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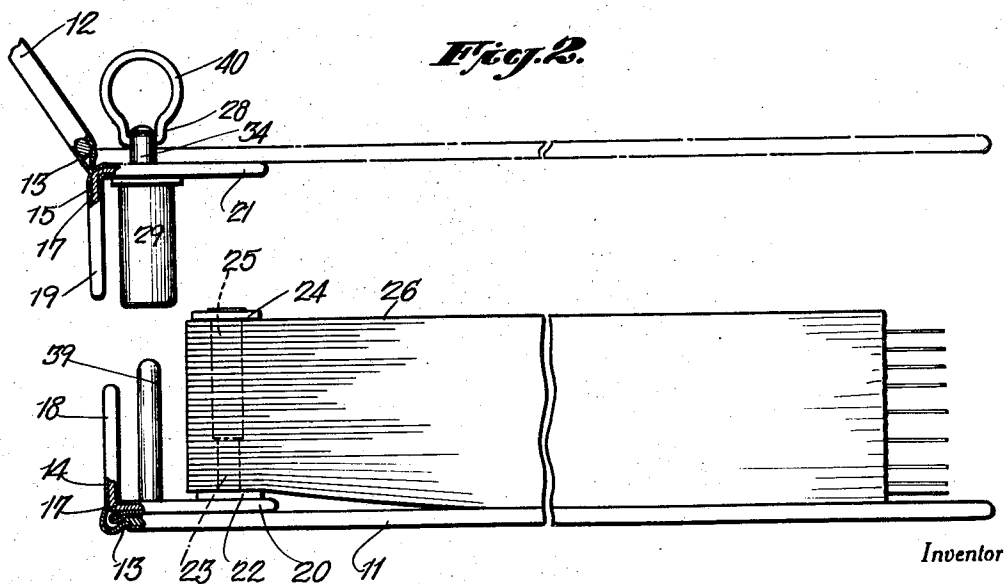
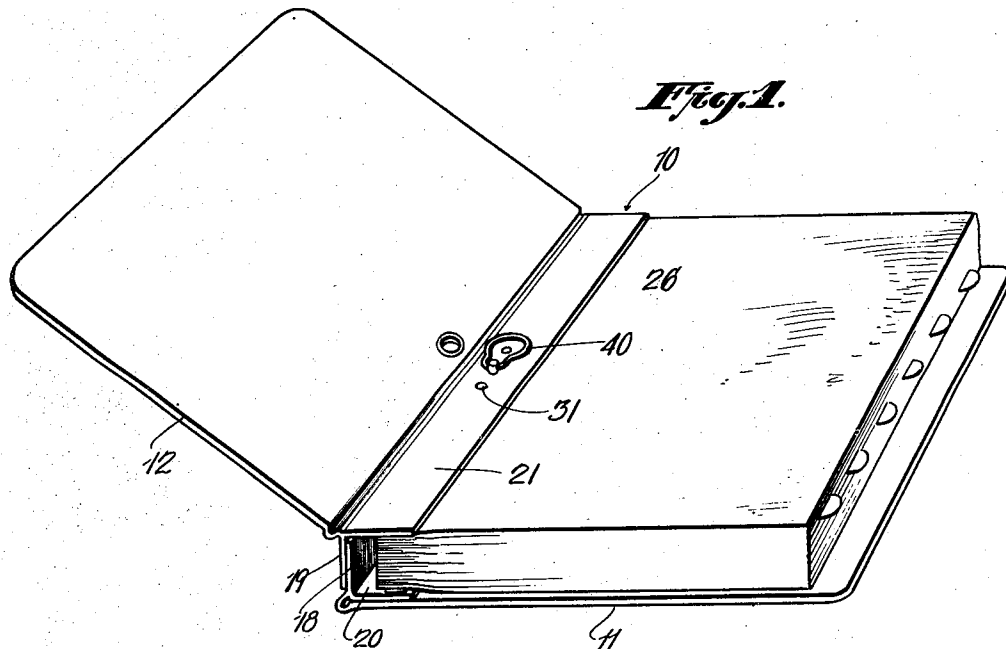
W. F. WOLF

