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J. McLAUGHLIN

LOOSE LEAF BINDER

Filed June 6, 1924

Fig. 1.

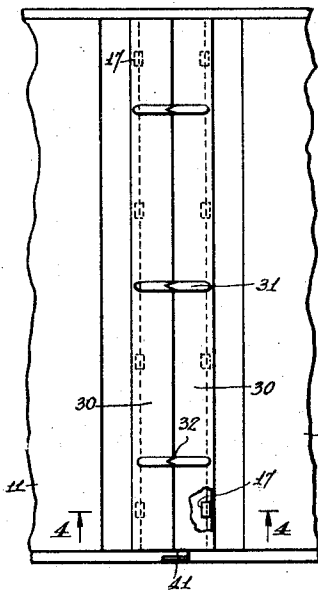


Fig. 2.

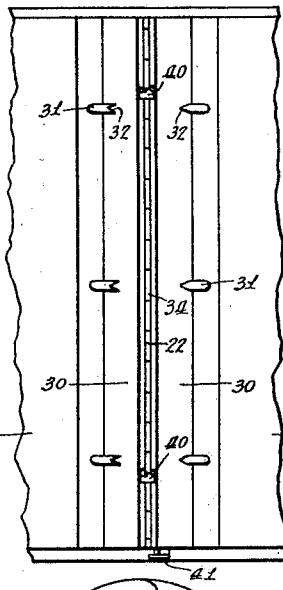


Fig. 3.

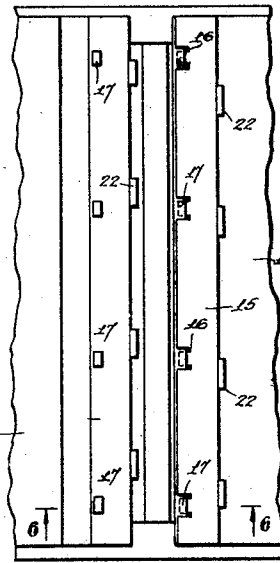


Fig. 4.

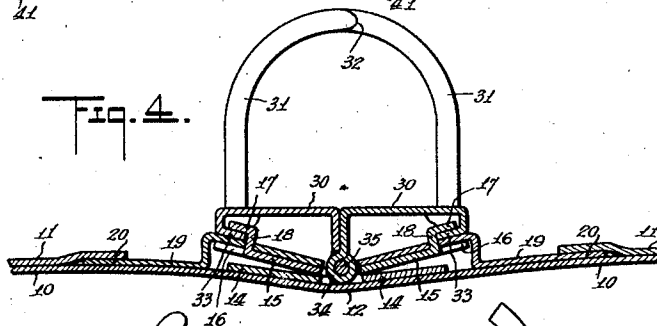


Fig. 5.

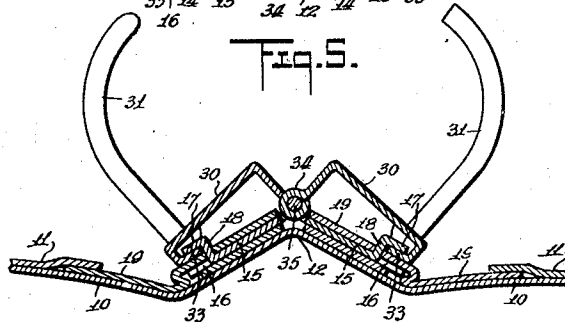
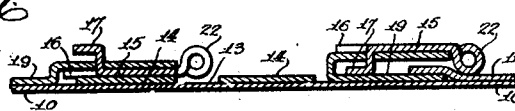


Fig. 6.



WITNESSES

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## UNITED STATES PATENT OFFICE.

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## LOOSE-LEAF BINDER.

Application filed June 6, 1924. Serial No. 718,340.

*To all whom it may concern:*

Be it known that I, JAMES McLAUGHLIN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Loose-Leaf Binder, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in loose leaf binders, and it pertains more particularly to the back construction thereof.

