

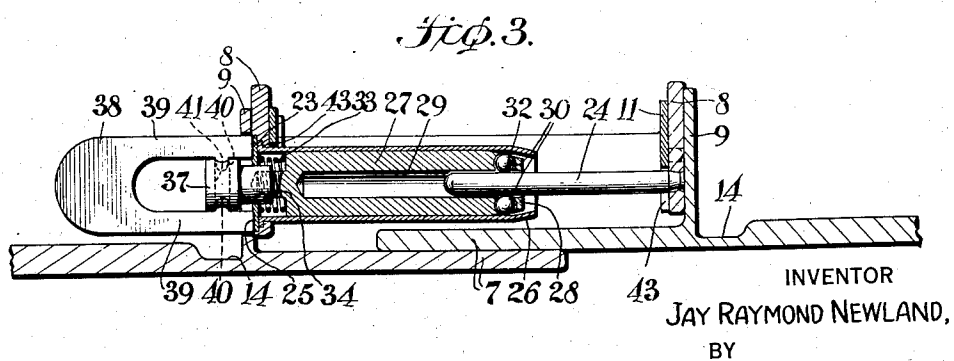
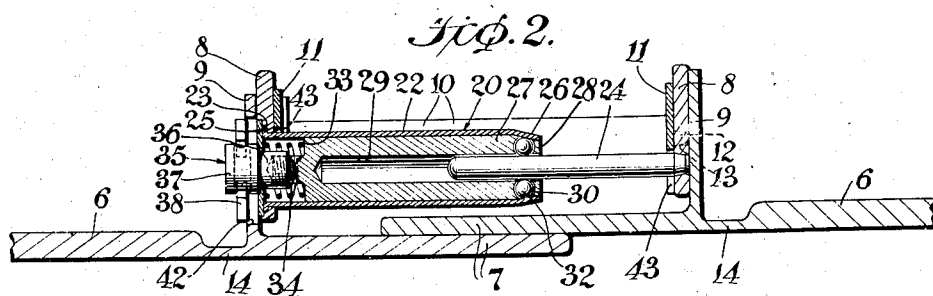
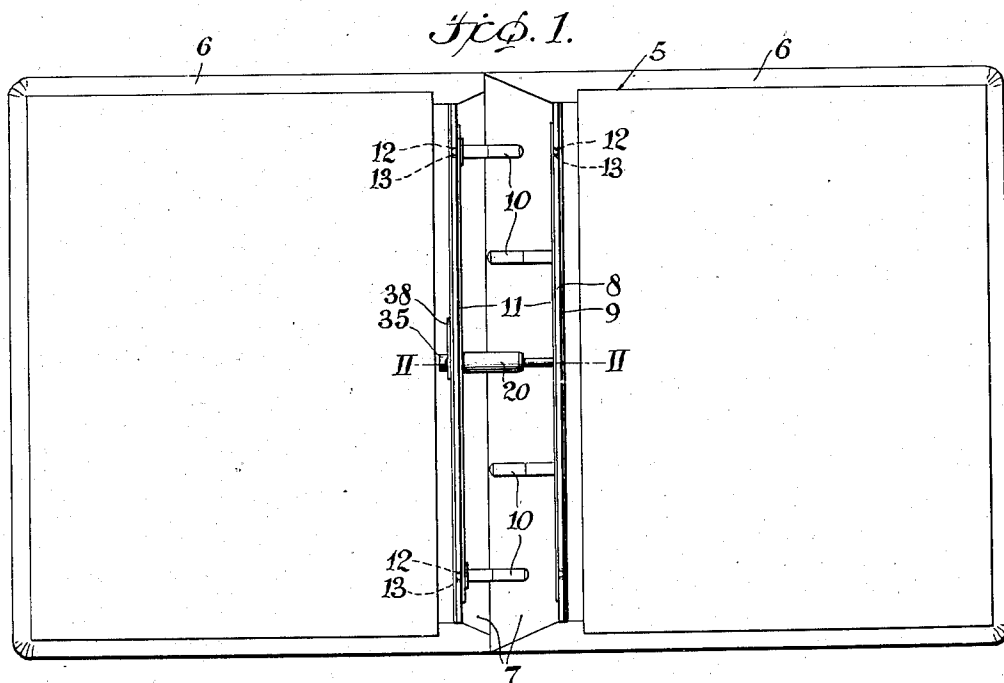
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J. R. NEWLAND

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LOOSE LEAF BINDER

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INVENTOR
JAY RAYMOND NEWLAND,
BY

Bean, Brooks & Henry. ATTORNEYS

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LOOSE LEAF BINDER

Jay Raymond Newland, Kalamazoo, Mich., as
signer to Remington-Rand Inc., Buffalo, N. Y.