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LOOSE LEAF BINDER AND LOCK

Filed Sept. 22, 1930

2 Sheets-Sheet 1



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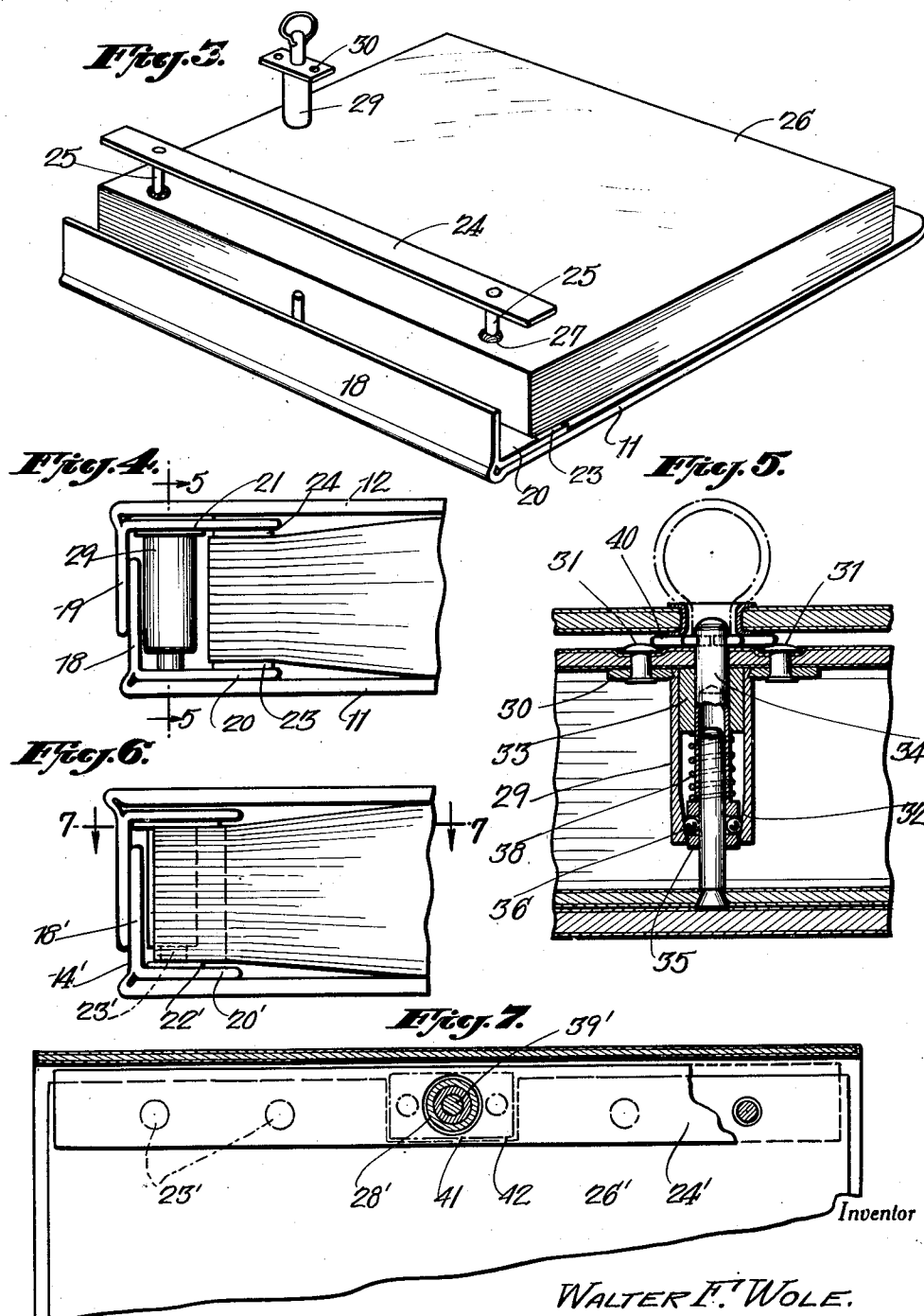
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LOOSE LEAF BINDER AND LOCK

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2 Sheets-Sheet 2



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LOOSE-LEAF BINDER AND LOCK

Application filed September 22, 1930. Serial No. 483,649.

This invention relates to improvements in loose leaf binders and more particularly to binder locks therefor.

The primary object of the invention resides in a loose leaf binder for accommodating loose leaf sheets in a temporarily bound condition and which may be opened to admit the introduction of new sheets into the binder or the removal of any of the bound sheets therefrom in an expeditious manner without disturbing the order of the temporarily bound sheets.

Another object of the invention is to provide a loose leaf binder in which the covers of the binder are locked together independently of the binder posts which receive the bound sheets, and which is accomplished by the use of a novel form of binder lock which may be released by a pull upon an actuating member located inside of the front cover, and which simultaneously separates the front cover from the back cover so that the lock is actuated and the cover removed in a single operation and by the use of but one hand of an operator.

