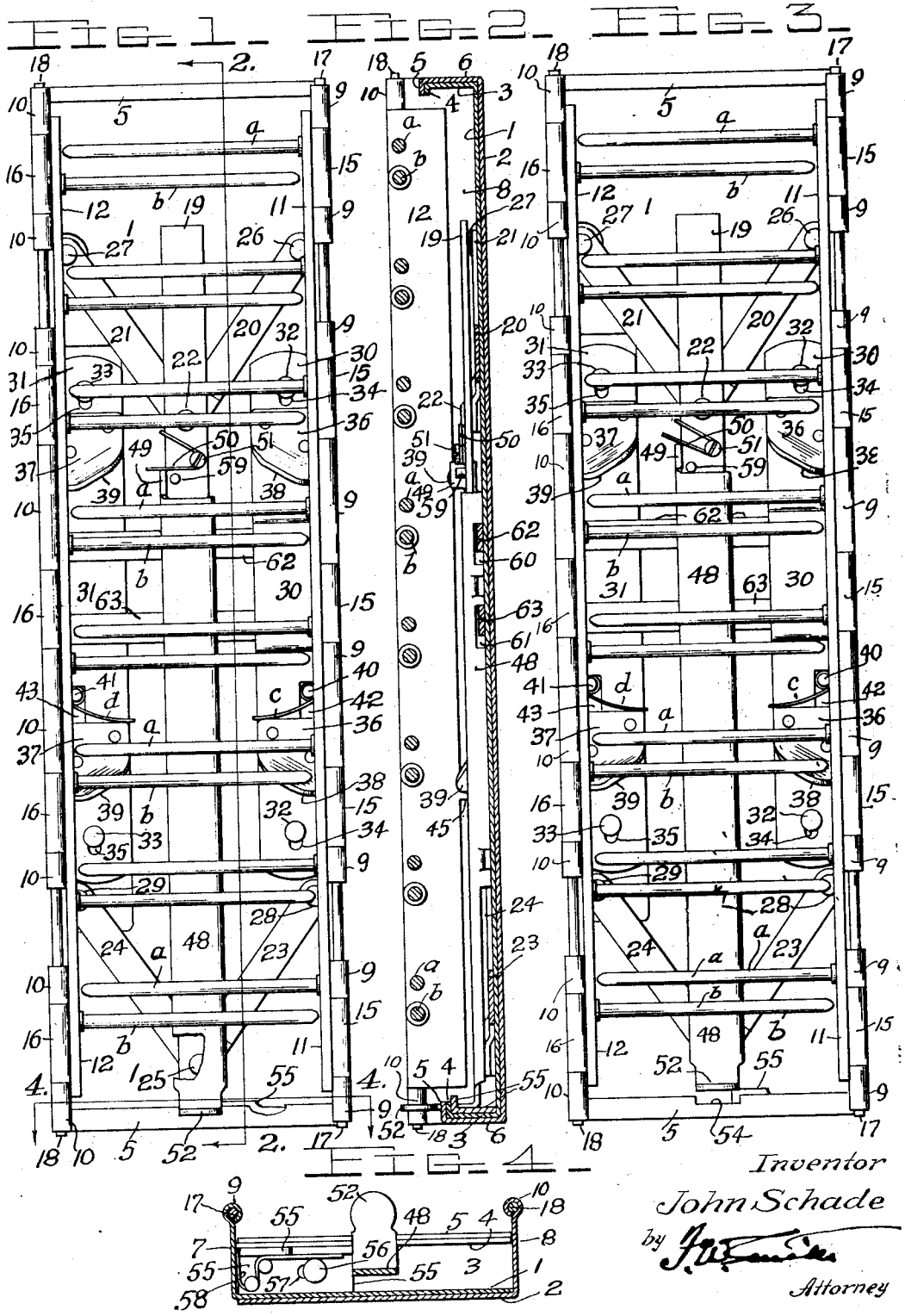
Oct. 25, 1932. J. SCHADE 1,884,278

LOOSE LEAF BINDER

Filed April 3, 1930 2 Sheets-Sheet 1



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FIG. 5

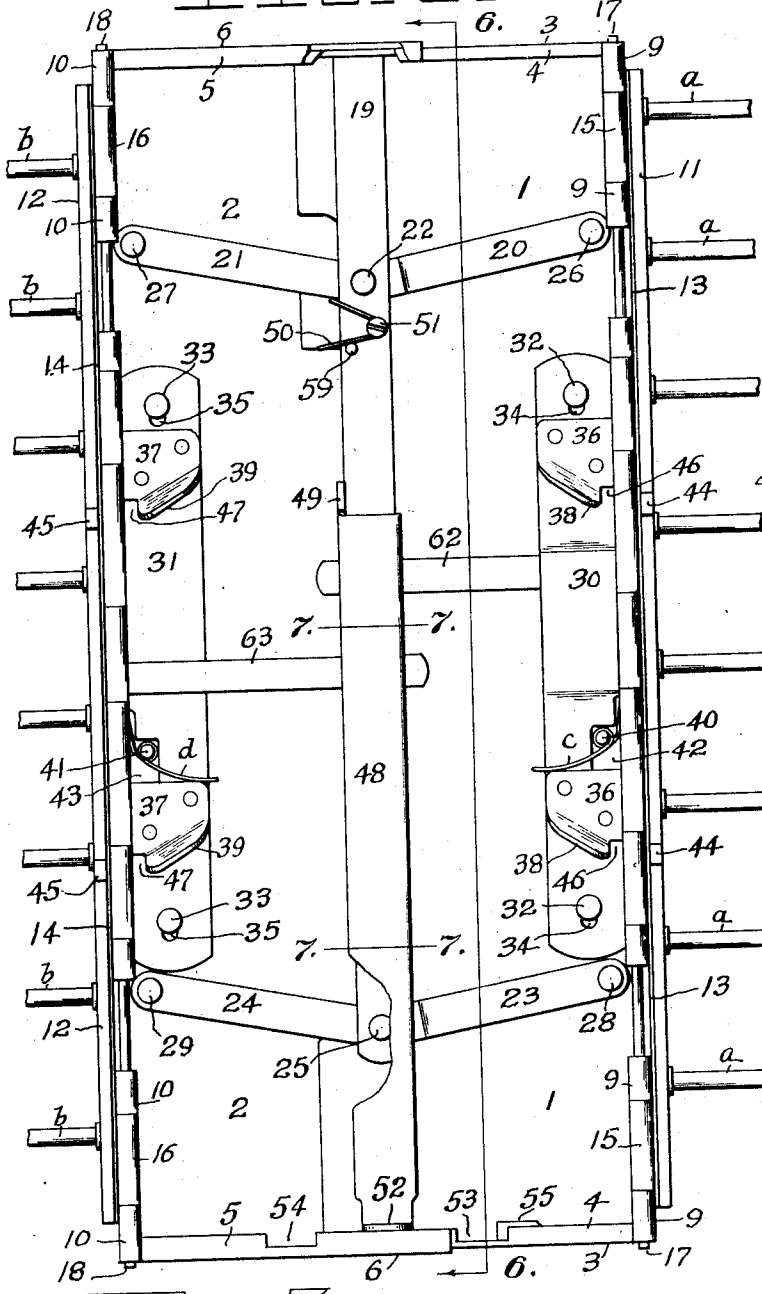


FIG. 6

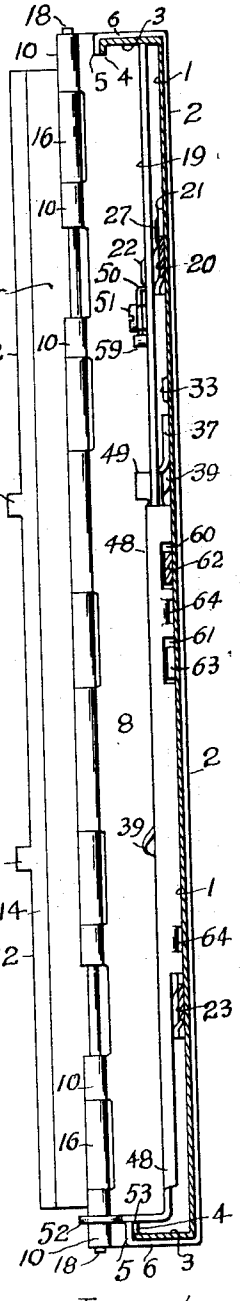
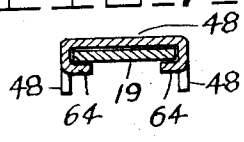


FIG. 7



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UNITED STATES PATENT OFFICE

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LOOSE LEAF BINDER

Application filed April 3, 1930. Serial No. 441,212.

My invention relates to loose leaf binders, that comprise two metal sections having upstanding sides and inwardly flanged ends, said sides and ends merging into bottom or floor portions, and these portions as well as the flanged ends are arranged to telescope over each other, so that the binder may be expanded or contracted, as the usual exigencies of the occasion may demand.

Each section carries straight posts which are arranged in staggered relation, and on these posts are placed perforated sheets or leaves.