It is one of the primary objects of the invention to construct a loose leaf binder book in such a manner that the mechanism is not rigidly secured to the cover at the back portion thereof.

It is a further object of the invention to construct a mechanism of this nature in such a manner that the several parts thereof are not permanently secured together, and, therefore, are capable of detachment with respect to one another.

It is a further object of the invention to construct the mechanism in such a manner that the strain incident to the carrying of a plurality of detachable leaves is distributed through the covers rather than at a point at the so-called "back" of the book.

It is a further object of the invention to construct a loose leaf binder construction in such a manner that the leaf-carrying prongs will open sufficiently to permit the leaves being attached to or detached therefrom by a vertical movement rather than necessitating a movement of the leaves through the arc of a circle as is the common practice.

It is a further object of the invention to provide a loose leaf book construction in which the several parts of the back are hingedly connected together in such a manner that the pintle of the hinge rigidly retains such parts in their operative relation to one another.

With the above and other objects in view, reference is had to the accompanying drawings, in which—

Figure 1 is a detail plan view of a loose leaf book construction made in accordance with the present invention and in its closed position;

Fig. 2 is a similar view with the device in its open position;

Fig. 3 is a similar view with the prong bars removed and showing one of the back bars folded over upon the cover;

Fig. 4 is a detail transverse sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a detail transverse sectional view showing the back broken with the leaf prongs in open position;

Fig. 6 is a detail transverse sectional view taken on the line 6—6 of Fig. 3.

Referring more particularly to the drawings, the reference numeral 10 designates a book cover, which may be formed of leather or any other suitable material. Carried by each half of the cover on its inner face, there is a facing or lining 11 which is secured to the cover by means of glue or the like.

As aforesaid, the reference number 10 designates the cover, and that section of the cover designated by the reference numeral 12, is the back of the book, and will hereinafter be so referred to. The back section 12 of the cover is reinforced by means of two parallel strips 14, suitably secured thereto, said strips being spaced with respect to each other, as designated by the reference numeral 13.

The reference numeral 15 designates back bars, and such bars are preferably constructed from metal or other suitable rigid material. These back bars are cut as at 16, to provide lugs 17, such lugs standing upward, as shown at 18 in the drawings. These back bars are secured to the cover by means of members 19 of bookbinders' cloth or other suitable material, and such members 19 extend under their respective facings or linings 11, as designated by the reference numeral 20 in the drawings. The inner edges of these members are secured to their respective back bar by means of glue or in any other suitable manner, and the lugs 17 hereinafter mentioned as formed on the back bars 15, are passed through such members 19, as more clearly shown in Figs. 4, 5 and 6. Each of these back bars 15 is formed on its inner edge with hinge knuckles 22, and such hinge knuckles 22 are adapted to aline with one another when the hinge bars are folded inwardly of the cover, or in position upon their respective strips 14.

The reference numeral 30 designates prong bars, and such prong bars are sub-

stantially channel-shaped in cross section. Carried by each of the prong bars is a plurality of prongs 31, and such prongs are adapted to interengage as designated by the reference numeral 32 in Fig. 1, when the mechanism is in its closed position. Each of the prong bars 30 is provided upon one of its side walls with a flange 33, and these flanges 33 are adapted to engage beneath the lugs 17 of their respective back bars 15, as more clearly shown in Figs. 4 and 5, the other side wall of each of the prong bars being provided with a plurality of hinge knuckles 34.

The hinge knuckles 22 carried by the back bars 15 and the hinge knuckles 34 carried by the prong bars 30, are so positioned with respect to each other that when the several parts of the mechanism are assembled, the knuckles will aline to form a continuous hinge of the type known as a "piano hinge." When the several knuckles are in alinement a hinge pintle 35 is passed therethrough and through the medium of this hinge pintle 35, the several parts will be retained in their operative position.

The reference numeral 40 designates a suitable lock of any desired form, and such lock is operated by means of a finger piece 41. The particular construction of this locking mechanism, however, forms no part of the present invention, and for this reason the same is only conventionally shown.

