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R. M. VAN VALKENBURGH

LOOSE LEAF BINDER

Filed April 7, 1927

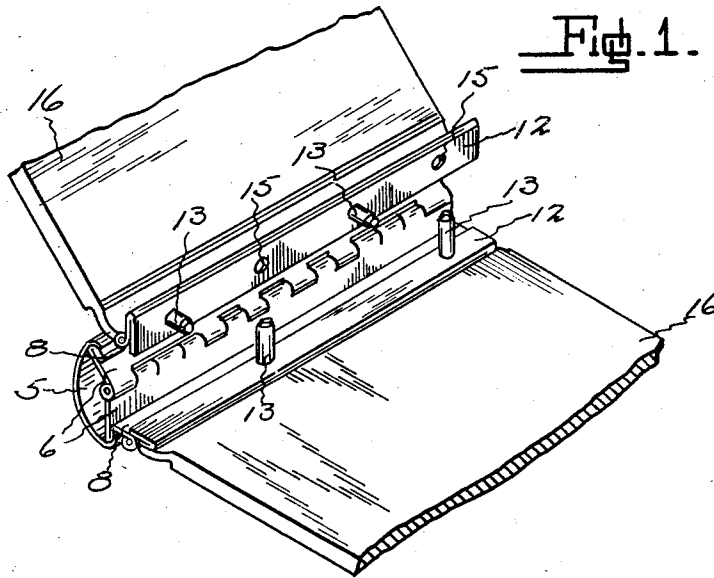


Fig. 1.

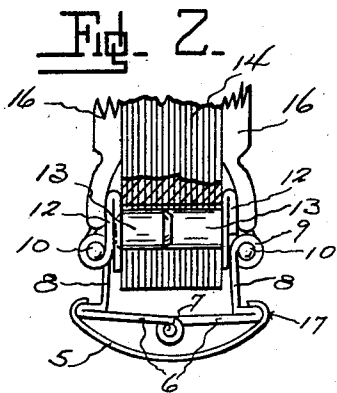


Fig. 2.

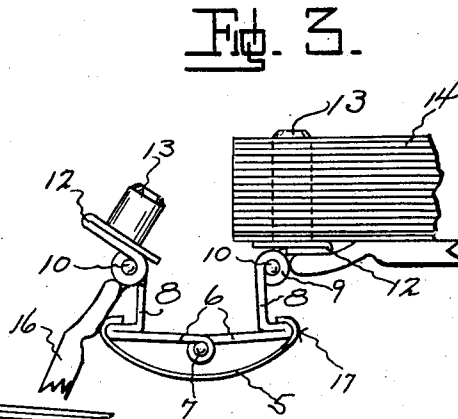


Fig. 3.

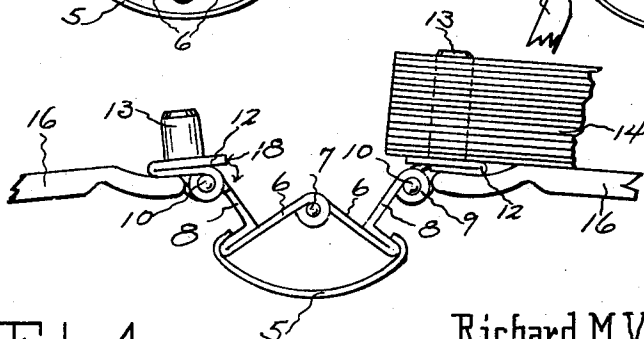


Fig. 4.

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LOOSE-LEAF BINDER.

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This invention relates to loose leaf binders, and has for its primary object the provision of a novelty constructed binder which incorporates principles not heretofore utilized in the making of a post or stub binder.

One of the objects of this invention is to provide a binder wherein an arcuate spring plate is used to maintain a pair of co-acting toggle plates in the proper operative relation, which plates are each provided with a laterally extending wall having sheet-clamping members hingedly carried thereby, which sheet-clamping members rigidly support the sheet-engaging elements.

Another object of this invention is the provision of a loose leaf binder wherein the toggle plate principle is used and is combined with certain post binder parts, all being arranged to provide a highly efficient binder, which is adapted to be moved to the open or closed position without the utilization of complicated mechanism.

