Oct. 25, 1949. F. S. SCHADE 2,486,329

LOOSE-LEAF BINDER

Filed July 12, 1945

FIG. 1.

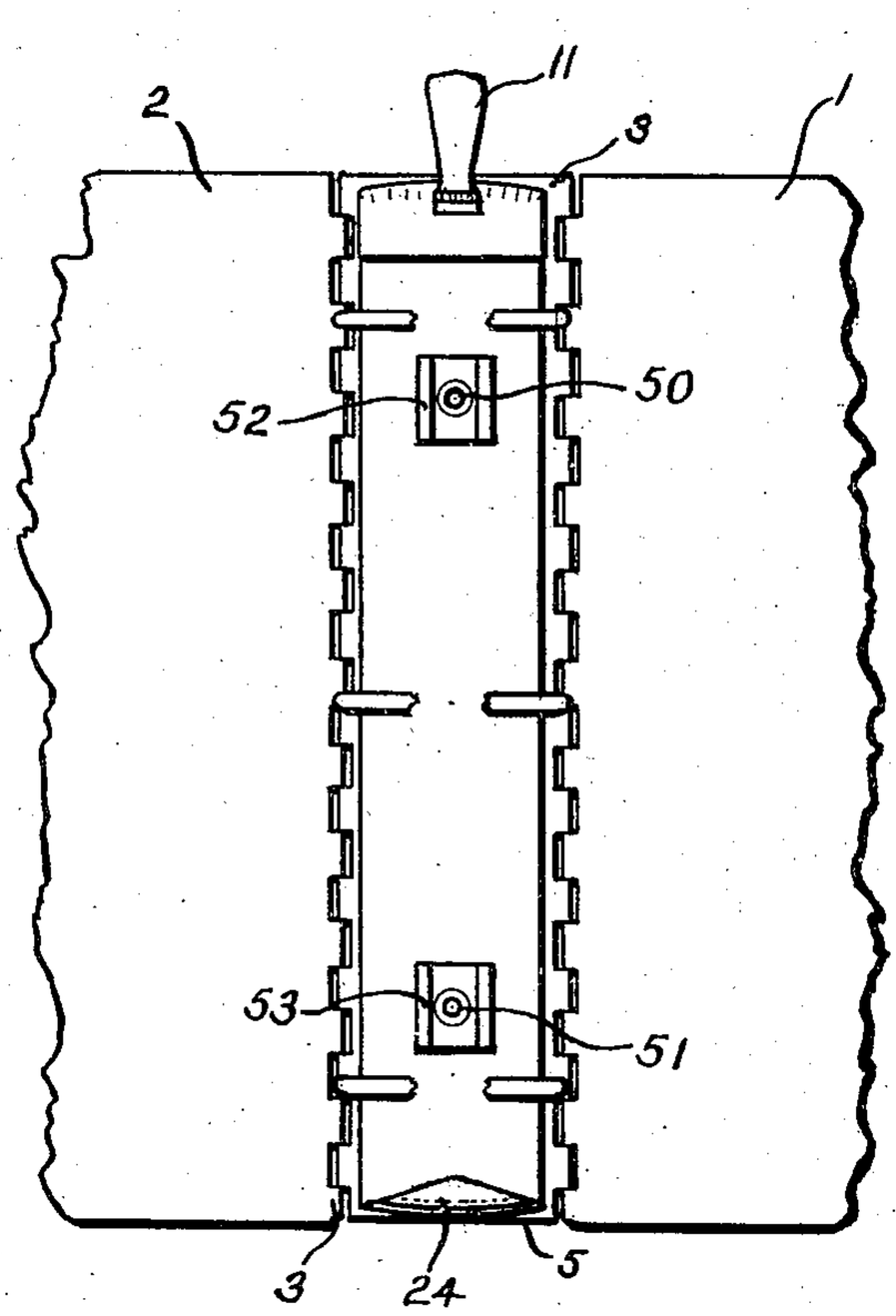


FIG. 1a

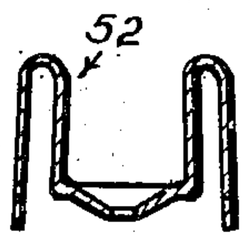


FIG. 1b

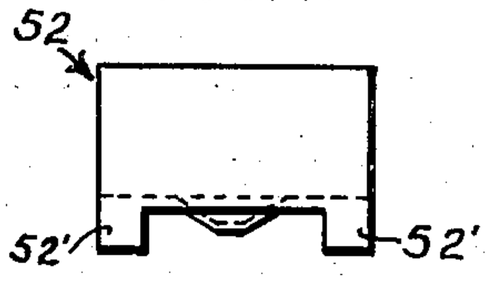


FIG. 3.

