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H. C. MILLER

LOOSE LEAF BINDER

Filed June 29, 1925

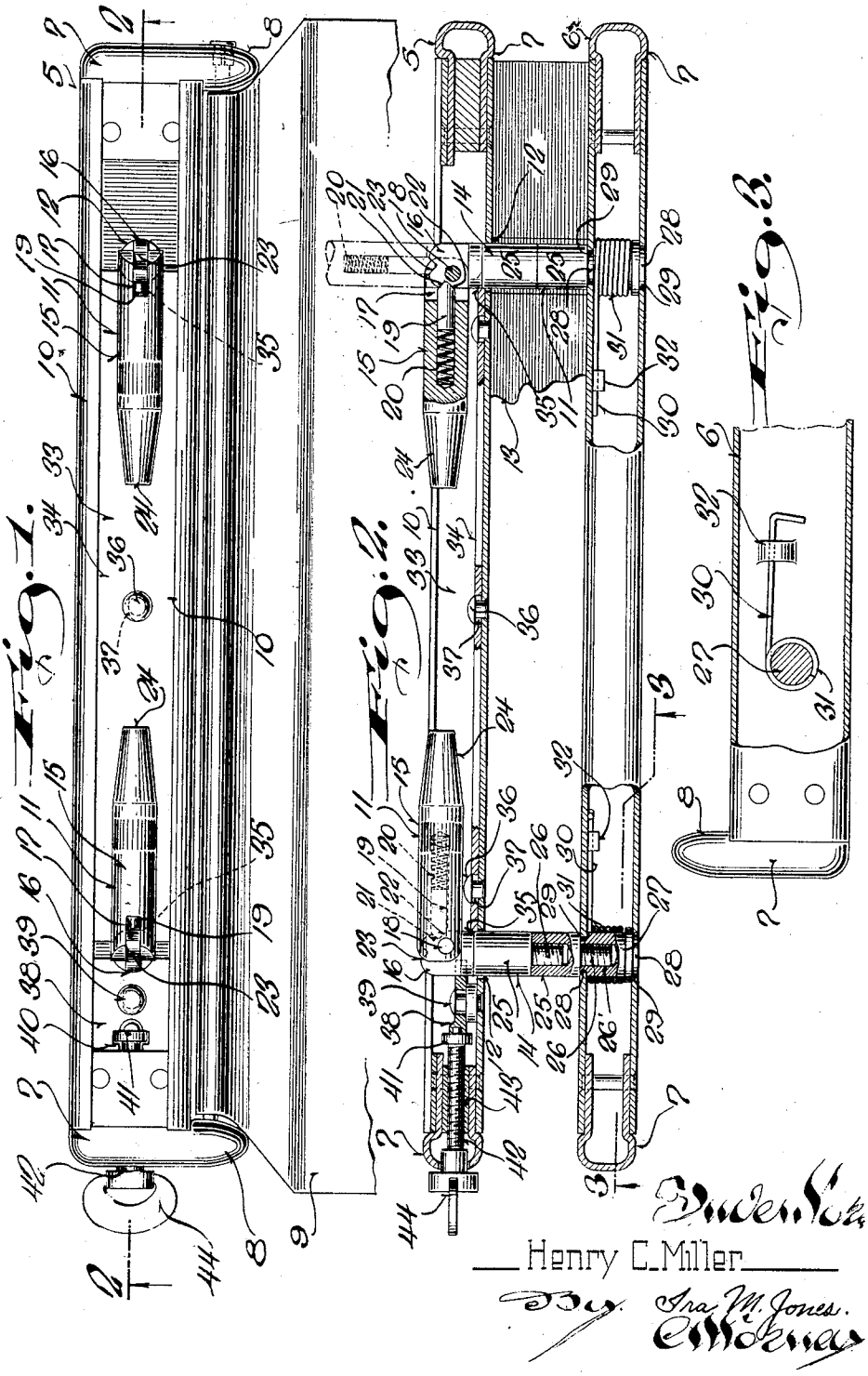


Fig. 1.

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

HENRY C. MILLER, OF MILWAUKEE, WISCONSIN; FIRST WISCONSIN TRUST COMPANY OF MILWAUKEE EXECUTOR OF SAID HENRY C. MILLER, DECEASED, ASSIGNOR, BY MESNE ASSIGNMENTS, TO H. C. MILLER COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

LOOSE-LEAF BINDER.

Application filed June 29, 1925. Serial No. 40,313.

This invention relates to certain new and useful improvements in loose-leaf binders and has as an object the provision of an improved and simplified device wherein the post sections are yieldably secured in either longitudinal alignment or at angles to each other.