Loose leaf books of this description are capable of use as ledgers, visible index books, or, in fact, as any sort of a loose leaf structure intended for office use, and the binders are so equipped that loose leaves may be placed over the posts and may be shifted from one side to the other of the structure, and any of these leaves may be removed and replaced, or additional leaves may be added in the manner common to books of this description.

The posts are carried by elongated bars that are hinged to the respective sides so as to normally lie close against the inner faces of said sides, and are positively and automatically locked in this position when said bars are swung downwardly, and the posts in their normal state are parallel with each other and with the bottoms of said sections.

Furthermore, this invention employs an automatically operating mechanism which equalizes the strains that are applied in opening or closing the sections, and which also functions as a stop to prevent undue spreading of the sections.

Also, at one end of the binder, the flanged ends are provided with devices which automatically interlock when the sections are closed, and which are manually operated to unlock the sections so that they can be spread apart.

All that has heretofore been said applies not only to the present binder but also to binders in the prior art, but in the latter each section at one outer end had certain means which must be operated before the bars that carried the posts could be swung upwardly, and this was clumsy and quite inconvenient, since, not only must the locking means for the sections be first manually operated to free the sections for spreading, but also each means at the outer end of each section, usually a thumb-lever associated with the parts that cooperated to lock the bars when closed to the sections, had to be separately operated before the bars could be swung upwardly, and this, as before stated, was inconvenient.

The sole object of the present invention is to eliminate individual means for unlocking the bars, and to perform both the unlocking of the sections and also the unlocking of the post carrying bars, by the manipulation of a single element conveniently located at the central portion of one end of the binder, so that it is a very simple matter, after the preliminary unlocking of the sections and the spreading of the same, to operate the same element that accomplished this for the purpose of unlocking the post carrying bars, and, by a flip of the fingers, simultaneously swinging said bars upwardly.

In the accompanying drawings I have illustrated a preferred embodiment of my invention, and attention is invited to these drawings, which are to be read as a part of the detail description which follows, and in which

Figure 1 is a plan view of my improved binder in closed position—

Figure 2 is a section at the line 2—2 of Figure 1—

Figure 3 is a view similar to Figure 1 but showing the sections unlocked preparatory to spreading—

Figure 4 is a section at the line 4—4 of Figure 1—

Figure 5 is a plan view of the binder as it appears when the sections are spread apart and the post carrying bars swung upwardly—

Figure 6 is a section at the line 6—6 of Figure 5, and

Figure 7 is a detail segregate section at either of the lines 7—7 merely to show the relative assembly of the equalizer bar and the superimposed elongated sleeve whose operation and function constitute the feature of this invention.

Similar numerals of reference will herein-

after be used to designate like parts in the several figures of the drawings.

I have not shown any side covers for the binder, nor have I shown the outer facing strips that ordinarily are applied to the sides of the sections and lap along the adjacent bottoms thereof in spaced relation thereto, since they have nothing to do with the present invention and are not at all necessary features in binders of this description.

1, 2, are telescopically disposed back sections, such as are usually employed in binders of this sort, the section 1 having rectangular ends 3 that terminate in inturned flanges 4 which are disposed in telescoping relation beneath similar inturned flanges 5 at the rectangular ends 6 of the section 2, the ends 3 being, of course, inside the ends 6 likewise in telescoping relation, so that it will be evident that these sections are free to be collapsed or spread.

The sides of the sections are rectangular as shown at 7, 8, and have formed therewith at spaced intervals along their upper edges hinge eyes 9, 10.

11, 12, are side bars having brazed or welded to their inner faces comparatively thin strips 13, 14, of metal and formed integrally from these strips are spaced hinge eyes 15, 16, which are alined with the eyes 9, 10, and pintels 17, 18, passed through said eyes, whereby these bars are hinged to the sides 7, 8.

a, *b*, are straight posts secured to and extending from the bars 11, 12, so that when the latter are in their normal position, or swung downwardly, these posts will extend toward each other in staggered relation and will be parallel with each other and with the backs of the sections.

The equalizer mechanism is well known and comprises a long floating bar 19 to which the inner ends of a pair of levers 20, 21, are pivoted at 22 near what I will call the front end of the bar, while the inner ends of a pair of levers 23, 24, are pivoted at 25 to the rear end of said bar, the outer ends of said pairs being pivoted respectively at 26, 27, and 28, 29, to the sections 1 and 2, and since the function of this equalizer is well known, no further description thereof is necessary, except, possibly, to call attention to the fact that when the sections are spread the forward end of the bar will strike the end wall 3 and thereby prevent undue spreading of the sections.