In constructing a loose leaf binder in accordance with the present invention, the flexible members 19 with the back bars attached thereto are secured to the cover 10 beneath the inner facings 11 thereof, as designated by the reference numeral 20. After this has been done, the back bars are folded into such position that their hinge knuckles 22 aline with each other. The flanges 33 of the prong bars 30 are now engaged beneath their respective lugs 17 of the back bars 15 and they are folded inwardly until the prongs 31 engage each other and the hinge knuckles 34 of the prong bars 30 aline with each other and the hinge knuckles of the back bars 15. After this has been accomplished, the hinge pintle 35 is inserted through the several alined hinge knuckles to secure the several parts in operative relation.

If it is desired to disassemble the mechanism, it is only necessary to remove the hinge pintle 35 and the prong bars 30 are then freely removable by a lateral movement sufficient to disengage their flanges 33 from beneath their respective lugs 17 of the back bars 15.

From the foregoing it is apparent that the present invention provides a loose leaf binder mechanism in which the several parts are rigidly secured together by means of the pintle of the hinge of the mechanism, and,

furthermore, it is apparent that the mechanism may be readily disassembled by a removal of said hinge pintle.

It will be further noted that by a construction such as heretofore described, the strain incident to the opening and closing of the leaf-carrying prongs, as well as the strain imposed thereon by the leaves carried thereby, is distributed through the covers.

What is claimed is:

1. In a loose leaf binder, a cover, a plurality of back bars hingedly connected to the cover, a prong bar carried by each of said back bars, a plurality of hinge knuckles formed on said back bars and on said prong bars, said hinge knuckles being adapted to aline with each other, and a hinge pintle adapted to pass through said alined hinge knuckles for securing the prong bars in hinged relation and to their respective back bars.

2. In a loose leaf binder construction, a cover, a pair of back bars carried by the cover, and a prong bar removably associated with each of said back bars.

3. A loose leaf binder back construction, comprising a cover member, a pair of rigid elements carried by said cover member and constituting back bars, a prong bar carried by each of said back bars, and a common means for hingedly connecting and securing said back bars and said prong bars together.

4. In a loose leaf binder construction, a cover, a plurality of back bars carried by the cover, a plurality of prong bars associated with the back bars and having interengagement therewith, each of said prong bars being removable from its respective back bar by movement laterally thereof, and means for preventing lateral movement of the prong bars relative to their respective back bars, said last-mentioned means comprising a hinge pivotally connecting the prong bars together.

5. A loose leaf binder construction, comprising in combination with a cover, a plurality of rigid elements carried thereby, a plurality of lugs struck from each of said rigid elements, a plurality of hinge knuckles carried by each of said rigid elements, a plurality of prong bars, a flange associated with each of said prong bars and adapted to engage beneath the lugs of its respective rigid element, hinge knuckles formed on each of the prong bars and adapted to aline with each other and with the hinge knuckles formed on the rigid elements, and a pintle adapted to be passed through the hinge knuckles of both the rigid elements and the prong bars for hingedly connecting the rigid elements and the prong bars together.

6. A loose leaf binder back construction comprising a cover member, a plurality of rigid members carried thereby and consti-

tuting back bars hingedly connected to the cover member, a plurality of alining hinge knuckles carried by said back bars, a plurality of prong bars, hinge knuckles carried thereby and adapted to aline with the knuckles of the back bars, and a pintle passing through said alined hinge knuckles and forming means for retaining the back bars and prong bars in assembled relation.

10 7. In a loose leaf binder, a cover, a plurality of back bars carried by said cover and in parallel relation to each other, a plurality of upstanding lugs carried by said back bars, a prong bar adapted for attachment to

each of said back bars, a flange formed on each of said prong bars and adapted to engage beneath the lugs of its respective back bar, and means for securing the back bars and the prong bars together in operative relation.

20 8. In a loose leaf binder, a cover, a plurality of rigid back bars hingedly connected to the cover, a prong bar removably carried by each of said back bars, and means for hingedly connecting said prong bars and said rigid back bars together.

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