

June 29, 1965

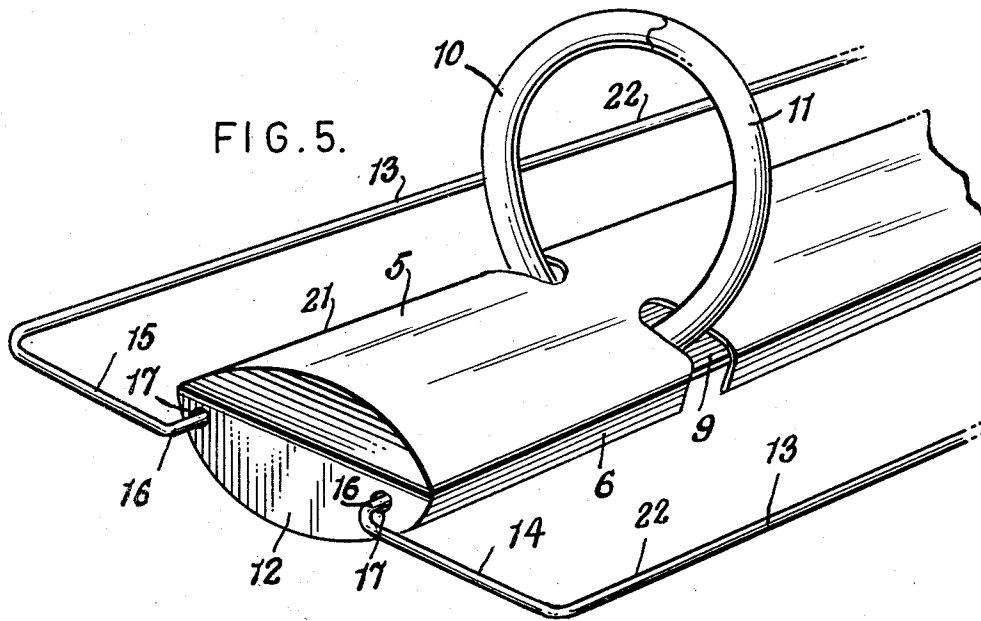
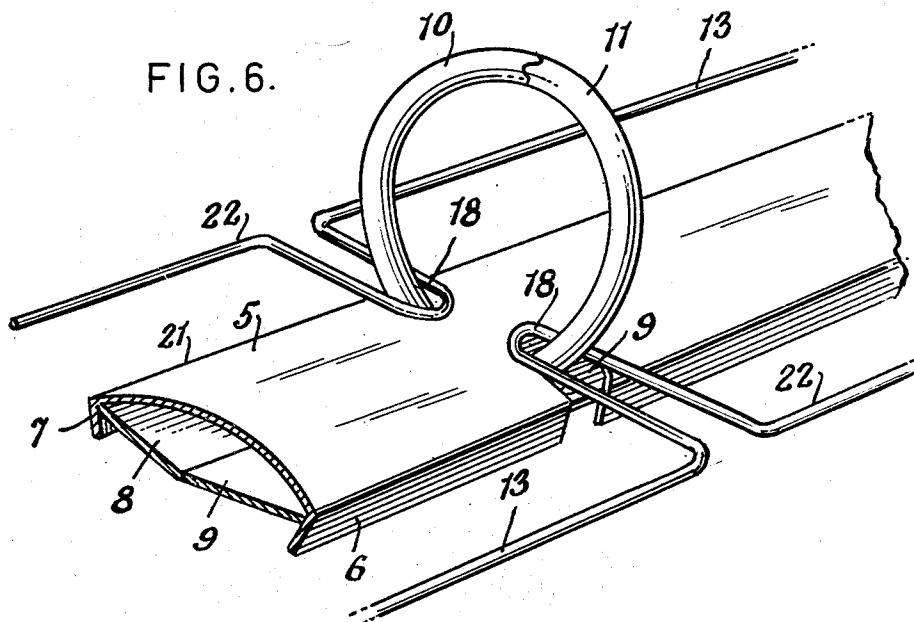
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3,191,604