30, 31, are elongated latch-bars that lie flat against the sections 1, 2, and are confined by means of studs 32, 33, secured to said sections and passing through elongated slots 34, 35, in said latch-bars at each end of the latter, so that it will be clear that said bars can have a lengthwise play.

Secured to the faces of these bars near the ends are cam plates 36, 37, having upturned noses 38, 39, and secured at one end to studs 40, 41, that are fastened to the sections 1, 2, are springs *c*, *d*, whose free ends bear against the rear edges of one of the plates 36, 37, the latch-bars 30, 31, being cut away as shown at 42, 43, so that said studs can not interfere with the sliding movements of the latch bars.

44, 45, are lugs which extend from the free edges of the side bars 11, 12, and these lugs are normally housed within notches 46, 47, at the bases of the noses 38, 39.

Referring to Figure 5, it will be clear that when these side bars are swung downwardly, the lugs 44, 45, will strike against the noses 38, 39, and will force the latch-bars 30, 31, to slide against the resiliency of the springs *c*, *d*, until said lugs have cleared said noses, whereupon said springs will operate to throw the notches 46, 47, into engagement with the lugs to lock the side bars.

48 is an elongated sleeve slidable on the bar 19 and extending partway thereof and terminating in a finger 49 which is normally engaged by one arm of a spring 50 that is confined to said bar, as by a screw 51, the other arm of the spring being held beneath the bar. The outer end of the sleeve 48 is bent up at right angles to form a thumb-piece 52 and the adjacent flanges 4, 5, at one end of the binder have gates 53, 54, which coincide when the sections are closed, the spring 50 thereupon functioning to force the part 52 within said gates and thereby lock the sections together.

The locked condition brought about in the manner just described is shown at Figure 1, but it is necessary to take into consideration certain other features that are intimately associated with this locking in order that a full understanding of the latter may be had. Referring to Figure 4, 55 is a bolt slidably disposed between the flange 4 and the bottom of the section 1, and 56 is a headed stud that passes through an elongated slot 57 and is secured to the end 3 whereby the bolt is guided in its movements, and a spring 58 is carried in any suitable manner by the bolt and bears against the side 7 of the section 1 and normally forces the bolt inwardly. We will assume that the sections are spread apart, as shown at Figure 5, and it is desired to close them.

It will be observed that the bolt 55 has been projected by the spring 58 so that it obstructs the gate 53, but in closing the sections the thumb piece will strike the bolt and force it away until the gates 53, 54, coincide so that the action of the spring 50 can then force the thumb-piece within the gates and lock the sections together.

It will therefore be understood that the bolt 55 will be forced by its spring against the thumb piece 52 when the sections are locked, this being clearly shown at Figures 1 and 4.

It might be stated right here that the post

carrying bars may be swung down into normal position either before or after the sections are closed, although, with sheets on the posts it would be necessary to close the post bars before closing the sections.

In opening out the sections, the thumb piece 52 is pushed inwardly, thus compressing the spring 50 by the consequent impact of the finger 49, and when this piece has been moved so that the end of the sleeve 48 is arrested by the pin 59 that extends up from the bar 19, the thumb piece will have cleared the bolt 55 and the latter will be projected in the rear of said piece as shown at Figure 3 and thereby prevent the latter from snapping back and locking the sections, and the latter may now be spread apart as shown at Figure 5 where it will be noted that the spring, relieved of the impact of the finger 49, has come to rest against the pin 59.

The sleeve 48 rests upon the bottom of the section 1, and elongated openings 60, 61, are made at spaced locations in the sides of the sleeve and through the opening 60 extends a tongue 62 that is welded or otherwise secured to the latch-bar 30, and through the opening 61 extends a similar tongue 63 that is secured to the latch-bar 31, both of these tongues being of less width than that of the slots through which they pass, as will be evident from Figure 2, and both tongues being free for movement throughout these slots. When the thumb piece 52 is initially pressed inwardly, as heretofore set forth, this will move the sleeve so that the walls of these openings 60, 61, nearest the thumb-piece will be brought into contact with these tongues, and, after the sections have been spread apart, should it be desired to open up the post carrying bars, the thumb piece is again pushed inwardly thus causing the consequent movement of the sleeve to thrust the tongues forward, and therefore to slide the latch-bars 30, 31, against the resiliency of their springs, and this will disengage the lugs 44, 45, from the notches 46, 47, whereupon, with a mere flip of the fingers, the posts can be raised, and this is readily effected at the same time when the thumb piece is operated.

It will be obvious that the unlatching of the post carrying bars by unitary means has nothing to do with the locking of the sections in closed position, since the operation of said means only occurs when the sections are spread apart, and therefore so far as the unlatching and manipulation of the post carrying bars are concerned, the invention is not limited to a construction that includes devices for locking the sections together in closed position.

