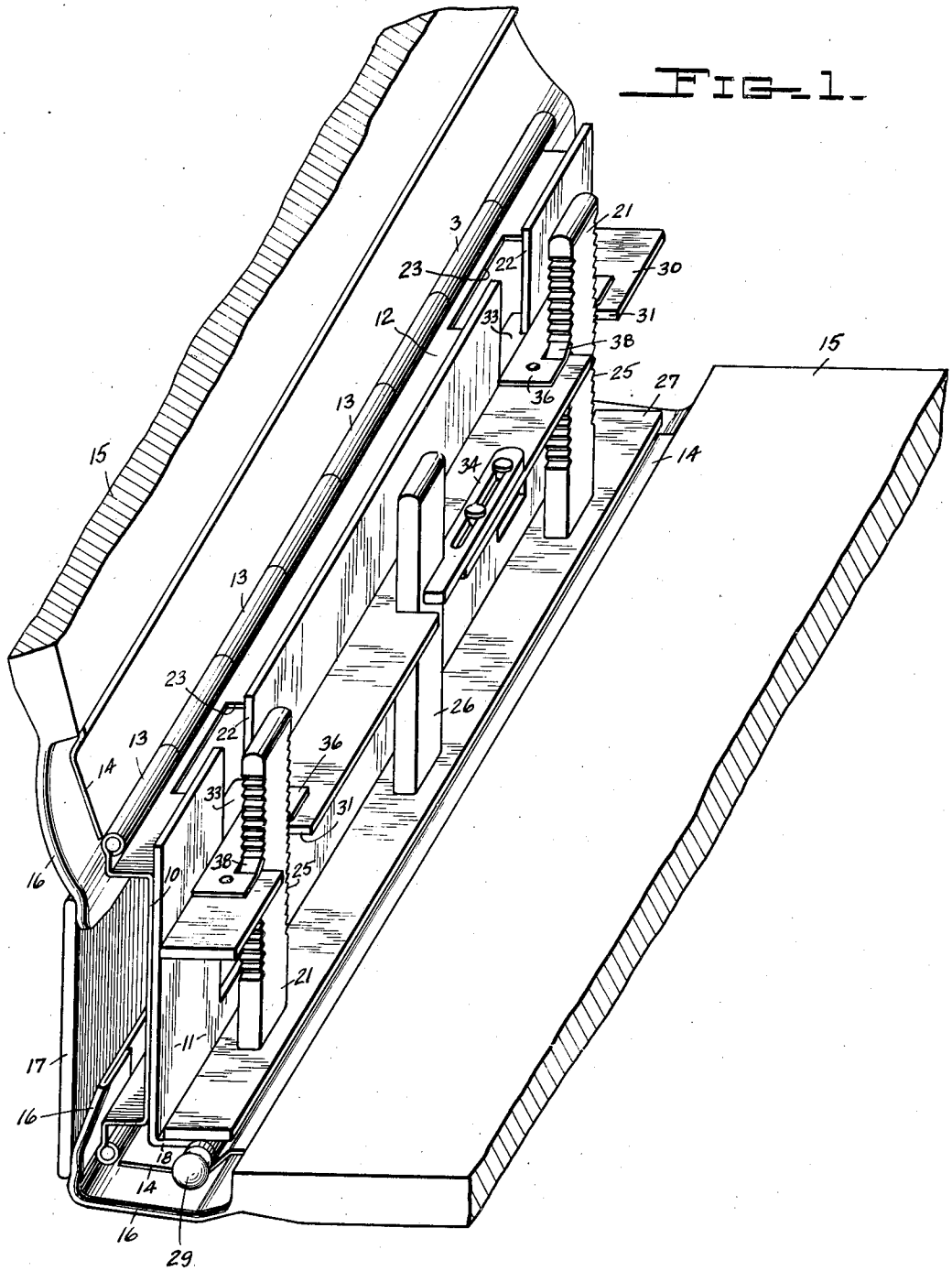
April 16, 1940. J. COOPER ET AL 2,197,071

LOOSE LEAF BINDER

Filed Jan. 7, 1938 3 Sheets-Sheet 1

Fig. 1.



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LOOSE LEAF BINDER

Filed Jan. 7, 1938 3 Sheets-Sheet 2

FIG. 2.

