

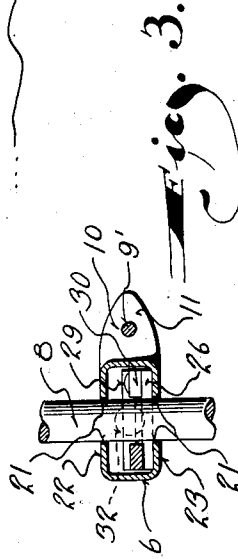
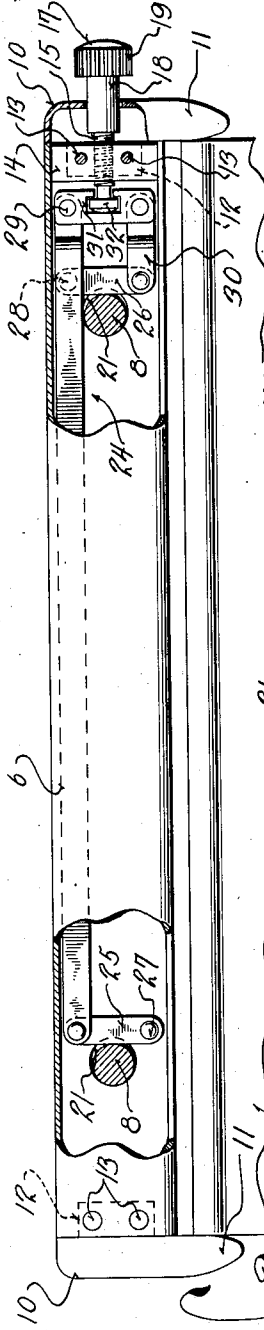
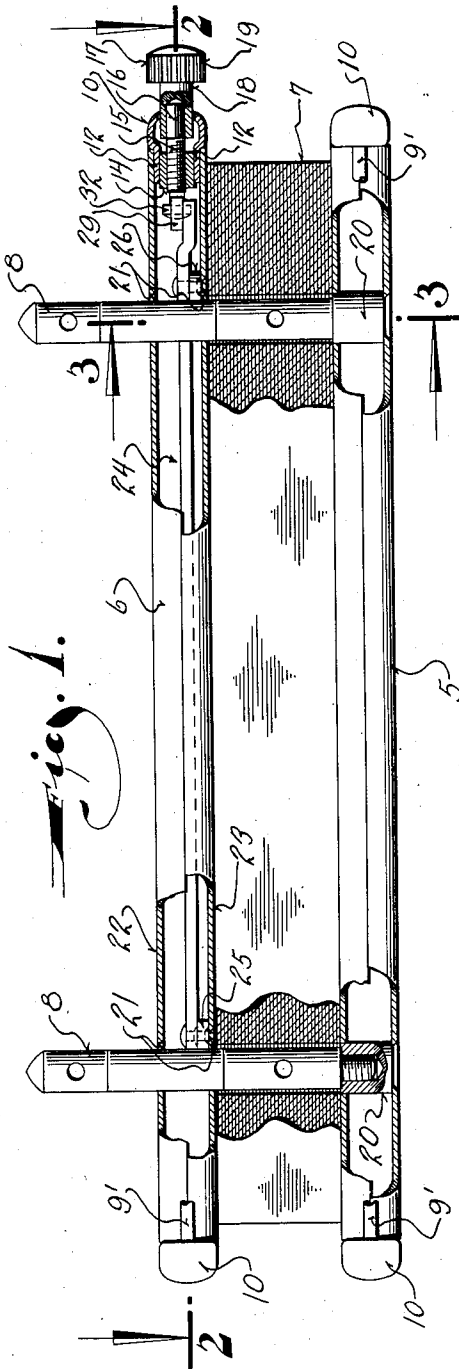
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LOOSE LEAF BINDER

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LOOSE LEAF BINDER

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659,252. Divided and this application April 9,
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4 Claims. (Cl. 129—12)

This invention relates to certain new and useful improvements in loose leaf binders and refers more particularly to loose leaf binders of the type in which a body of leaves is clamped between two binder heads to which the covers of the binder are hingedly connected, and is a division of my application for United States Letters Patent, Serial No. 659,252, filed March 2, 1933.

It is a general object of this invention to provide a binder head locking mechanism so constructed as to exert an equalized gripping pressure on the binder posts despite inaccuracies caused by production factors, in location of the locking means and variations in post diameter, and also compensate for the wear such mechanism is subjected to.

A further object of this invention is to provide a locking mechanism of the character described, which not only automatically equalizes itself, but is so constructed as to have a smooth easy operation and capable of actuation by nothing more than a small thumb screw, thus obviating the customary key.

And a still further object of this invention is to provide a locking device of the character described which is of simple construction comprising but a few readily assembled parts.

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 herein disclosed 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 front view of a loose leaf binder of the character described with parts broken away and in section to illustrate structural details;

Figure 2 is a top view of the binder with parts broken away and in section;

Figure 3 is a cross section view taken through the upper binder head on the plane of the line 3—3 of Figure 1.

Referring now more particularly to the accompanying drawing in which like numerals indicate like parts, the numerals 5 and 6 designate lower and upper binder heads respectively be-

tween which a stack of loose leaves 7 is adapted to be clamped. The lower binder head 5 has a pair of upright posts 8 attached thereto on which the leaves are impaled in the customary manner, the posts 8 preferably being sectional to permit increasing their length to compensate for additional leaves.