SHEET LIFTERS FOR LOOSE LEAF BINDERS

Filed Sept. 26, 1963

3 Sheets-Sheet 2



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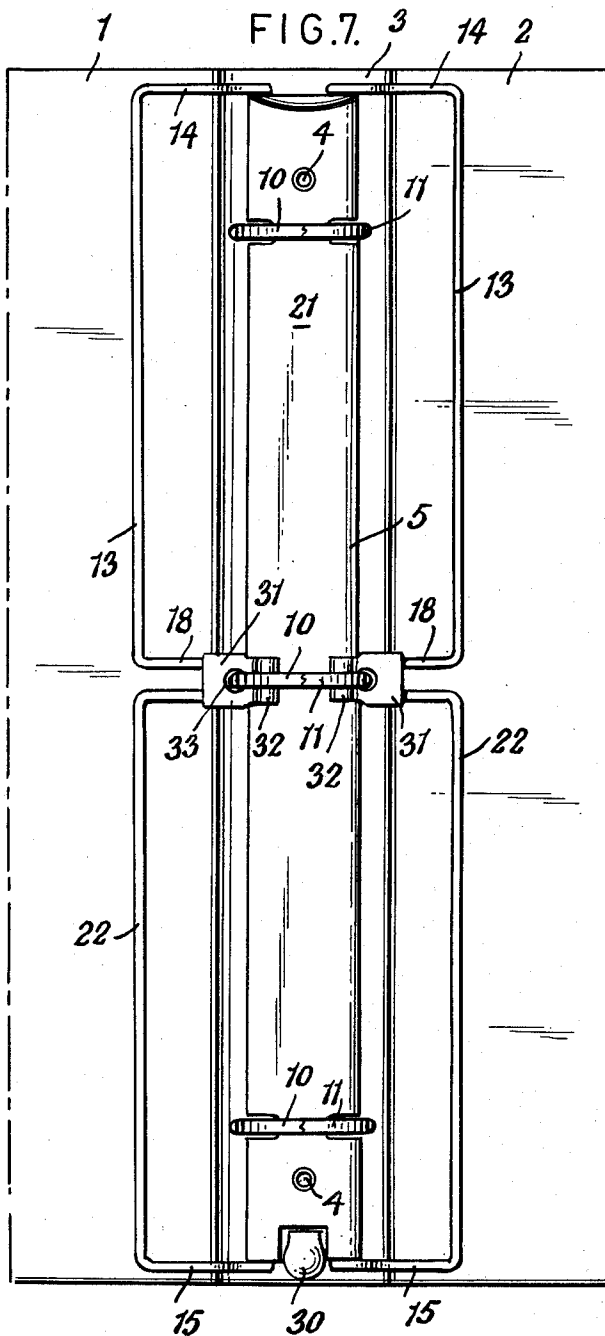
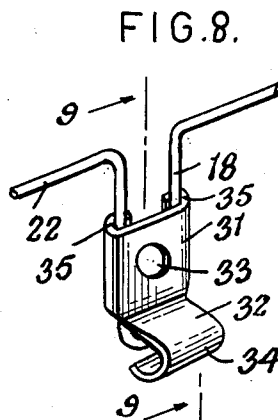
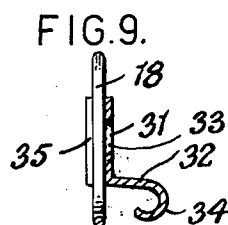
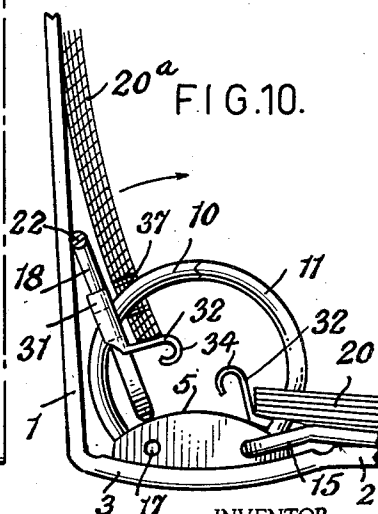
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3 Sheets-Sheet 3



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SHEET LIFTERS FOR LOOSE LEAF BINDERS
Frank Wance, Linden, N.J., assignor to S. E. & M. Vernon, Inc., New York, N.Y., a corporation of New York
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3 Claims. (Cl. 129-4)

This application is a continuation-in-part of my co-pending application Serial No. 138,794, filed September 18, 1961, and now abandoned. This invention relates to loose leaf binders and more particularly to those of the ring type, and to improved sheet lifters for employment in such a type of binder.

In loose leaf binders of the so-called "ring" type, sheet lifters are often employed, and the same as generally used consist of strips of stiff sheet material such as fiber board. These strips are formed with holes through which the binder rings pass. The strips require removal or displacement when sheets or leaves are being fitted in or removed from the binder and often the user of the binder fails to replace them.