It is a further object of the invention so to construct the binder, that immediately the locking elements are engaged with each other, a locking action therebetween may be had, and that this locking engagement will result whenever immediately the locking members are engaged with each other.

A further object is the provision of a loose leaf binder in which the front and back cover sections are provided with overlapping back sections which compensate for the varying thicknesses of the bound sheets as they are inserted or removed from the binder.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of my improved binder with the front cover member in open position.

Figure 2 is a fragmentary side elevational

view of the binder with the front and rear cover sections in a separated position.

Figure 3 is a detail perspective view of the back cover section with the removable aligning bar in a partially removed position.

Figure 4 is a fragmentary side elevational view of the binder with the front and back cover members in closed position.

Figure 5 is an enlarged vertical sectional view on the line 5—5 of Figure 4.

Figure 6 is a view similar to Figure 4 but showing a slightly modified form.

Figure 7 is a fragmentary horizontal sectional view on the line 7—7 on Figure 6.

Referring to the drawings by reference characters, the numeral 10 designates my improved binder in its entirety which includes a back cover member 11 and a front cover member 12, each of which is constructed of a relatively stiff material covered with a leather or other similar lining 13. Associated with the rear edges of the back cover member 11, and front cover member 12 are back sections 14 and 15 respectively, each of which is constructed of an angle bar 17 which extends the width of the cover section and which bars are covered by the lining 13, and said lining being brought together adjacent the corners of the angle bar to form hinged joints between the said bars and the respective cover members. The back sections 14 and 15 may be said to possess vertical flanges 18 and 19, respectively, and horizontal flanges 20 and 21, respectively. When the two cover sections are brought into engagement with each other, the vertical flanges 18 and 19 overlap as best seen in Figure 4 of the drawings, so as to provide a continuous back for the binder, and which overlapping permits the cover section to be disposed in varied spaced relation depending upon the thickness of the bound sheets held in the binder.

Riveted or otherwise secured to the horizontal flange 20 of the back sections 14 is a clamping bar 22 and extending inwardly from said bar are binding posts 23 while associated with the clamping bar 22 and its binding posts is a removable clamping bar 24 provided with spaced inwardly extending tubular binding posts 25, the latter telescoping

with the posts 23 to provide extensible binding posts to accommodate the variance in thicknesses of the sheets to be held in the binder. The loose leaf sheets are indicated by the numerals 26 and are provided with the usual spaced openings 27 of a size to permit of the passage of the tubular posts 25 therethrough. It will be seen that when the loose leaf sheets 26 are held in temporarily bound position as shown in Figure 2 of the drawings, the clamping bar 24 may be removed for the insertion of new sheets into the binder or for the removal of any of the bound sheets therefrom, and upon removing the bar 24, the bound sheets will not become out of alinement as they are retained upon either the posts 23 or some of the sheets may be removed with the clamping bar 24 and of course remain on the tubular posts 25.

For the purpose of removably securing the two cover members 11 and 12 together, I provide a novel form of binder lock 28 which is mounted centrally between the ends of the horizontal flange 21 of the back section 15, and which comprises a tubular casing 29 open at opposite ends, but having its upper end provided with an attaching flange 30 which fits beneath the underside of the flange 21 and secured to the said flange by rivets or like fastening elements 31. The inner wall of the tubular casing 29 at its lower or inner end is provided with conical wedge surfaces 32, while fitting in the opposite ends of the casing is a collar 33 which has frictional engagement with the inner walls of the casing sufficient to prevent shifting of the collar relative to the said casing. Slidable and rotatable within the casing and having its bearing in the collar 33 is a ball carrier 34, the inner end of which is provided with an enlarged head 35, which head loosely supports a plurality of steel balls 36, the peripheries of the balls extending beyond the plane of the outer sides of head 35 of the ball carrier. An expansion spring 38 is interposed between the head 35 and the inner end of the collar 33 and which spring tends to urge the balls 36 into engagement with the wedge surface 32 so as to clutch the locking posts extending inwardly from the horizontal flange 20 of the back section 14 when the locking device is moved into engagement with the said locking post. The post 39 slides into the socket 37 when the locking device is telescoped therewith which causes the balls 36 to yield, but after the post 39 seats in the socket 37, the spring 38 acting upon the ball carrier causes the conical wedge surfaces 32 to force the balls inwardly into gripping engagement with the post 39 so as to prevent possible separation of the locking device from the said post. It will be noted, that this gripping action of the ball on the post 39 takes place immediately the balls engage the outer end of the post, and also throughout the entire

length of the post, thus providing maximum latitude of adjustment.

