Feb. 16, 1943. E. B. MURPHY 2,311,620

LOOSE LEAF BINDER

Filed Feb. 7, 1941

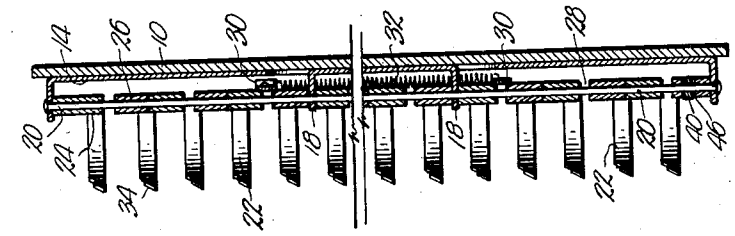


Fig. 3.

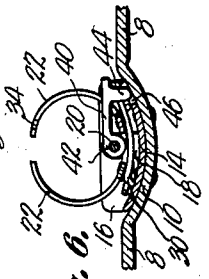


Fig. 6.

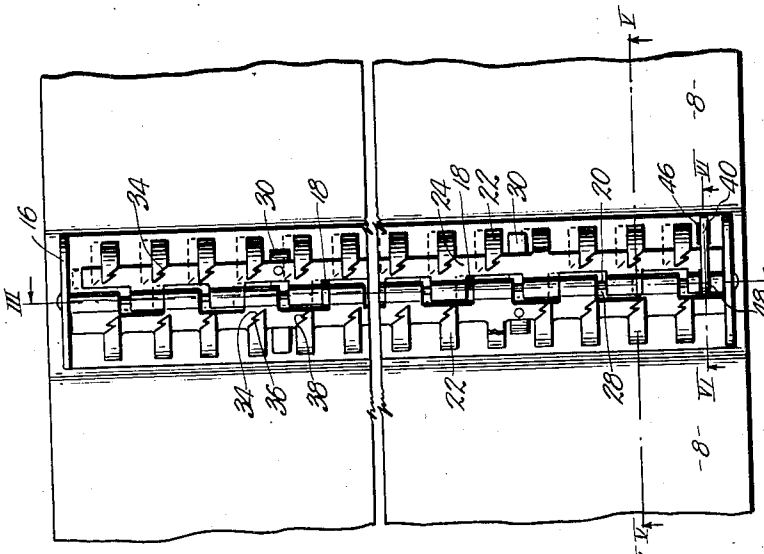


Fig. 2.

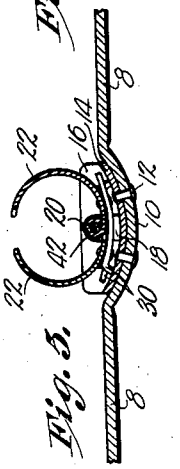


Fig. 5.

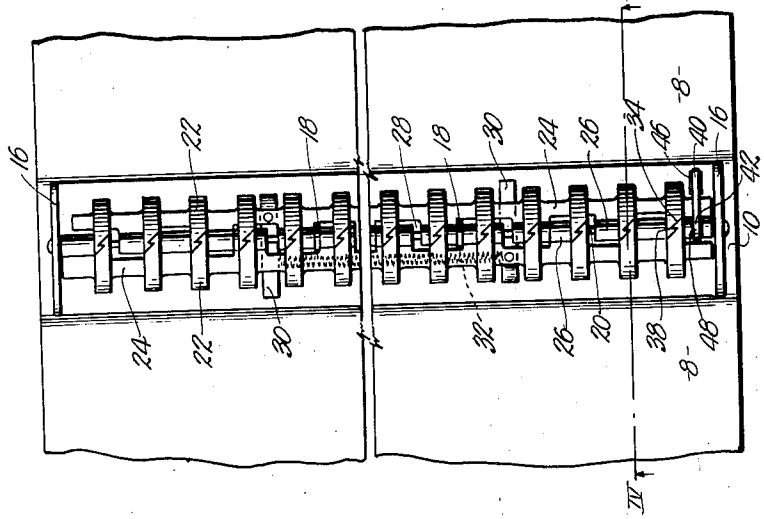


Fig. 1.

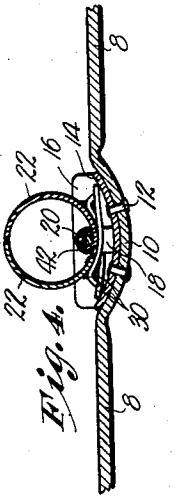


Fig. 4.

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LOOSE-LEAF BINDER

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Application February 7, 1941, Serial No. 377,826

3 Claims. (Cl. 129—24)

This invention relates to loose-leaf binders of the character wherein is employed groups of sheet holders movable toward and from each other and combinable to create a continuous holder permitting the turning of the sheet to expose either side thereof without disengaging the same from the said holder.

One of the important aims of this invention is the provision of a loose-leaf binder of the so-called ring type wherein said rings comprise a pair of arcuate members normally in opposed relation to each other, but disposed in groups, at least one of which is shiftable in a path of travel transverse to the plane of the said rings.