The binder heads 5 and 6 are of generally oblong tubular cross section, and as illustrated, are each rolled from a single length of sheet metal with the seam of their meeting edges facing inwardly toward the covers 9, only one being shown. The covers are hingedly mounted on rods 9' whose opposite ends are fixed in tubular units 10 secured to the ends of the binder heads. The units 10 have projecting noses 11 to which the hinge rods are attached and spaced parallel flanges 12 adapted to be received between the upper and lower walls of the binder heads where they are secured by the rivets 13.

At one end of the binder head 6 a nut member 14 is secured by the rivets 13. A pressure applying screw 15 is threaded in the nut member to afford actuating means for the locking mechanism. The pressure applying screw has a squared outer end 16, with which an actuating head 17, is non-rotatably engaged. The actuating head 17 has a reduced shank 18 which passes through an opening in the outer wall of the tubular member 10 and an enlarged knurled head 19.

As stated the binder posts 8 are fixed to the lower binder head 5 in any suitable manner, as by being threaded into bushings 20 fixed thereto, and the upper ends of the posts are freely received in and passed through aligned openings 21 in the top and bottom walls 22 and 23 respectively of the upper binder head 6.

The openings 21 are sufficiently large to loosely receive the posts and permit the upper binder head to be forced down onto the stack of leaves. In this position, the binder head is adapted to be secured by the locking mechanism indicated generally by the numeral 24. Inasmuch as the location of the openings 21 through which the posts pass may be slightly disaligned with respect to the exact distance between the posts and as the posts and the post engaging elements of the locking mechanism are subject to wear, it is desirable that the locking mechanism be automatically equalized to compensate for such variation or wear. It is also desirable that the equalization be effected without disturbing the parallel position of the posts, or in other words without jamming the posts toward each other or spreading them away from each other.

The locking mechanism 24 obtains the desired result. This mechanism comprises short post engaging levers 25 and 26, pivotally attached as at 27 and 28 respectively, to the bottom wall 22 of the binder head adjacent the post receiving openings 21 so as to be engageable with the posts received therein.

Connected to the free end of the lever 25 is a long link extending past the other lever 26 and having its end attached to a cross bar 29. The free end of the lever 26 has a short link 30 connected thereto, whose opposite end is also pivotally connected to the cross bar 29.

The cross bar has an undercut opening 31 to receive the inner headed end 32 of the pressure screw 15, so that upon actuation of the screw, the cross bar will be moved longitudinally of the binder head to swing the post engaging levers 25 and 26 toward or away from the posts.

The linkage afforded by the cross bar and the links connected thereto forms an equalizing connection between the pressure applying screw and the post engaging levers to enable the application of equalized pressure on both posts. To illustrate, assume that as the pressure screw is actuated to push the levers toward the posts, the lever 26 engages its post first. Thereafter, inasmuch as the cross bar is free to rock with respect to the pressure screw, further actuation of the screw imparts motion to the other lever 25 until it also engages its respective post and then the continued actuation of the pressure screw will apply an equalized pressure on both of the levers.

From the foregoing description taken in connection with the accompanying drawing it will be readily apparent to those skilled in the art to which this invention appertains that a novel locking device for loose leaf binders which automatically equalizes itself and grips both posts with equal force is afforded, and that the locking mechanism has great leverage and thus provides a smooth easy action.

What I claim as my invention is:

1. In a loose leaf binder including spaced posts, a binder head having openings to loosely receive the posts, a locking mechanism to secure the binder head to the posts comprising, levers pivotally mounted adjacent the openings to be engaged with the posts received therein upon movement of the free ends of the levers toward the same end of the binder head, linkage to connect the free ends of the levers in such manner that upon movement of the linkage in one direction an equalized force is exerted on the levers through the linkage to move the levers and clamp the posts against the peripheral edges of the binder head openings, and means to actuate said linkage.

2. In a loose leaf binder including spaced posts, a hollow binder head having openings to loosely receive the posts, locking mechanism to secure

the binder head to the posts comprising, a lever attached to the binder head adjacent one of the openings to be engageable with the post received therein, a link movable longitudinally of the binder head and pivoted at one end to said lever, a bar pivoted to the other end of the link, a second link pivoted at one end to the bar, a second lever having one end pivotally attached to the binder head adjacent the other opening to be engageable with the post received therein and having its other end pivoted to the free end of the second mentioned link, said levers clamping the posts against the peripheral edges of the openings in the binder head with an equalized force upon movement of the levers in one direction, and means engageable with the bar to actuate said levers.

3. In a loose leaf binder including spaced posts, a hollow binder head having openings to loosely receive the posts, locking mechanism to secure the binder head to the posts comprising, a lever attached to the binder head adjacent one of the openings to be engageable with the post received therein, a link movable longitudinally of the binder head and pivoted at one end to said lever, a bar pivoted to the other end of the link, a second link parallel to the first link and pivoted at one end to the bar, a second lever having one end pivotally attached to the binder head adjacent the other opening to be engageable with the post received therein and its other end pivoted to the free end of the second mentioned link, and a screw threaded through one end of the binder head with its inner end engaging the bar to impart movement to the bar upon rotation of the screw, movement of the bar imparting an equalized force to each of the levers through said links to clamp the posts against the peripheral edges of the binder head openings.

4. In a loose leaf binder including spaced posts, a hollow binder head having openings to loosely receive the posts, and locking mechanism to secure the binder head to the posts comprising levers pivotally attached to the binder head adjacent the openings for swinging engagement with posts received therein, a long link connected to the free end of one lever and extending longitudinally of the binder head past the other lever, a short link pivotally attached to the free end of said other lever, a cross bar connecting the free ends of said links, and a pressure screw having a freely rocking connection with the cross bar and a handle portion accessible from the adjacent end of the binder head, actuation of the pressure applying screw moving the cross bar longitudinally of the binder head to apply equalized pressure on both levers to clamp the posts against the peripheral edges of their respective openings.

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