For releasing the ball clutch from the locking post, I extend one end of the ball carrier 34 exteriorly of the horizontal flange 21 of the back section 15 and pivotally connected to the extending end of the ball carrier is a manipulating member or ring 40. When the binder cover 12 is in a closed position, the manipulating member 40 is swung to a flat position against the flange 21 as best seen in Figure 1 of the drawings, but upon opening of the front cover 12, the manipulating member 40 may be swung up and the finger inserted therein in order to exert an upward pull upon the ball carrier 34 which of course releases the balls 36 from clutching engagement with the locking post 39. By pulling upward upon the manipulating member 40, not only are the clutching balls released, but the top cover section is lifted from the bottom cover section in a manner best shown in Figure 2 of the drawings. When so removed, the temporarily bound sheets 26 may be added to or certain of them removed and when it is desired to replace the front cover member, it is only necessary to position the locking device 28 over the locking post 39 and bring the two cover sections together at which time pressure is applied to the flange 21 in order to tightly compress the bound sheets and the same are held in such clamped position by the automatic clutch of the balls 36 with the locking post 39. Should the balls 36 be forced too tightly into engagement with the locking posts 39 to such an extent as to form indentations in the posts, the said balls may be instantly released by merely rotating the ball carrier 34 which will cause the balls to rise out of the depression and at which time the balls may be released from clutching engagement with the posts by an outward pull upon the ball carrier. Such jamming of the balls may occur when too much pressure is applied to the top cover section or in the event that other binders or ledgers are stacked one upon the other which tends to compress the sections of the binder supporting an excess weight.

In Figures 6 and 7 of the drawings I have shown a slightly modified form in which a fixed clamping bar 22' is secured to the horizontal flange 20' of the back section 14' in a position close to the vertical flange 18' so that the binder posts 23' are substantially on the same line with the locking post 39' as best seen in Figure 7. The removable clamping bar 24' is provided with a central opening 41 for the passage of the locking device 28', while the loose leaf sheets 26' are provided with suitably shaped notches 42 or large round holes to accommodate the casing of the locking device 28'. It will therefore be seen that the only differences reside in the location of certain of the parts in or-

der that the back edge of the bound sheet may be disposed in close proximity to the back of the binder. It will be noted that in the embodiment shown in Figures 1 to 5, inclusive, the back edges of the bound sheets terminate in spaced relation to the inwardly extending casing 29 of the locking device 28.

From the foregoing description, it will be seen that I have constructed a loose leaf binder in which the binder cover may be securely locked in any position in which the tubular members 29 will receive the posts 39, without the aid of keys or other implements. The locking device facilitates the quick separation of the binding cover in order to reach the bound sheets for their removal or for the introduction of new sheets thereinto.

While I have shown and described what I deem to be the most desirable embodiment of my invention, it will be understood that various changes in construction may be resorted to if desired, and I do not wish to limit myself to the exact structural details herein set forth nor to anything less than the whole of my invention, limited only by the claims.

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

1. In a loose leaf binder, a pair of cover members, rigid flaps hinged to said cover members over which the said members may be swung, a locking post extending inwardly from one of said flaps, and a releasable locking device carried by the other of said flaps for telescoping said locking post and for locking engagement therewith, said locking device including a tubular casing having a conical wedge surface on the inner wall thereof, a ball carrier slidable in said casing and having a post-receiving socket therein, a plurality of balls mounted in said ball carrier for cooperation with said conical wedge surface and movable beyond the inner walls of said socket, a spring acting upon said ball carrier to position the balls in engagement with the wedge surface, and a manipulating member pivoted to the outer free end of said ball carrier by which the same may be manually actuated against the action of said spring to release said balls.

2. In a loose leaf binder, a pair of cover members, a locking post extending inwardly from one of said cover members, a locking device mounted on the other of said cover members comprising a tubular casing having a conical wedge surface provided on the inner wall thereof, a ball carrier slidably and rotatably mounted within said casing and having a socket in one end thereof, a plurality of balls loosely mounted in said carrier and extending through the opposite sides of the walls of said socket, a spring acting upon said ball carrier to move the balls into engagement with the wedge surface, and a

manipulating member swingingly connected to said ball carrier whereby an upward pull upon said manipulating member will successively release said ball from clutching engagement with said binder posts and move the cover member on which the locking device is mounted away from the other cover member.

In testimony whereof I affix my signature.

WALTER F. WOLF.

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