Another important aim of this invention is to provide a loose-leaf binder having groups of sheet holding members arranged in opposed relation with each other; the ends of said holders being provided with inclined or cam faces and interlocking parts which function to preclude accidental movement of the sheet holding members to the open position and until the yieldable means provided for the purpose of holding the elements against shifting, is overcome by manual manipulation.

This invention has for a still further aim the provision of a loose-leaf mechanism capable of being constructed of plastic or substance other than metal and mounted upon a support which includes a hinge rod common to the sheet holding members, that are arranged to present a pair of unitary groups, each movable about the axis of said hinge rod and at least one of which is shiftable longitudinally thereof.

Other objects of the invention will appear during the course of the following specification, referring to the accompanying drawing, wherein:

Fig. 1 is a fragmentary plan view of a loose-leaf binder made in accordance with the present invention.

Fig. 2 is a similar view but with the sheet holding members in an open condition.

Fig. 3 is a longitudinal sectional view through the loose-leaf binder taken on line III—III of Fig. 2.

Fig. 4 is a cross sectional view taken on line IV—IV of Fig. 1.

Fig. 5 is a similar sectional view taken on line V—V of Fig. 2; and

Fig. 6 is a fragmentary sectional view taken on line VI—VI of Fig. 2.

The binder structure embodying this invention may be employed with conventional type loose-leaf books having covers 8 joined by a back portion 10, to which is affixed by rivets 12 or the like, a support or back member 14. This back member is transversely arched and provided with a flange 16 at each end thereof. Flanges 16 cooperate with tongues 18 in supporting the longitudinally extended hinge rod 20 that is spaced slightly above back member 14.

Sheet holding members 22 are herewith illustrated to be conventional ring halves joined at their lowermost ends to a bar-like section 24, along the inner edge of which is formed hinge barrels 26.

Notches 28 created by the hinge barrels 26 receive barrels 26 of the opposite section and the width of each notch 28 is somewhat greater than the length of the contained hinge barrel. Thus, the section shown to the right in Figs. 1, 2, 4, 5 and 6, is shiftable longitudinally on hinge rod 20 as the section to the left in said figures is held stationary. The length of strip 24 of the left-hand section is substantially the same as the distance between flanges 16.

In practice, hinge barrels 26 are turned inwardly so as to be confined within the continuous sheet holding members 22.

Stops 30 secured directly to the underside of strips 24 limit the movement of members 22 about the axis of rod 20 when the sheet holding members are drawn to the open position to insert or remove a perforated sheet, not here shown. These stops 30 are on the underside of strips 24 and the ends thereof engage the inner face of arcuate back 14.

There is a stop mounted on each of the two sections forming the mechanism and spring 32 extends between these stops to draw the same toward each other as far as the specially formed ends of the sheet holding members 22 permit when the mechanism is closed and as far as hinge barrels 26 on the righthand section 24 will allow. This spring 32 lies between one of strips 24 and the arcuate back member 14 so as not to interfere with the operation nor appearance of the binder.

Each sheet holding member 22 is provided with an inclined surface 34 and a notch 36 at its free end. These inclined or cam surfaces 34 of opposed members 22 strike each other when the sections are swung together and pressure overcomes the force of spring 32 and permits shifting of one of the sections until tongues 38 and notches 36 interengage, as seen in Fig. 1.

To unlatch the parts it is only necessary for the operator to grasp the sheet holding members and shift at least one of the same longitudinally along hinge rod 20 to a point where tongues and

notches 38 and 36 respectively, are not in engagement. Members 22 may then be swung apart.

To preclude accidental opening of the binder mechanism or shifting of the longitudinally movable sections, latch 40 is provided. This latch has a bearing 42 wherein is journalled hinge rod 20 and an ear 44, swingable to and from a position within opening 46 provided in back member 14. Latch 40 is confined within a slot 48 formed in one of the hinge barrels 26 of the longitudinally shiftable sections—thus, when latch 40 is withdrawn from the operative position in opening 46, shifting of one section to the position shown in dotted lines of Fig. 2, may occur.

Obviously, the mechanism just described, may be employed without covers 8 and embodied in styles of bindings known to the trade. Because of the nature of the sheet holding members and the parts integral therewith, said members may be molded or otherwise created from plastic. Only spring 32 need be flexible and therefore, spring metal is entirely eliminated.

Obviously, binders having physical characteristics different from that illustrated and described may be made without departing from the spirit of the invention or scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A loose-leaf binder of the character described, comprising a back member; upstanding flanges on the back member at the ends thereof; a hinge rod carried by the flanges in spaced relation with the back member; a pair of sections each having hinge barrels embracing the rod for rotation about the axis thereof, and sheet holding members provided with interlocking structure at their free ends; and a spring interconnecting the sections to releasably hold the members in interlocked condition, one of the sections being movable longitudinally along the rod in one direction by the spring, said interlocking structure having cam faces disposed to shift the movable section along the rod in the opposite direction against the force of said spring as the pair of sections are rotated about the axis of said rod.

2. A loose-leaf binder as set forth in claim 1, wherein the hinge rod has a latch swingably supported thereon and said longitudinally movable section and the back member have openings to receive the latch.

3. A loose-leaf binder as set forth in claim 1, wherein each of the sections has a stop extending laterally therefrom for engagement with the back plate to limit the rotation of the sections around the hinge rod in one direction.

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