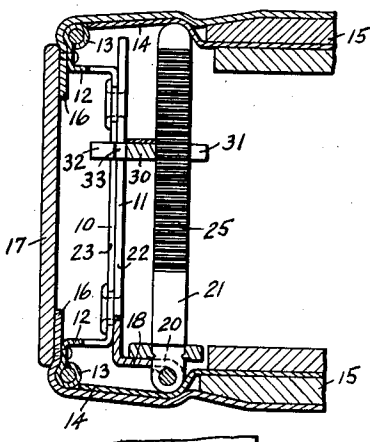
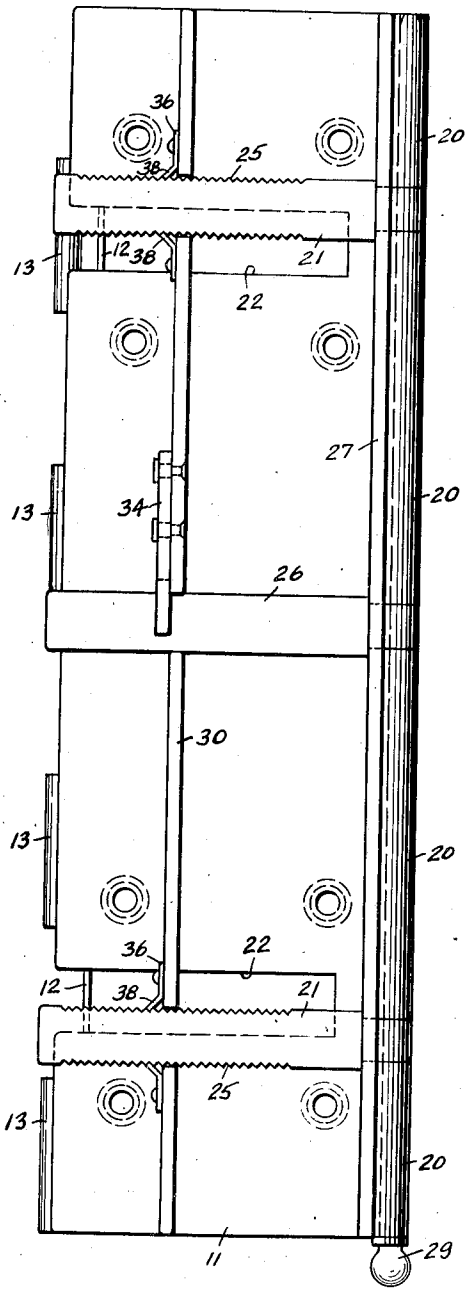


FIG. 3.



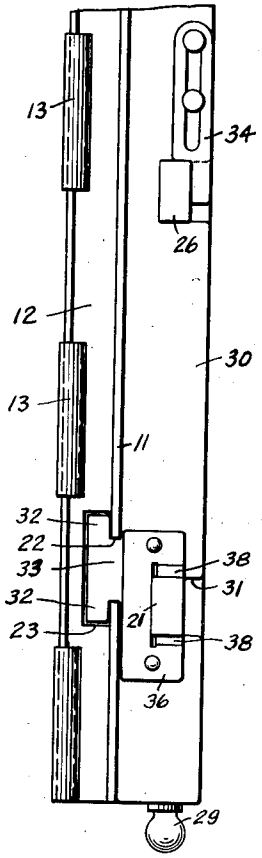


FIG. 4.

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Filed Jan. 7, 1938 3 Sheets-Sheet 3

FIG. 5.