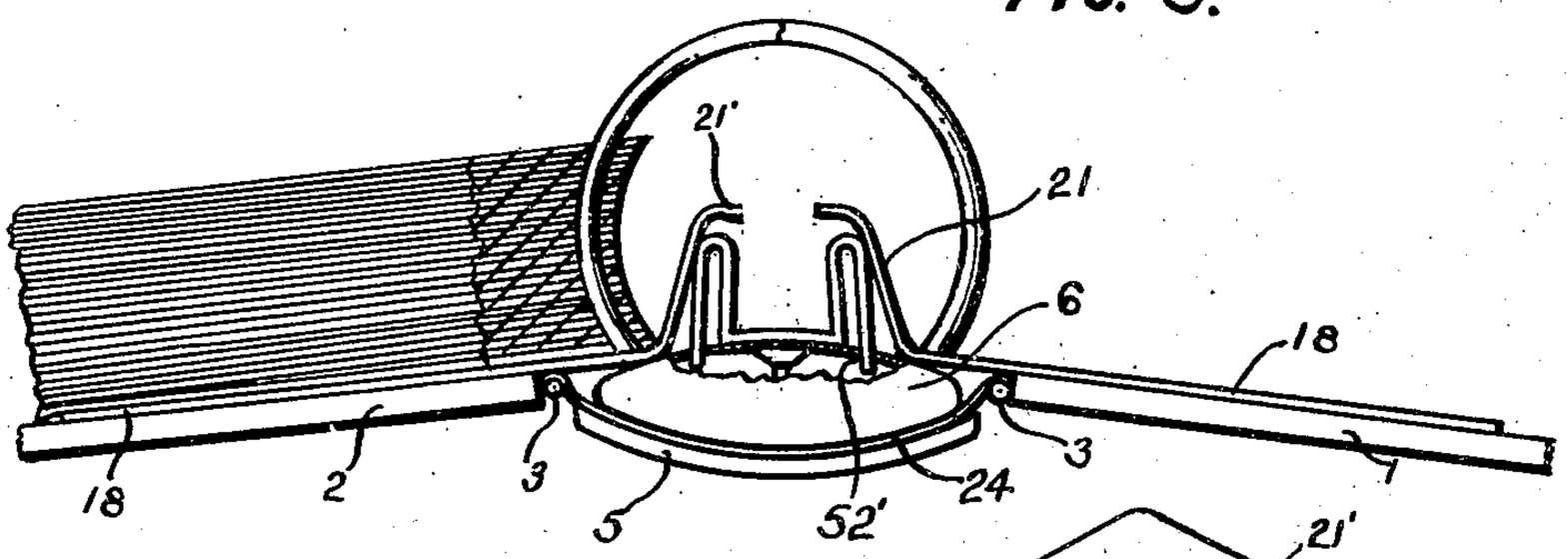
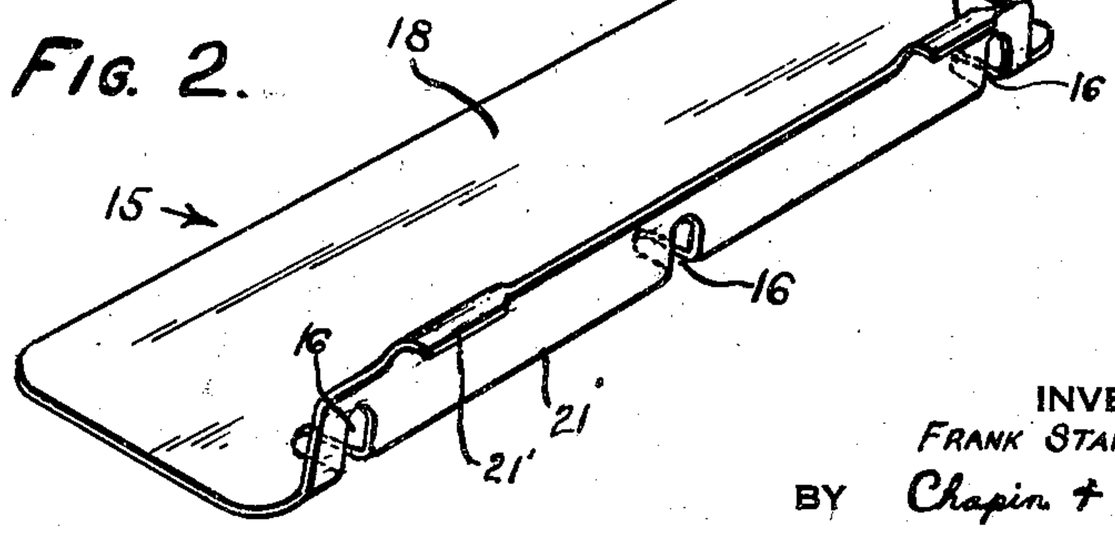