The purpose of sheet lifters in binders of this kind is to retain the pages or leaves in their proper flattened relationship, particularly when opening and closing the binder. When closing a binder of this type there is a tendency on the part of the leaves to slide rearwardly on the rings and to assume a distorted or curled condition adjacent to their rear edges, and it is an object of the present invention to provide a sheet lifter which will prevent this.

It is an object of the invention to provide a sheet lifter which will operate to retain the leaves or pages in their proper flattened condition and particularly when the book is opened or closed; which will be pivotally attached to the housing or casing of the binder unit and thus will not require the removal of the sheet lifter when sheets are being placed in or removed from the binder, and which will be automatic in its operation and always effective to retain the sheets in their proper positions and desired relationship during the use of the binder.

It is an object of the invention to provide a sheet lifter in which means is provided for raising the leaves or pages during closure of the binder, thereby causing the leaves to be lifted over the binder rings and reducing frictional wear on the edges of the holes and serving to prevent tearing and enlargement of the holes in the pages.

More particularly, the invention contemplates the provision of a frame composed of stiff wire rod or other suitable material, which shall have end members pivotally mounted in the opposite end walls of the housing or casing of the ring unit; which shall have a main rod section or cross member formed with a loop for the encirclement of one of the rings of the binder. The invention contemplates the provision of a lifting means in the form of a projecting finger slidably mounted on the loop and caused to be elevated by cam action imposed upon it by a ring of the binder, such raising movement of the lifter tending to lift the leaves or pages over the ring. The invention contemplates the provision of two of these frames between which the leaves or pages are disposed and which engage and contact the leaves in such a manner that the opening and closing of the binder shall be smooth and unimpeded and the leaves shall the while, be maintained flatly and be prevented from buckling and assuming distorted or deformed conditions.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described and more particularly pointed out in the claims appended hereto.

In the accompanying drawings, wherein an illustrative embodiment of the invention is shown,

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FIG. 1 is a perspective view of a portion of a binder in which the improved sheet lifters constituting one embodiment of the invention are shown;

FIG. 2 is an end view of a portion of the binder showing the positions assumed by the sheet lifters when the binder is in its closed position;

FIG. 3 is an end view of the binder housing showing the apertures formed therein for pivotally receiving the ends of the sheet lifter frames;

FIG. 4 shows one of the sheet lifter frames;

FIG. 5 is a perspective view of one end of the binder housing or casing, showing how the sheet lifters are pivotally engaged therewith, and

FIG. 6 is an enlargement of a portion of FIG. 1 but with parts of the covers and back of the binder omitted;

FIG. 7 is a top plan view of another embodiment of the invention;

FIG. 8 is a perspective view of one of the lifting fingers as employed in the embodiment of FIG. 7;

FIG. 9 is a sectional view, taken substantially on the line 9-9 of FIG. 8, looking in the direction of the arrows; and

FIG. 10 is an end view, with parts in section, of a portion of the binder, showing how the leaves or pages are raised by the lifting finger during closing movement of the binder.

Referring to the drawings, and more particularly to FIGS. 1 to 6 thereof, there is therein shown a loose leaf binder of generally conventional construction, in that the same is provided with the usual cover members 1 and 2 pivotally attached to the curved back 3. Secured to the inside surface of the back by rivets 4 or other suitable fastening means, is the ring mounting including a housing or casing 21 of elongated shape and which receives the ring halves or segments. The housing or casing 21 includes an outwardly convexed hood or shield 5 composed of springy metal, the same being transversely arched and provided with integral returned flanges 6 and 7 along its opposite edges as clearly shown in FIG. 6. Confined between the flanges 6 and 7 are elongated toggle plates 8 and 9 which are placed edge to edge and to which the ring halves or segments 10 and 11 are respectively attached. By the angularity of these plates 8 and 9 the open or closed positions of the rings are attained. The ring segments may be manually opened or closed by being pulled apart or pushed together, or their opening or closing or both may be effected by the use of one or more finger-pieces sometimes provided at the ends of the housing 21, one of such finger-pieces being shown at 30 in FIG. 7. The structure as thus far described is old in this art.