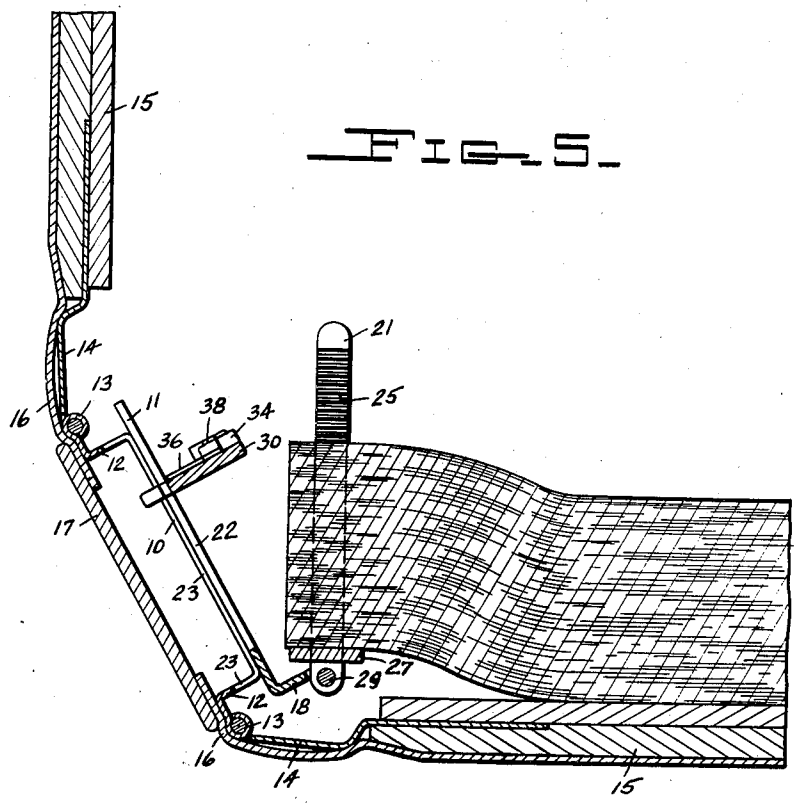
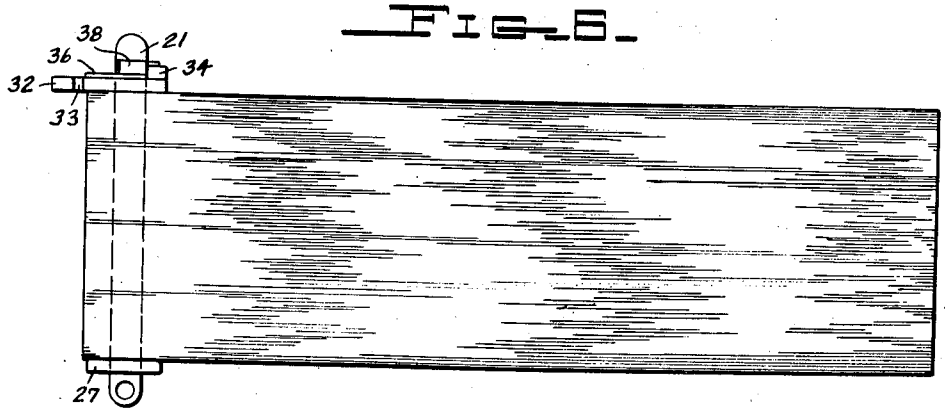


FIG. 6.



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Patented Apr. 16, 1940 2,197,071

UNITED STATES PATENT OFFICE

2,197,071

LOOSE LEAF BINDER

James Cooper, Solvay, and Gerhard H. J. Baule, Syracuse, N. Y., assignors to Hall & McChesney, Inc., Syracuse, N. Y., a corporation of New York

Application January 7, 1938, Serial No. 183,874

4 Claims. (Cl. 129—4)

This invention relates to loose leaf binders and particularly to a binder for the reception of pages or leaves from time to time until the binder is filled and the pages or leaves are thereafter used as a permanent record.

The invention has to do particularly with a leaf impaling structure which is particularly economical and simple in operation, and which provides for the convenient insertion of the leaves from time to time, and whereby the leaves as a unit may be conveniently removed from the binder to permit trimming of the top, bottom and side edges.

It has become general practice to record documents etc., by making "photostatic" copies thereof, and the binder herein referred to is particularly suitable for this recording process. The "photostat" paper is purchased in rolls, similar to a camera film, and after this paper has been exposed, the exposed portions are cut from the roll or film and are developed, and are subsequently cut to size and perforated along one edge to receive the impaling posts of the binder. It is difficult to cut each and every portion of the "photostat" paper, which constitutes a page or leaf of the binder, to exactly the same dimensions and to exactly locate the post perforations in each sheet, with the result that the book appears unattractive. The appearance of the binder is greatly improved by trimming the uneven edges of the leaves.

