-described position the handle 32A can be rotated to the left thereby swinging the ring-like members 26 away from the ridge or head 22 whereby the sheets can be inserted or removed. To lock the loose-leaf binder the handle 32A is oscillated to the right, as Fig. 5 is viewed, and then the handle 32A is pulled downwardly until the prongs 30 are out of register with the openings but are beneath the inclinations 18. The handle 32A is pulled downwardly until it assumes the position whereby the handle can be pushed upwardly a small distance in order that the upper edge of the catch 33 is located beneath the inclined edge 34 of the stationary member.

The ring-like member 26 is of flat sheet metal or other suitable material, and as a large number of such ring-like members may be used, as shown in Fig. 1, they hold the paper so that the paper will not be easily pulled from the binder.

The parts comprising my improved loose-leaf binder can be stamped from sheet metal or molded or made from other suitable material, and the part may be easily and accurately assembled.

It should be noticed that the binder is adapted to be locked so that the parts thereof cannot move in either an upward or downward rectilinear direction with respect to one another—thus, an accidental dropping of the book will not result in the opening of the binder and the spilling of the sheets.

In Figs. 1 to 7 I show the back member constructed so that it will abut against the leather or fabric covering of the central back piece 14; hence, with continuous movement of the ring member, the back piece will wear. In order to avoid any wear on the fabric I construct the back piece B1, Fig. 8, with an underlapping bottom member 40 which is contiguous to the ridge or bead 22A and lies adjacent the parallel bottom 16A. Hence, the movement of the ring member C will result in wear on the bottom member 40. The convex ridge 20A and concave edge 28 interfit with one another so that they have a relative oscillating action.

Although my invention has been described in considerable detail, such description is intended as illustrative rather than limiting, since the invention may be variously embodied and the scope of the invention is to be determined as claimed.

I claim as my invention:

1. A loose-leaf device comprising two complementary members, one of which is stationary and the other of which is movable, said stationary member having each of its longitudinal edges convex, said movable member having a plurality of ring-like members, one of the edges of said movable member being concave and interlocking with one of said convex edges whereby the movable member may oscillate with respect to the stationary member, and a plurality of spring prongs on one of said members and adapted to frictionally engage the other member whereby the binder will be held in locked position, and a plurality of prong openings on one member to register with said prongs whereby the device may be opened for inserting or removing leaves.

2. A loose-leaf device comprising an integrally formed stationary member, said stationary member having parallel ridges along each of its longitudinal edges, an upturned edge on said stationary member, one of said ridges having a plurality of elongated slots therein, a ring-carrying member of integral formation having a trough along one of its longitudinal edges, said trough and one of the ridges interfitting whereby the ring-carrying member may be oscillated, a spring catch on said ring-carrying member adapted to

slip beneath the upturned edge of the stationary member whereby the ring-carrying member will be limited in movement in one direction with respect to the back member, and a plurality of ring-like members on said ring-carrying member having their free ends interfitting in said elongated slots.

3. A loose-leaf device comprising an integral stationary member, said stationary member having parallel ridges along each of its longitudinal edges, an upturned edge on said stationary member, a ring-carrying movable member of integral formation having a trough along one of its longitudinal edges, said trough and one of the ridges interfitting to form a pivot whereby the ring-carrying movable member may be oscillated, a catch on said ring-carrying member adapted to slip beneath the upturned edge of the stationary member whereby the ring-carrying member will be limited in movement in one direction with respect to the stationary member, and a plurality of spring-like prong members on said ring-carrying member adapted to slide under a portion of the stationary member whereby the ring-carrying member will be limited in movement in the opposite direction to that in which the catch member limits the movement of the ring-carrying member, said stationary member having a plurality of openings adjacent the pivot portion thereof whereby the movable member may have its prongs freely moved in the said openings so the device may be opened for inserting or removing sheets.

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