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4 Claims (Cl. 129-13)

This invention relates to loose leaf binders and it has particular relation to a locking and unlocking mechanism included in the binder.

It is customary in maintaining records in loose leaf binders to provide fastening devices to prevent accidental displacement of the leaves or sheets maintained therein. In certain types of record-containing binders, it is desirable to include mechanism which can be unlocked only by means of a key in order that no leaves or sheets can be removed except by persons having authority to add new sheets or to remove sheets from the binder.

This invention is concerned primarily with the latter type of binder, wherein a one-way clutch mechanism is provided to maintain the binding elements in clamped relation. When the sheets are inserted in the binder it is only necessary to press the binding portions toward each other and the clutching mechanism automatically maintains the sheets tightly bound after the pressure is relieved and according to the degree of pressure applied. An important feature of the invention resides in a key for locking the one-way clutch. This key is removable and includes in its structure an actuating member which is adapted to snap into inactive position and to be moved outwardly against compression of a spring in the clutching mechanism merely by manipulating it with the fingers. The actuating member is so arranged that by moving it in either direction from its dead center position with respect to the spring acting thereon, it will snap into an operative position. On the other hand the key may be removed entirely from the binder and applied only when new leaves are to be added to the record contained in the binder.

For a better understanding of the invention reference may now be had to the accompanying drawing forming a part of this specification of which

Fig. 1 is a plan of an open loose leaf binder having the invention incorporated therein;

Fig. 2 is a cross-section on a larger scale, taken substantially along the line II-II of Fig. 1; and

Fig. 3 is a cross section similar to Fig. 2 with a locking mechanism shown in released position.

In practicing the invention a loose leaf binder is provided which is composed of cover sections 5 and 6 and backs or leaf embracing sections 7 having post-supporting bars 8 rigidly secured to flanges 9 of the sections 7. Leaf or sheet receiving posts 10 normally extend inwardly in opposite directions from removable strips 11 to which they are rigidly secured. Suitable lugs 12 provided on

the strips 11 for centering them are removably disposed in openings 13 in the bars 8 for properly centering the strips upon these bars. Hinging portions 14 of the cover sections insure proper book-like flexing of the binder cover.

A locking device 20 incorporated in the binder includes a tubular casing 22 that has an outwardly turned flange 23 at one end countersunk on the outer side of one of the bars 8. It will be observed that the casing 22 extends through one of the bars 8 and registers with an anchoring pin 24 that has one end thereof rigidly mounted in the other bar 8. A washer 25 secured in countersunk relation in the bar 8 and in superposed relation with respect to the flange 23 is flush with the outer surface of the bar and confines the flange 23 of the tubular casing in the bar.

The free end of the casing 22 is provided with a conical portion 26 converging from the body of the casing toward the end thereof. A core 27 having a conical end portion 28 corresponding to and adapted to fit within the conical portion 26 of the casing, is slidably mounted in the latter and is axially movable therein. An axial opening 29 in the core slidably receives the pin 24 which normally extends into the casing 22. At the conical end portion of the core 27 a plurality of recesses 30 are provided for loosely receiving a plurality of metallic balls 32 which engage the outer surface of the pin 24 and the inner surface of the conical portion 26 to provide a one-way clutch. A coil spring 33 disposed between the end portion of the core and the washer 25 is normally under compression and urges the core toward the conical portion 26, thereby pressing the balls against the inner conical surface of the portion 26 and against the outer surface of the pin 24. So long as the spring forces the core in this manner, any movement of the leaf-holding bars 8 tending to separate them will wedge the balls tightly in clutching relation between these surfaces, thereby preventing separation of the bars 8.