The housing or casing has the hood or shield 5 closed at its opposite ends by means of integral end walls 12. The two sheet lifters are alike in construction and one of them is shown in detail in FIG. 4. It will be therein noted that the same is of rectangular form and consists of a frame 22 composed of relatively stiff wire rod having a lengthy main bar 13 as long or slightly longer than the stack of leaves or pages contained in the binder and shown at 20. At its ends, the main bar 20 is provided with laterally extending legs 14, 15, each of which is formed with an intumed or reverted end indicated at 16. When these end parts 16 fit into holes 17 provided in the end walls 12 as clearly seen in FIG. 5, the frames 22 are thereupon pivotally mounted in the end walls. Each of the sheet lifters is centrally formed in its main bar 13 with a loop 18 which extends around the center ring of the binder.

As will be seen in FIG. 1, two of the sheet lifters are employed in the binder, one of which is arranged for operation against the top of the stack of leaves or sheets

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20 in the binder and the other arranged for engagement against the bottom of the stack. The action of the sheet lifters will be apparent from FIG. 2, wherein the binder is shown in its closed position and in which position the sheet lifters extend angularly between their points of pivotal attachment at the ends of the binder housing and the inside of the cover members 1 and 2 and they act to prevent the sheets or leaves 20 in the binder from sliding down under the arcs of the rings and assuming a curled and distorted condition. These lifters are automatic in operation and move into sheet-retaining position upon closing of the binder. They permit the free swing of the sheets yet permit the sheets to be supported flatly and undistorted.

In the embodiment of the invention disclosed in FIGS. 7 to 10 inclusive, each of the frames 22 is provided with a lifter element 31 which is slidably mounted on the legs of the loop 18. Said lifter has inturned flanges 35 at its opposite side edges, and which flanges embrace the legs of the loop and guide the lifter in its sliding movement thereon. At one end, the lifter is formed with an outwardly projecting finger 32 that is smoothly rounded at its free end into hook formation as shown at 34 to enable the leaves or pages to slide freely over it. The lifter is formed with a central hole 33 through which the center ring of the binder extends.

The action of each of these lifters during closure of the binder will be apparent from FIG. 10. Therein the cover member 1 is shown as being moved in the direction of the arrow toward closing position. As the cover members, or either of them, is moved to closed position, the lifter or lifters 31 will slide upwardly on the center ring, and the finger 32 on the lifter will act as a shelf under the leaves or pages and will raise the same upwardly over the center ring. This will be apparent from FIG. 10 wherein the batch of pages or leaves shown at 20a is being moved over the ring. This action takes place during the movement of the cover member, and it takes the weight of the leaves or pages from off the edges of the holes 37 in the pages and thus lessens frictional wear and possibly the enlargement of the holes or the tearing of the pages at the holes.

The upward sliding movement of each of the lifters 31 is attained by cam action imposed on it by the center ring passing through the hole 33 in each lifter and the ring, engaging against the edge of the hole, will raise the lifter and the pages borne by it when either of the covers is brought toward closed position.

The sheet lifters, constructed and attached as herein described, being connected to the binder unit, are thus not required to be detached when leaves or pages are removed or are being placed in the binder.

The lifters 31 may be made of sheet metal or of plastic or other suitable material.

Having described embodiments of the invention, it is

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obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. A binder having a housing formed with end walls, rings projecting from the housing and receiving a stack of sheets, a sheet lifter in the form of a substantially rectangular wire frame having legs at its opposite ends, said legs having lateral end portions, the end walls having apertures in which the said end portions are fitted to thereby pivotally attach the sheet lifter to the housing, the legs being connected by a main bar for extension across the stack of sheets, the main bar having a loop fitted around one of the rings, and a finger slidably mounted on the loop and fitted around said ring said finger having a projection engaging behind the sheets, said finger being caused to be slidably moved by said ring to lift a batch of sheets when the binder is moved toward closing position.

2. A binder as provided for in claim 1, wherein the loop is of elongated form and is provided with parallel legs, the finger having inturned flanges fitted around and guided by the legs and the finger having a central aperture between the flanges through which the binder ring passes.

3. A binder having a ring mounting including an elongated housing from which the rings project, a pair of sheet lifters having ends pivotally fitted in the opposite ends of the housing, the binder including a stack of sheets maintained on the rings between the sheet lifters, each of the lifters being formed with a loop encircling one of the rings of the binder, each of the loops being provided with a finger slidably fitted on it and having a projection extending behind the sheets, each of the fingers having a part slidably guided on the ring so that the finger is caused to be slid along the ring and the loop upon which it is mounted to raise the sheets thereover by cam action exerted on the finger by the ring upon closing of the binder.

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