Accordingly, one of the important objects of this invention is a binder embodying a structure which permits the leaf impaling unit and the leaves secured therein to be removed as a bound section of the binder, and whereby all of the leaves secured in the leaf impaling unit may be simultaneously trimmed to size.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is an isometric view of a binder embodying our invention illustrating the arrangement of the back member, leaf impaling unit and contiguous portions of the covers.

Figure 2 is a transverse sectional view of the structure shown in Figure 1.

Figure 3 is a side elevational view looking to the left in Figure 1, with the covers removed.

Figure 4 is a partial top plan view of the structure shown in Figure 1, with the covers removed.

Figure 5 is a view, similar to Figure 2, illustrating the relative arrangement of the parts with the upper ends of the posts detached from the back member and positioned to receive additional pages.

Figure 6 is an end elevational view of the leaf impaling unit filled with leaves and removed from the binder to permit trimming of the pages.

The invention consists generally of a back member, covers hinged along each edge of the back member, a leaf impaling unit including a plurality of posts secured together in spaced apart relationship and arranged transversely of the back member, means for detachably and pivotally securing one side of the leaf impaling unit to one edge of the back member, and means cooperable with said posts and the back member for detachably securing the free ends of the posts to the back member and being operable to clamp the leaves or pages on the posts.

The back member here shown consists of plates 10, 11. The plate 10 is of channel formation in cross section having rearwardly extending side flanges 12 which terminate in eyes 13 to form a piano hinge construction with cover plates 14. The covers 15 may be of any suitable construction, and are preferably provided with an outer finishing layer which terminates in tabs 16 which extend inwardly between the back member and an outer plate or covering 17 which is riveted or otherwise secured to the flanges 12 of the back member.

The inner plate 11 is formed along one edge with an inwardly extending flange 18 also provided with eyes 20 spaced apart to receive the lower ends of the leaf impaling posts 21. The plates 10, 11 are riveted, spot welded, or otherwise secured together. The inner plate 11 is provided with two or more slots 22 extending upwardly from a point adjacent the lower end or flange 18. The rear plate 10 is formed with slots 23 extending transversely of the plate and through the base of the flanges 12. The slots 23 are arranged in register with the slots 22, but are preferably of greater width as illustrated in Figures 1 and 4.

The removable leaf impaling unit includes a plurality of posts 21 formed with notches 25 on opposite side edges, and preferably a centrally arranged post 26 having plain side faces. The posts 21, 26 are rigidly secured to a bottom plate 27. In the structure shown, the bottom plate 27 is formed with apertures to receive the lower ends of the posts, and the posts are secured to the

plate 27 by welding, brazing, or swedging, as shown in Figure 2.

The leaf impaling unit is preferably pivotally secured to the adjacent edge of the back member, and as here shown the lower ends of the posts 21, 26 extend through the plate 27 and are provided with apertures to receive a hinge rod 29 arranged in the eyes 20.

The leaf impaling unit further includes a top plate 30 formed with notches 31 extending inwardly from one edge to receive the posts 21, 26. The opposite edge of the plate 30 is formed or provided with rearwardly extending projections 33 of such width and so arranged as to be slidable in the slots 22 of the plate 11. The projections 33 are also formed with ears 32 extending in a lengthwise direction of the plate 30 and engaging the rear marginal surface of the plate 11 along the sides of the slots 22. The ears 32 are slidable in the wider slots 23 formed in the rear plate 10, and the plate 30 may be readily removed from engagement with the back member by moving the same upwardly, the slots 23 in the flanges 12 permitting the projections 33 to move out of engagement with the plates 10, 11.

In order to maintain the free ends of the posts 21, 26 in the slots 31, a suitable latch 34 is mounted on the plate 30 and is arranged to be shiftable in position to engage the post 26, as clearly illustrated in Figures 1 and 3. It will be observed that the free ends of the posts are detachably secured to the back member by the plate 30 and are maintained in parallel spaced relationship to the inner plate 11.

The plate 30 also serves as a clamp to bind the leaves or pages on the posts 21, 26. As previously stated, the leaves or pages in these binders are added from time to time and it is desirable to at all times maintain the leaves in neatly bound condition. To accomplish this result the plate 30 is provided with post engaging members 36 which are formed of thin spring material, such as steel or bronze, and which may be secured to the plate 30 as by rivets or any suitable fastening means. The post engaging members 36 are arranged in register with the slots 31 and are provided with slots to receive the posts 21. The members 36 are provided or formed with inwardly and upwardly extending flexible flanges 38 arranged to engage the notches 25 in the side edges of the posts 21.