FIG. 2.



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UNITED STATES PATENT OFFICE

2,486,329

LOOSE-LEAF BINDER

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1 Claim. (Cl. 129—4)

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This invention relates to an improvement in ring binders employing fly leaves to help turn thick packs on the binder rings. The disclosure includes two new forms for such a binder. One has a main purpose to improve what is shown in my Patent #2,150,590 of March 14, 1939. The other form is to provide a simple structure adapted to some uses which do not need all the parts of the first form. The first is the preferred form. It will do the work of the other and in addition regulate itself better under hard usage. This will be made clear from the examples.

As to what is new in the disclosure compared to the prior art, it should be understood that the pertinent art is that of fly leaves in loose leaf binders. This is a crowded art. It is represented by said patent. Examples embodying the new features need to be shown and discussed for a proper understanding of what is new and useful. Such examples are given in the drawings in which

Fig. 1 shows a binder, the covers being partially cut away, with opened rings and indicating means on the cover plate of the loose leaf mechanism for controlling fly leaves. The latter are not shown in this figure;

Figs. 1*a* and 1*b* show details of said means on the cover plate;

Fig. 2 shows one of the two fly leaves as will work in the binder of Fig. 1; and

Fig. 3 shows the binder parts of Figs. 1 and 2 assembled for working with a pack of sheets.

The binder of Fig. 1, apart from the special means for employing the fly leaf structure may be a conventional ring binder. This fact is merely indicated by covers **1** and **2**, hinges **3**, back portion **5**, ring mechanism **6**, with its cover or spring plate **24**, see also Fig. 3. It is customary to fasten such ring mechanism by rivets passing through plate **24** with a rivet head on top and another on the bottom engaging a suitable part of the back portion of the binder case construction. As indicated in Fig. 1 such rivets are here used also at points **50** and **51** to fasten on elements of the fly leaf structure or rather of the means for controlling the fly leaves. This will be referred to again in more detail. It is customary to provide mechanism to conveniently open and close the rings. This is merely indicated by finger lever **11** used to operate such mechanism adjacent its end. This type of binder per se will be readily understood.

The new feature includes the means shown, riveted on the cover plate at points **50** and **51**. In the preferred example shown there are two

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spaced and identical elements **52** and **53**. Figs. 1*a* and 1*b* show the details. In the example it is a single piece about an inch wide. It is bent into U form. The legs are doubled back, with short downwardly extending tongues **52'** passing through complementary openings, see Fig. 3, stamped in the cover plate. The bottom of each piece such as **52** and **53**, has a central opening for the rivet fastening, see Fig. 3. It is preferably countersunk as is the opening through the cover plate. Thus each piece or element **52**, **53** may be placed on the cover plate as at points **50** or **51**, the tongues **52'** will hold its position at the four corners, and the customary rivet of the loose leaf mechanism gives it final and permanent assembly. This structure and assembly is economical and efficient for the manufacturing work. There are other advantages of the form for operating the finished binder. They will be described when the operation of the new means shown is discussed.