The end portion of the core 27 opposite the balls 32 is in the form of an integral screw-threaded stem 34 which is normally disposed inwardly beyond the washer 25. A key 35 including an internally screw-threaded stud 36 is removably threaded upon the stem 34 and is provided with a head 37 extending outwardly beyond the bar 8 and beyond the flange 9. A key snap 38 in the form of a forked lever is provided with a pair of opposed legs 39 straddling the head and having trunnions 40 thereon each of which is disposed in a recess 41 extending radially in

the head 37. It will be observed that the trunnions 40 are spaced from the ends of the forked portion of the key snap which rest upon or adjacent the washer 25.

5 In the position of the parts as illustrated by Fig. 2, the key snap 38 is lying flatly upon the surface of the flange 9 and the balls 32 are pressed by the energy of the spring 33 against the surfaces of the conical portion 26 and against the
10 shank of the pin 24. Thus the cover sections are held in proper binding relation. However, by manually lifting the outer end of the key snap 38 until it is in the position shown by Fig. 3, the forked ends 39 engage the washer 25, they slide
15 thereon, and the stud 36 is drawn outwardly against the force exerted by the compression spring 33. Then the pin 24 is released and can be withdrawn from the core 27. If desirable the stud 36 can be unscrewed from the stem 34 and
20 the key 35 removed entirely, thus permitting the locking device to remain locked to the pin 24. The binder can then be tightened by pressing the flanges 9 toward each other, but cannot be unbound until the key is applied and manipulated
25 in the manner described. It will be noted that the key snap in its extreme operative position, as shown by Fig. 3, extends in a direction axially of the cylinder 22 or at right-angles to the bar 8. In this position the key snap is in its dead-center
30 position with respect to the spring 33 and it then can be made to snap automatically in either direction until it lies substantially flush with the surface of the flange 9. In manipulating the key
35 snap 38 the forked ends 39 thereof perform a cam-like action upon the washer 25 and extend through the openings 42 of the flange 9 which register with the washer. Suitable notches 43 in the strips 11 receive the casing 22 and pin 24
40 when the parts of the device are in assembled relation.

From the foregoing description it will be apparent that the construction embodying the invention provides for the proper securing together
45 of the cover sections of loose leaf binders and that such sections are firmly held until released by a key mechanism which is adapted to be employed either as a permanent part of the construction or may be removed in order that the binder cannot be disassembled except by the holder of the
50 key.

Although only one form of the invention has been shown and described in detail it will be apparent to those skilled in the art that the invention is not so limited but that various changes
55 may be made therein without departing from the spirit of the invention or from the scope of the appended claims.

What is claimed is:

1. In a loose leaf binder, a pair of binder sections movable toward and away from each other;

leaf-receiving posts projecting inwardly in opposite directions from the sections, telescoping clutching members secured to the sections for releasably securing the sections in binding relation, one of the clutching members having a
5 spring normally maintaining said members in clutching relation to permit movement of the sections toward each other but positively opposing separation thereof, a key removably secured to one of the clutching members, said key
10 including a member having camming action upon one of the sections to force said one of the clutching members into inactive relation against the action of the spring, said member adapted when partially returned to automatically snap back
15 into inoperative position, whereby the clutching members are again active in preventing separation of the sections.

2. In a loose leaf binder, a pair of binder sections movable toward and away from each other,
20 leaf-receiving posts projecting inwardly in opposite directions from the sections, means for removably mounting the posts in the binder, a one-way clutching mechanism securing the sections together, a key removably connected to one
25 portion of the clutching mechanism for controlling the clutching mechanism, said key including a lever pivoted intermediate its ends upon one portion of the clutching mechanism, said lever normally lying parallel along a portion
30 of one of the binder sections, said lever having a camming action upon a portion of one of the sections when it is swung in one direction to release the clutching mechanism.

3. A manipulating device for loose leaf binder
35 fasteners comprising a body portion having fastening means thereon, and a member having a pivotal connection on the body portion, said member having a manually operable extension on one side of the pivotal connection and a
40 binder-engaging extension on another side of the pivotal connection.

4. In a loose leaf binder, a pair of separable binder sections, posts mounted upon the binder sections, interfitting clutching members on the
45 sections having cooperating parts operable to provide clutching engagement between said members in any interfitting position for maintaining them in book-like form, a key for operating said
50 members to disengage said cooperating parts of the clutching members, and resilient means for normally actuating said clutching members into clutching relation, said key having coacting connection with one of the clutching members and
55 means cooperating with one of said binder sections movable to produce a snap action of said key into a position to insure automatic locking of the clutching members.

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