

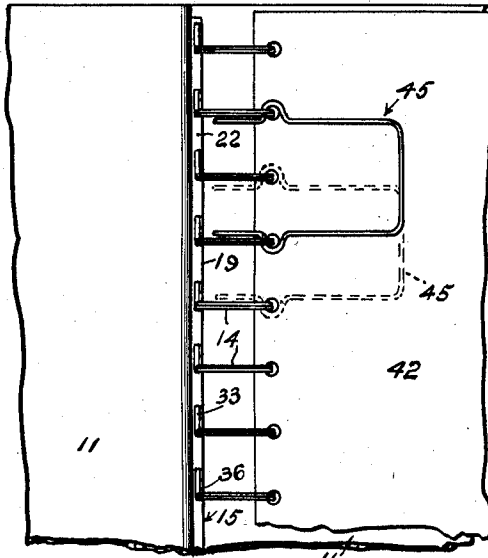
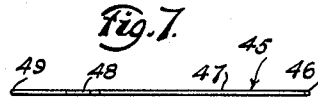
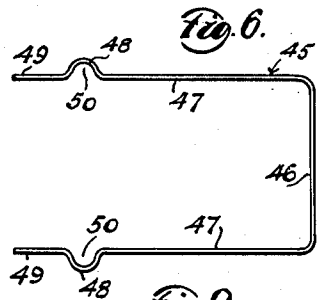
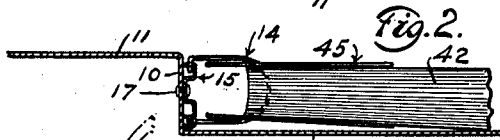
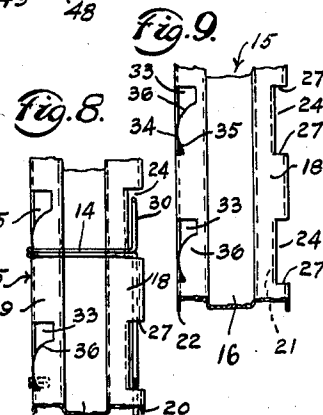
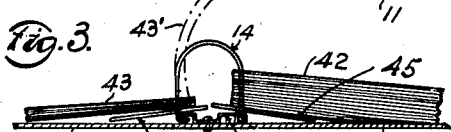
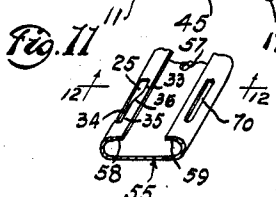
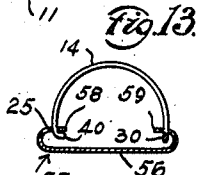
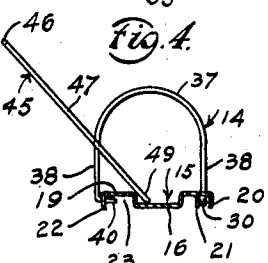
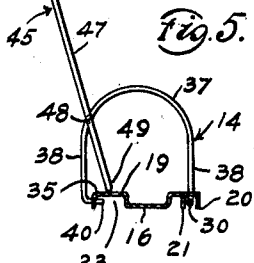
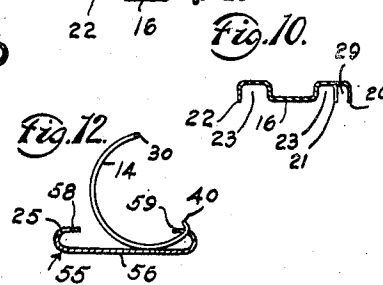
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J. B. GODVIN ET AL
METAL LOOSE LEAF BINDER

2,273,187

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Fig. 1.



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METAL LOOSE LEAF BINDER

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3 Claims. (Cl. 129—4)

The present invention relates to an improvement in mechanical binders, and relates more specifically to improved means for anchoring the binder rings and to an improved form of leaf gathering flipper, which, when in operative position in a perforated leaf, mechanical ring or similar type of binder, gathers the perforated ring bound edges of the leaves together when closing the binder from the full open position to the closed position.

There are two or more of these flippers used in a mechanical bound volume, one on each external side of the bound leaves in the book, these flippers being thus located between the leaves and the covers of the enclosing outer binding.

As is well known, in certain types of metal ring binders, when the book is opened out flat, and is then closed by moving one or both outer binder covers towards each other to close the book, the leaves on the rings in between said covers tend to resist the closing movement and tend to cramp on the lower opposite sides, near the ends of the binding ring portions, near the point of attachment of said ring portions to their supporting base.

This leaf cramping resistance to the closure of the book is due to the fact the perforated, ring bound leaves are slidably mounted to said rings and have no true hinge action in closing, but must be lifted upwardly at their bottom edges on the opposed ring sides, to permit the leaves to be brought together in orderly closed position.

The foregoing described undesired leaf cramping action is present whether the leaf binding rings are circular or semi-circular in form, and particularly where the rings have straight sides with rounded tops. The fault is more flagrant in the case of elongate books such as business check books and books of large size, such as business ledgers and the like, due to leaf friction when closing a binder of the herein disclosed type.