Two fly leaves **15**, one seen in Fig. 2, are alike. Each consists of a strip **18** of hardened fiber, aluminum sheet, or other suitable material. It should be stiff. It has a flange **21** adjacent one end to serve as a shelf. This flange has a short hook **21'**, about the width of the arc where the legs of elements **52** and **53** are bent back. There are two such hooks **21'** as indicated in Fig. 2. Elongated holes or slots **16** are provided for threading the fly leaf on the rings. When so mounted the hooks **21'** are in position to engage the top edges of the U-shaped pieces **52** and **53** in a way to be described. The slots **16** are proportioned to allow considerable self-adjustment of the fly leaves on the rings as they are moved, in working with the binder. It will be seen that the fly leaves, per se, are generally like those shown in my said patent, except with respect to the modification to complement the nature of spaced pieces **52**, **53**, their one piece construction and the extension of their slots partway up flange **21**. This slot extension not only allows for better self-adjustment of the fly leaves but also permits flange **21** to position itself closer to the rings as the hooks move downwardly from the position of Fig. 3 to a seat on the arcuate tops of elements **52** and **53**.

In the form above described as in the one of said patent; there is a support above the cover plate to form a support for fly leaves; the cross sectional shape of the support includes a double arch; each arch is arranged parallel to and at about the level of and at each side of the ring axis; a stiff fly leaf for each side of the binder

with an upstanding flange at the inner edge of each fly leaf; this flange is bent at its outer end to engage the adjacent arch of the support to be supported and guided when the binder is opened and closed. The binder form of this disclosure, however, has useful specific differences. It is more economical to make, uses substantially less material, and the appearance of an actual specimen is greatly improved in that there is much less bulk, the space inside the rings and along their common axis is for the most part open and clear. This results in giving a total appearance to the book very close to one without the fly leaf structure. This is a real advantage as it helps induce the use of fly leaves, and when they are used the large ring binders work much better for the customer. The specific binder of this disclosure is much closer to the clean appearance of smaller binders used without fly leaves and the new binder with the fly leaves and structure disclosed in large binders work much closer to the satisfactory way in which such smaller binders work.

The operation will now be described assuming that, as shown in Fig. 3, the binder is completely open with the flanges 21 contacting the supports below the hooks 21' and that the sheets on cover 2 are to be turned over the rings to lie on cover 1 in a complete closing of the binder. Of course the fly leaf construction is to help the operation. The action is to initially pivot flange 21 slidably against the left leg of element 53, and correspondingly at element 52 not shown in this figure. The slots 16 of the fly leaf are long, to permit self-adjustment and avoid binding as the hooks seat on the arched support when the cover is swung upwardly. The hook 21' helps avoid a dropping down of flange 21, too far to lose the pivot line at the top. When cover 2 is vertical, in the turning over of the cover 2 with its load, hook 21' begins to engage the inner side of the leg on element 53. As the cover continues over, swinging on hinge 3 at the right, the hook 21' with its "hand hold" on element 53 holds the fly leaf at the inner edge at about the level of the ring axis so the pack is lifted over the rings.

The danger of the fly leaf slumping down and going askew is avoided. So even a heavy pack of sheets is turned over in a good way. There are other advantages of this form which may be generally stated as a better working form in that with a heavy load of sheets the fly leaves are less liable to go askew in the working of the binder.

A further advantage of the construction resides in the simple character of the pieces added to the cover plate to present pivot means at the right place for aiding the working of the fly leaves in their function to turn the pack of sheets.

Having described the invention, I claim:

In a ring binder of the type having a plate supported ring mechanism riveted to the back thereof and having stiff fly leaves loosely threaded on the rings, longitudinally spaced U shaped members having their central portions riveted directly to the plate of the ring mechanism, the side portions of each said member being bent upwardly, outwardly and downwardly to form two arched, transversely spaced fly leaf supporting members at approximately the level of, and on opposite sides of, the ring axis, the ends of the downwardly extending portions making a tongue and slot engagement with the plate, said fly leaves having flanges at their inner edges, the edges of the flanges being provided with hook portions, said flanges being inclined inwardly to engage said arched supports at a point below the hook portions when the binder is fully open.

FRANK STANLEY SCHADE.

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The following references are of record in the file of this patent:

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2,242,035	Koelling	May 13, 1941
2,276,987	Kengott	Mar. 17, 1942