Another object of this invention resides in the provision of an improved loose-leaf binder wherein the posts are threadily connected with the lower binder head and may be rotated in a clockwise direction after the parts are threaded together to so register the free end portions thereof and permit their folding into the channel of the upper head, the parts carried by the lower section being held against rotation in a counter-clockwise direction such as necessary to detach the posts therefrom.

A further object of this invention resides in the provision of an improved type of upper binder head of the submerged case type into which the free end portions of the posts are movable when the binder is locked.

A still further object of this invention resides in the provision of an improved and simplified locking means for securing the upper binder head to the post against retraction.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a top plan view of the binder head end of a loose-leaf binder embodying my invention;

Figure 2 is a view, partly in section and partly in elevation, taken through Figure 1 on the plane of the line 2—2, and

Figure 3 is a fragmentary view, partly in section and partly in elevation, taken through Figure 2 on the plane of the line 3—3.

The binder illustrated in the accompanying drawing is of the type especially designed for use in connection with bill posting or other machines of a similar character in which it is desirable that the binder posts be held substantially upright and rigid when the upper head is removed to facilitate the easy placing of the sheets over the posts. To this end the improved type of posts, hereinafter described, are provided wherein the sections are spring held in either longitudinal alignment or in angular positions so that the free end portions of the post may be folded over the upper head when the binder is closed to permit the storing of the binder on a shelf or other small space.

In the drawings the numerals 5 and 6 designate, respectively, upper and lower binder heads formed of bendable sheet metal and having their ends closed by plug members 7 having lugs 8 which project inwardly to pivotally receive therebetween the covers 9.

The lower head 6 is completely closed whereas the upper head 5 is of the submerged case type in that its top is open and the sides of the metal forming the head curve inwardly a short distance, as at 10, to partly engage over the attaching lugs of the end plugs 7.

The heads of the binder are connected by posts 11 adapted to have their free end portions passed upwardly through apertures 12 in the head 5 to which they are releasably connectible to lock the heads in fixed relation and clamp a body of leaves 13 therebetween.

The posts illustrated in the drawing are of novel construction, each being formed of sections 14 and 15. Each section 14 is connected with the lower binder head in the manner later described and opposite sides of its upper end are cut away to form a flat lug 16 which pivotally fits in a slot 17 cut in the inner end of the adjacent section 15 where it is held by a pin 18. Each section 15 is readily releasably secured in either the full or dotted line positions illustrated in

Figure 2 by a plunger or pin 19 slidably mounted in a bore or recess 20 centrally formed in the section and communicating with the slot 17. The plungers 19 are at all times urged outwardly of the bore to engage its inner pointed end 21 with the lugs 16 of the adjacent sections 14, the lugs 16 being provided with notches 22 in their sides and notches 23 in their upper ends so that with the plungers engaging in the notches 22, the sections are retained in their full line positions and with the plungers engaging the notches 23 the sections are in their dotted line positions.

The free ends of the sections 15 are preferably tapered, as at 24, to facilitate the engagement thereover of the leaves 13 when the binder is being utilized in connection with a billing or other type of machine when it is necessary that the operator quickly place the leaves over the posts.

The sections 14 may be composed of extensible sections 25 and the section as a whole is connected with the lower head by the threaded stud 26 on its lowermost end which is threaded in a sleeve or tumbler 27 rotationally mounted in the head by having its opposite ends turned down to form bearings 28 rotatable in openings 29 in the top and bottom walls of the head. Each tumbler 27 has one end of a spring 30 coiled tightly therearound, as at 31, with its upper end extended along the head top wall and secured thereto preferably by being inserted through a strap or eyelet 32 formed by striking a portion of the wall inwardly. The spring 30 is so wound about the tumbler 27 that rotation thereof in a counter-clockwise direction looking at the head from the top, such as necessary to unscrew the stud 26 of the section therefrom, tends to wind the spring more tightly thereon, thus holding the tumbler against rotation to permit detachment of the post section therefrom.

In connecting the posts with the lower head, the studs 26 thereof are threaded into the internally threaded bores 26′ of the tumblers and if the lugs 16 of the posts fail to longitudinally align with the upper head when the studs 26 are entirely threaded into the tumblers, the posts may be turned in a clock-wise direction until the studs align to permit the folding of their free end portions or sections 15 into the recess or channel 33 of the upper head, the tumblers rotating with the posts and slipping within the spring coils 31 as such movement tends to unwind the springs, as will be readily apparent.