To correct the foregoing noted fault, a flipper means is provided whereby to act as a leaf lifting fulcrum between the outer binder covers and the inner ends of the leaves which extend into the inside confines of the binder ring.

The herein flipper is particularly efficient with rings or ring hooks of the type here disclosed having straight legs and curved yoke.

Other objects of the invention are to provide an improved flipper made of wire.

Additional objects of the invention are to effect simplicity and efficiency in such devices and to provide extremely simple ring binders and flippers which are convenient and reliable in opera-

tion, and economical to manufacture and assemble.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described in the specification, the invention is not limited to these, and many and various changes may be made without departing from the scope of the invention as claimed.

The inventive features for the accomplishment of these and other objects are shown herein in connection with an improved ring binder with associated flipper which briefly stated, includes an elongated plate member secured longitudinally against the inner face of the binder back, and having offset marginal parts spaced from said inner face. The binder element comprises spaced ring hooks adapted to receive a filler of perforated leaves, and longitudinal connecting means connecting the inner ends of said hooks and slidably and pivotally to the one margin of said plate member, the other offset part being provided with spaced notches and retaining parts therebetween, the free ends of said ring hooks being disposed to engage under said retaining parts and pass by sliding movement of the element to registration with said notches.

One or more substantially U-shaped wire flippers are disposed between the filler and the respective cover boards, each comprising arms respectively bent to form lateral recesses opening in opposite directions and engaging the ring hooks, each arm projecting inwardly beyond the recess to facilitate its action as will be explained. In the accompanying drawing showing, by way of example one of many possible embodiments of the invention,

Fig. 1 is a fragmental plan or face view showing the binder with the filler against one cover board and one flipper resting on the filler;

Fig. 2 is a fragmental end elevation showing the binder as in Fig. 1;

Fig. 3 is a fragmental end elevation showing the binder opened out flat;

Figs. 4 and 5 are sections partly in elevation showing different positions of the flipper;

Figs. 6 and 7 are respectively plan and side elevation showing the flipper detached;

Fig. 8 is a fragmental plan showing the plate member and ring hooks therein;

Fig. 9 is a fragmental plan showing the plate member with ring hooks removed;

Fig. 10 shows a transverse section of the plate member; Fig. 11 is a fragmentary perspective view of a modified form of metal ring binder;

Fig. 12 is a sectional view taken on line 12—12, Fig. 11, looking in the direction of the arrows, showing the engagement of a binder ring therewith; and

Fig. 13 is a view similar to Fig. 12, showing the metal, leaf binding ring in leaf binding position.

As will be explained, the improved flipper cooperates in a special way with the herein improved ring binder.

The improved binder includes a at binder back 10 to which the cover boards 11 are hingedly connected. The ring hooks 14 are anchored to a one-piece elongated plate member 15 having a flat axial web portion 16 secured by rivets 17 longitudinally flat against the inner face of the back, said member having wide longitudinal offset portions 18, 19 at the respective sides of, and offset from the plane of, said axial web portion 16, and spaced from said inner face of the back 10 and provided with flange parts 20, 21, 22 turned to said inner face to form inner channels 23 at the margins of the plate member. Said offset portions with their adjacent flanges are respectively provided with longitudinal series of longitudinal recesses 24, 25 communicating with the respective adjacent inner channels.

The recesses 24 at the margin 18 of the plate member are formed by a series of transverse cuts 27 in the flange and outer margin of the offset portion, the metal therebetween being downturned to form the downturned flange parts 21 engaged with said inner face of the back 10, and disposed parallel to and offset from the adjacent flange parts 20 to form with said flanges a hinge-pivot guide passage 28.

The rings 14 are shown as forming a part of a bent wire binder element comprising a wire intermediately folded upon itself and transversely curved to form the slightly resilient spaced ring-hooks 14, and to form longitudinal connecting means 30 connecting the inner ends of said hooks and slidably and pivotally engaged under said offset part 18 in said guide-passage 28 between the adjacent flange parts 20 and said downturned parts 21.

The recesses 25 at the other margin of said guide are formed at the meeting parts of the flange 22 and offset portion 19 and each is provided in the offset portion with a deep notch 33 at one end, a shallow notch 34 and adjacent inner retaining portion 35 at the other, and an intermediate outwardly curved cam edge 36 merging with said deep notch and adjacent retaining portion 35.

The ring hooks 14 are of inverted U-shape and each comprises a curved yoke portion 37, and leg portions 38 normally substantially perpendicular to said binder back, the free ends 40 of said ring hooks being inwardly turned and so disposed relative to the connecting means 30 that when the connecting means are in said passage 23, said free ends 40 may hook under said retaining portions 35 respectively, and may pass by yieldable camming movement along said cam edges 36 to registration with said deep notches 33 to pivot outwardly therefrom, the connecting portions rotating in the passages. This permits placement, replacement or removal of a filler of the perforated leaves 42, 43 received on said ring hooks.