It will be apparent that as the plate 30 is moved downwardly over the posts 21, the flanges 38 will ratchet over the serrations 25 until downward movement of the plate ceases upon engagement with the leaves on the posts. With this structure, the leaves are tightly and neatly clamped between the bottom plate 27 and the plate 30. It is to be understood that the leaves, prior to insertion in the binder, are provided with perforations to receive the posts 21, 26.

When it is desired to add additional pages, it is only necessary to move the latch 34 out of engagement with post 26, and the back member then may be swung rearwardly away from the posts and leaves, as indicated in Figure 5. The additional leaves may be then conveniently inserted over the posts, and the back member swung inwardly until the free ends of the posts are positioned in the notches 31. The latch 34 is then shifted into post engaging position, as shown in Figure 1, and the plate 30 pressed downwardly.

After the binder is filled and it is desired to trim the edges of the leaves, the hinge rod 29 is withdrawn releasing the lower ends of the posts from the back member, and the entire unit may be then raised upwardly until the projections 33 pass out of the slots 22, 23. Figure 6 illustrates the leaf impaling unit and leaves removed from the binder. In this condition the leaves can be conveniently and accurately trimmed and the unit is reinserted in the binder by sliding the projections 33 downwardly in the slots 22, 23, and inserting the rod 29 to secure the lower ends of the posts to the back member.

What we claim is:

1. A loose leaf binder comprising a back member, covers hinged to each edge of the back member, a removable leaf impaling unit including a bottom plate and a plurality of posts rigidly secured to the bottom plate, the ends of the posts adjacent said bottom plate being pivotally secured to one edge of the back member with the posts extending transversely thereof, a top plate provided with projections slidably interlocking with the back member and being formed with notches to receive the free ends of the posts when the same are moved about their pivot, a latch member carried by the top plate and operable to maintain the posts in said notches, post engaging members carried by the top plate adjacent certain of said notches and having yielding flanges cooperable with certain of the posts to maintain the top plate in clamping engagement with the leaves impaled on the posts.

2. A loose leaf binder comprising a back member, covers hinged to each edge of the back member, a removable leaf impaling unit including a bottom plate and a plurality of posts rigidly secured to said plate, said unit being pivotally and detachably secured adjacent said plate to one edge of the back member with the posts extending transversely of the back member, said impaling unit also including a top plate formed with apertures to receive the free ends of the posts and being movable axially on said posts to clamp the leaves against said bottom plate, said top plate being provided with means cooperable with the posts to maintain said plate in clamping position, and said top plate being provided with means slidably interlocking with the back member to permit detachment of said leaf impaling unit without releasing said top plate from the posts.

3. A loose leaf binder comprising a back member, covers hinged to each edge of the back member, a removable leaf impaling unit including a bottom plate and a plurality of posts rigidly secured at like ends to said plate, said unit being pivotally and detachably secured adjacent said bottom plate to one edge of the back member with the leaf impaling posts of said removable unit extending transversely of the back member, said back member being formed with a plurality of spaced apart slots extending transversely of the back member and opening through the edge of the back member opposite to that to which the leaf impaling unit is hinged, said leaf impaling unit also including a top plate formed with projections insertable and slidably receivable in said slots of the back member, said top plate being provided with post receiving apertures and post engaging members to interlock said top plate with the posts to clamp the leaves against said bottom plate, and the projections on said top plate being cooperable with the back member to maintain the leaf impaling posts in parallel relationship with the back member.

4. A loose leaf binder comprising a back mem-

ber, covers hinged to each edge of the back member, a removable leaf impaling unit including a bottom plate, a plurality of leaf impaling posts secured at like ends to said plate, and a top plate movable axially of said posts and having post engaging members operable to secure the plate to the posts with the leaves clamped against the bottom plate, said unit being pivotally and detachably secured adjacent said bottom plate to one edge of the back member, said back member being formed with transversely extending slots and said top plate being formed with projections slidably interlocking with said slots and being operable to permit removal of said unit upon detachment of the same from the back member.

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