Minor objects of this invention will appear during the course of the detailed specifications referring to the accompanying drawing, wherein

Figure 1, is a perspective view of a loose leaf binder made in accordance with this invention.

Fig. 2, is an end view of the working parts thereof, showing the binder in the closed position.

Fig. 3, is a similar view, showing one of the binder covers in the open position, and

Fig. 4, is another end view of the binder, showing the toggle plates moved up to permit the proper closing of the binder.

Similar reference characters refer to like parts throught the several views, and the numeral 5, designates the well known arcuate spring back plate, which is curled inwardly along its two edges to engage a pair of toggle plates 6, which are articulated along their adjacent edges. In this instance, the joint connecting the two toggle plates 6 is in the form of a piano hinge, and the pintle 7, precludes separation. Both toggle plates 6 are of such a width that the spring plate 5 will snap them to the position shown in Fig. 4 from that position shown in Figs. 2 and 3, when a slight upward force is exerted thereon. To properly carry out this invention, each toggle plate 6 should be provided with an upstanding or lateral wall,

which is rigid with the toggle plate 6, is co-extensive longitudinally therewith, and extends laterally therefrom along a line spaced inwardly from the edge engaged by the curled over portion of arcuate spring plate 5. In this manner, it is to be seen from the drawing, that each toggle plate 6 is substantially T-shaped. The outer edge of the laterally extending wall 8 is curled in the ordinary fashion to form pintle bearings 9, thru which pass hinge rod 10, to engage and hingedly support the sheet clamping member 12. As shown in the drawing, and especially Figs. 2 to 4 inclusive, each of sheet clamping members 12 should be rebent upon itself to provide an extended portion on each side of hinge rod 10. Each sheet clamping member 12 is provided with a plurality of up-standing sheet engaging posts 13; the posts of one member 12 being arranged in a staggered relation to the posts of the other, and as shown in Fig. 1, the posts of one clamping member 12 are long enough to extend to the other member 12 when the binder is in the closed position. These longer posts 13 support binder sheets 14, and when the binder is closed extend into sockets 15 provided in opposed relation in the opposite member 12. The shorter posts 13 merely extend into the sheets 14 a distance substantially half way across the binder thickness. The binder covers 16 are hingedly secured to the operative parts, and as shown, it is desirable to cause them to be hingedly supported by hinge rod 10. In this manner rod 10 maintains the covers 16 in the proper position, whereby they may act as levers when the toggle plates and related parts of the binder are moved to the open and closed position. Covers 16 are joined as clearly shown in the drawings to rod 10 by the well known metal hinge construction universally used in the manufacture of devices of this character, the hinging of the covers taking place around a center formed by rod 10. One of the extended portions of member 12 overlaps the hinged edge of the respective adjacent cover 16, and as will be fully set forth during the explanation of the operation of the device, a particular duty is performed.

Operation.

When the binder made in accordance with

this invention is in the position shown in Fig. 1, sheets 14 may be slipped over the longer posts 13. They will lie in a flat position as shown in Fig. 3. In Fig. 2, the binder is shown in the closed position with covers 16 lying against the sheets 14. When opening the binder to make an entry on any one of the sheets contained therein, it is necessary to merely swing the top cover 16 back around hinge rod 10. The swinging movement of this cover 16 will be limited when it strikes the curled edge of arcuate plate 5. To remove or insert sheets, it is merely necessary to continue the swinging motion of cover 16, apply a small amount of force and the leverage will pull short posts 13 out of engagement with sheets 14, and cause the sheet engaging member 12 to attain the position shown in Fig. 3. The longer posts 13 will obviously support all of sheets 14 in their proper relation. Before snapping the binder to the closed position, it is necessary to actuate the toggle plates 6 to the position shown in Fig. 4. Having a binder cover 16 in each hand, it is but necessary to swing the entire mechanism about the hinged rod 10, shown on the left in Fig. 3 to a point where the edge 17 strikes the face of cover 16. As soon as this edge 17 strikes, the cover shown at the left in Fig. 3, will exert an upward force along the articulated edge of toggle plate 6 thru wall 8, the curled edge of arcuate plate 5 against which it is bearing acting as the fulcrum point. Continual pressure snaps the two articulated toggle plates 6 up to the position shown in Fig. 4, and as soon as this position is reached, closing action may be started, and as covers 16 are moved to the closed position around hinge rods 10, the short posts 13 swing to a position immediately over the perforations of sheet 14, which they are to enter. Cover 16 to the left of Fig. 4, presses against the over-lapping extension of member 12, carries member 12 around rod 10, and causes edge 18 to bear against wall 8. When this position or relation of parts is reached, the short posts 13 are about to enter their respective sheet openings, and continued force snaps toggle plates 6 back into the position shown in Figs. 2 and 3. This quick action draws the short posts 13 into the sheet openings, and the two covers of the binder are closed. Since each of covers 16 is independently hinged, it is not necessary to actuate the spring plate 5 every time the binder is opened.