The operation of the ring binder will be easily understood from the foregoing. Normally the free end of the ring hook engages in the shallow notch 34 with the intumed end 40 engaged under the retaining portion 35. When leaves are to be inserted or removed, the whole filler is

grasped in the hand and pushed in upward direction of Fig. 8 causing the ring hooks to move from the shallow notch 34 along the cam edge 36 until the intumed end registers with the deep notch 33.

This allows the ring hooks to pivot on the connecting means 30 and open the rings for the removal or insertion of the desired leaves, after which the reverse movements are effected in the same manner finally drawing the free ends of the ring hooks into the shallow notches 34.

The improved flippers comprise one or more substantially U-shaped wire flippers 45 disposed between the filler 42, 43 and the respective cover boards 11. Each flipper, as shown, comprises a straight yoke 46 parallel to said back 10, and a pair of straight parallel arms 47 each bent as at 48, in the plane of the flipper, near but spaced from their free inner ends 49 to form laterally opening recesses 50, the recesses opening in opposite directions, each in a direction toward the other arm, each recess 50 receiving an adjacent ring hook 14. Each recess 50 may open in a direction away from the other arm, if desired.

The inner projection end part 49 of each arm beyond the recess is long enough to reach partly or substantially across said flat web portion 16 when the binder is opened out flat as in Fig. 3, whereby when the cover board is raised toward closing position, the outer end of each flipper arm is raised, the arm rising on its inner end as a fulcrum (Fig. 4), thereby raising the flipper, bent portions and the sheets at their perforations on the perpendicular legs 38 of the ring hooks, the bent portions 48 being pivotally and slidably guided by the legs and drawing the projecting end parts 49 upon the adjacent offset portion as in Fig. 5, the end parts 49 being long enough when engaged on the offset portions 18 or 19 to raise the bent portions 48 and perforations of the leaves to the curved portions 37 of the ring hooks, whereby when the cover boards are moved to closed position, they force the bent portions and the perforations inwardly without binding.

On closing the binder cover boards 11, if the flippers are not present, portions 43 (Fig. 3) of the leaves adjacent to the cover boards are merely pivoted on the perpendicular parts 38 of the ring hook as shown by the dotted lines 43', thus cramping the leaves as shown. The improved flippers prevent this.

While only two flippers are shown, the invention is not limited to the number, location or size of the flippers; although only one flipper adjacent to each cover board is usually sufficient, even for very large binders. The flippers may be staggered as shown in Fig. 1, or not as desired, and may be large enough to engage rings which are far apart or nearer together.

In the modified form of metal binder construction shown in Figs. 11 to 13, while the details of construction vary over the construction, as shown and described for Figs. 1 to 10 inclusive, the practical operation of the binder is the same as for the previous Figs. 1 to 10. The main difference in the structure of Figs. 11 to 13 lies in the base plate 55, and the manner of pivotal assembly of the binder rings 14 thereto.

As shown, the base plate 55 is substantially channel shaped comprising the flat portion 56, provided with rivet perforations 57, only one being shown, whereby the base may be attached to a book cover back, as disclosed in Fig. 3, the channel being formed by the curved intumed side flanges 58, 59, Figs. 11 to 13, which sides

may be more or less parallel with, and offset from the flat portion 56.

One of said flanges, the flange 59 is provided with a plurality of spaced aligned longitudinal slots 70 receiving the inner ends of the spaced ring hooks 14 of the binder element of which the longitudinal connecting means 30 is slidably and pivotally engaged under said side flange 59. The other flange 58 of said plate is provided with spaced recesses 25 each provided with a deep notch 33 at one end, a shallow notch 34 and adjacent short retaining portion 35 at the other, and an intermediate outwardly curved cam edge 36 merging with said deep and shallow notch.

The free ends 40 of said ring hooks are inturned (Fig. 13) and so disposed relative to the connecting means 30 and the slots 70 that said free ends 40 may hook under said short edges 35 respectively, and may pass by camming movement along said cam edges 36 to registration with said deep notches, as said connecting means 30 slides, the inner ends of the hooks 14 sliding in said slots 70.

The slots 70 permit pivotal and sliding movement of the inner ends of the hooks.

When, during assembly, it is desired to assemble the binder element 14, 30 with the plate 55, the free ends 40 of the hooks are inserted from

the lower side of the flange 59, through the slots 70, as in Fig. 12. Then the entire hook is passed through the slot until the connecting means 30 reaches the position of Fig. 13.

The invention claimed is:

1. A wire flipper, for ring binders, comprising arms respectively bent to form lateral recesses opening in opposite directions; each arm projecting beyond the recess in two directions.
2. A binder flipper comprising a pair of straight parallel arms adapted to be disposed between ring hooks of the binder; each arm being bent, in the plane of the flipper, near but spaced from its free inner end, to form a lateral recess opening in a direction opposite to that of the other arm.
3. A substantially U-shaped wire flipper comprising arms bent respectively to form recesses between the yoke of the flipper and the free ends of the arms most remote from the yoke; each of said arms at the recess forming opposed shoulders adapted to receive therebetween a ring of a loose leaf binder and to hold said flipper against movement from the ring in either direction longitudinal to the flipper.

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