After the leaves 13 have been engaged over the posts and the upper head placed in position, the upper head is pressed against the leaves and the free end portions are swung into the channel 33 when the locking means now about to be described are actuated to connect the posts with the upper head and prevent the retraction thereof and to confine the leaves between the heads under a tension. The locking means consists of a plate or slide 34 which has its ends centrally notched, as at 35, to conform with the curvature of the openings 12 and the distance between the innermost points of the notches 35 is slightly greater than the distance between the innermost points of the openings 12. The plate is secured in position for slight sliding movement by rivets or other means 36 fixed to the upper head and passed through elongated openings or slots 37 in the plate. The openings 12 are sufficiently over-size to permit the insertion of the posts therethrough with the ends of the slide 34 slightly projecting thereover and means are engageable with one post to clamp the same and move it toward the innermost portion of its opening to bear against the adjacent notched end of the slide and shift the same longitudinally and clamp the other post between its other notched end and the outermost portion of its opening 12.

The means for clamping the first post consists of a plate 38 slidably secured in the upper head by a rivet or other member 39 outwardly of the adjacent post and having a T-shaped opening 40 in its outer end in which an enlargement or head 41 formed on the inner end of a screw 42 is engaged, the screw 42 being threaded in the bore 43 of the adjacent plug end 7 and having a key 44 on its end extended beyond the side of the upper head. As will be evident, as the screw 42 is screwed inwardly, the plate 38 bears against the adjacent post, causing it to move toward the inner end of its opening 12, as previously described, shifting the member 34 to engage and lock the other post.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent to those skilled in the art to which an invention of this character apertains that I provide an improved type of binder in which the post free end portions may be instantly aligned with the upper head without necessitating the loosening of the connection between the post sections, one in which the post sections may be secured in a straight line and there held for convenience in placing leaves thereover and one in which a very simple and improved locking feature is provided.

I claim:

1. In a device of the character described, a support, a member, means mounting said member on the support for rotation in one direction only, a post member, and a threaded connection between the post member and said first member, whereby the post member may be connected with the support through the first-named member, the direction of rotation of the first member being such as to

permit its turning after the threaded connection between it and the post member has tightened.

2. In a device of the character described, a support, a member, means rotatably mounting said member on the support, a post member, a threaded connection between said members, and means preventing rotation of the first member in the direction the post member is turned to be detached from the first member and yieldably permitting its rotation in a reverse direction.

3. In a loose-leaf binder, a binder head, a tumbler rotatably mounted on the head, a post adapted to have a threaded connection with the tumbler and consequently with the head, and means preventing the rotation of the tumbler in the direction the post is rotated to tighten its connection therewith and permitting rotation thereof in a reverse direction.

4. In a loose-leaf binder, a binder head, a tumbler rotatably mounted on the head, a post adapted to have a threaded connection with the tumbler and consequently with the head, and spring means preventing the rotation of the tumbler under stress in the direction the post is rotated to tighten its connection therewith, and means permitting rotation of the tumbler in a reverse direction.

5. In a loose-leaf binder including binder heads connected by a binder post, a tumbler rotatably carried by one head, the binder post having a threaded connection with the tumbler and consequently with the head carrying the tumbler, and a spring having one end connected with said head and its other end coiled about the tumbler whereby rotation of the tumbler in a direction tending to wind the end of the spring coiled thereabout is prevented but the rotation thereof in a reverse direction is permitted under friction.

6. A loose-leaf binder, comprising upper and lower binder heads, the upper binder head having a channel in its top face, a post adapted to adjustably connect the heads, one end of the post being connected with the lower head and its other end portion being free and adapted to be passed through the upper binder head and folded in the channel thereof, and means permitting the yieldable rotation of the binder post to align its free end portion with the upper head channel.

7. A loose-leaf binder, comprising upper and lower binder heads, a post adapted to adjustably connect the heads, said post including hingedly connected sections capable of relative movement in but one plane, one end of the post being connected with the lower head and its other end portion being normally free and adapted to be passed through the upper head and folded thereover in longitudinal alignment therewith, and means permitting the swinging of the folded end portion of the post into longitudinal alignment with the upper binder head.

8. A loose-leaf binder, comprising upper and lower binder heads, a post adapted to adjustably connect the heads, said post including hingedly connected sections capable of relative movement in but one plane, one end of the post being connected with the lower head and its other end portion being normally free and adapted to be passed through the upper head and folded thereover in longitudinal alignment therewith, means permitting the swinging of the folded end portion of the post into longitudinal alignment with the upper binder head, and means operable to yieldably retain the post in either folded position or in a substantially straight position.

In testimony whereof I affix my signature.

HENRY C. MILLER.