The advantages of a binder made in accordance with this invention are obvious, altho many modifications in specific structure are possible; the preferred embodiment illustrated in the drawings, is desirable. It is rugged, cheap to make, highly efficient, and has no involved mechanism likely to get out of order.

Having thus described the invention what I claim as new, and desire to be secured by Letters Patent is:

1. In a loose leaf binder, the combination with an arcuate spring plate and a pair of articulated toggle plates supported thereby, of a sheet-clamping member hingedly carried by each toggle plate respectively.

2. In a loose leaf binder, the combination with an arcuate spring plate and a pair of articulated toggle plates supported thereby, of a plurality of sheet-engaging posts hingedly carried by each toggle plate respectively.

3. In a loose leaf binder, the combination with an arcuate spring plate and a pair of articulated toggle plates supported thereby, of a sheet-clamping member hingedly carried by each toggle plate respectively and a plurality of sheet-engaging elements rigidly mounted on each clamping member respectively.

4. In a loose leaf binder, an arcuate spring plate, a pair of co-acting articulated toggle plates supported thereby, a pair of sheet-clamping members and an up-standing wall formed by each toggle plate respectively, one of said sheet-clamping members being hingedly carried by each wall respectively.

5. In a loose leaf binder, an arcuate spring plate, a pair of co-acting articulated toggle plates supported thereby, a pair of sheet-clamping members, a plurality of posts rigidly mounted on each clamping member and a means for hingedly mounting each clamping member on each toggle plate respectively.

6. In a loose binder, an arcuate spring plate, a pair of co-acting articulated toggle plates supported thereby, a pair of sheet-clamping members, a plurality of posts rigidly mounted on each clamping member, a laterally extending wall co-extensive longitudinally and rigid with each toggle plate and means for hingedly mounting each clamping member on one of said walls respectively.

7. In a loose leaf binder, an arcuate spring plate, a pair of co-acting articulated toggle plates supported thereby, a pair of sheet-clamping members, a plurality of posts rigidly mounted on each clamping member, and means for hingedly mounting each clamping member on each toggle plate respectively in spaced relation thereto, the posts of one of said sheet-clamping members being of a length great enough to reach from one clamping member to the other when the binder is closed, the posts of the other clamping member being in staggered relation to said first mentioned posts and substantially one-half their length.

8. In a loose leaf binder having a pair of toggle plates articulated along their ad-

5 adjacent edges, a laterally extending wall rigid with each plate adjacent their remote edges and means hingedly supported by each of said walls respectively for engaging and clamping binder sheets therebetween. 15

9. In a loose leaf binder having a pair of toggle plates articulated along their adjacent edges, an up-standing wall rigid with each plate along their remote edges and a clamping member hingedly carried by each of said walls respectively. 20

11. In a loose leaf binder having a pair of toggle plates articulated along their adjacent edges, an upstanding wall rigid with each plate along their remote edges, a clamping member hingedly carried by each of said walls respectively and a binder cover hingedly secured to each of said walls respectively. 25

10. In a loose leaf binder a pair of T-shaped toggle plates, sheet-clamping members hingedly carried by an edge of one

In testimony whereof, I hereunto affix my signature.

RICHARD M. VAN VALKENBURGH.