The sleeve 48 has no connection with the bar 19, and the bar and sleeve are therefore capable of independent sliding movements, but, in order that there may be no lifting of the sleeve lips 64 are lanced from the opposite sides of the sleeve and bent beneath the bar, as clearly shown at Figures 2, 6 and 7.

From the foregoing it will be clear that unitary means are employed not only for locking and unlocking the sections, but also for unlatching the post carrying bars so that the latter may be swung upwardly, and this is a great convenience in the manipulation of a sectional binder.

What is claimed is:—

1. A loose leaf binder comprising telescoping sections, an elongated floating bar, toggle levers pivotally connected to said sections and to said bar at spaced locations, post-carrying bars hinged to the sides of said sections, interengaging latch members carried by said bars and sections, and unitary means for locking and unlocking the sections and for unlatching said post-carrying bars.

2. A construction as in claim 1 in which said unitary means consists of a manually operable elongated sleeve slidably mounted on the floating bar, a spring carried by said bar and normally operating to resist the manipulation of said sleeve, and connections between said sleeve and the latching members carried by the sections, whereby the manipulation of said sleeve will withdrawn said members.

3. A loose leaf binder comprising telescoping sections, resiliently acting latch members carried by the bases of said sections, post-carrying bars hinged to the sides of the sections and carrying lugs adapted when said bars are swung downwardly to engage said members, an equalizing mechanism comprising an elongated floating bar and toggle levers pivoted to said bar and sections at spaced locations, an elongated sleeve slidably mounted on said bar and having at its inner end a projecting finger, a spring carried by said floating bar and normally engaging said finger and functioning to resist the manipulation of said sleeve, a stop pin carried by said floating bar, said sleeve being bent up at right angles to form a thumb piece at its outer end, gates in the end of said section adjacent said thumb-piece into which gates when they coincide said thumb piece is forced by the action of said spring, a spring actuated bolt carried by one of the sections adjacent the gate therein and operating to project behind said thumb piece when the latter is initially manipulated, and connections between said sleeve and the latch members carried by the sections.

4. A loose leaf binder comprising telescoping sections, an elongated floating bar, toggle levers pivotally connected to said sections and to said bar at spaced locations, post-carrying bars hinged to the sides of said sections and bearing lugs on said bars, latch members carried by said sections and resiliently operated by spring means to engage said lugs and lock said bars in one position, and unitary means manually operable for simultaneously un-

latching both post carrying bars when the sections are spread.

5. A loose leaf binder comprising sections whose ends have inwardly extending flanges that are telescopically disposed and whose floor portions are likewise in telescopic relation, an equalizing mechanism comprising a long floating bar and toggle levers pivoted to said bar and sections at spaced locations, an elongated sleeve slidably mounted on said bar and having its outer end bent up to form a thumb piece, gates in the flanges at the end of said sections adjacent said thumb piece, a spring-bolt carried by one of the sections adjacent the gate therein, spring means for normally urging said sleeve against said gated flanges, whereby, when the sections are completely closed the gates in said flanges will coincide and the thumb piece enter therein to lock the sections, and when said thumb piece is manipulated to clear the gates said bolt will be projected immediately behind the thumb piece and the sections thereby be in position for spreading.

6. A construction as in claim 5 with the addition that post carrying bars are hinged to the sides of the sections and inter-engaging latch members are carried by said bars and the floors of the sections, whereby when the bars are swung downwardly these members will automatically engage to lock the bars, and connections are established between said sleeve and the latching members carried by the sections, whereby after the sections have been spread apart said sleeve may be manipulated to disengage said last named latching members and thereby permit the post-carrying bars to be thrown upwardly.

7. A loose leaf binder, comprising inner and outer telescoping sections, post-carrying bars hinged to the sides of said sections, resiliently acting latch members carried by said sections, lugs extending from the free edges of said bars and automatically interlocking with said members when said bars are swung to closed position, an equalizing mechanism consisting of a floating bar and toggle levers pivoted to said bar and to said sections at spaced locations, a sleeve slidably mounted on said floating bar and normally spring retracted to lock the sections together in closed position, and operable connections between said sleeve and latching members, said sleeve being manipulable in two stages, first, to unlock the sections preparatory to spreading, and second, after the sections have been spread, to withdraw the latching members from engagement with said lugs to permit the post carrying bars to be swung upwardly.

8. A construction as in claim 7, with the addition that a spring influenced bolt is carried by one end of the inner telescoping section and under tension bears against the sleeve when the sections are closed, whereby, when the sleeve is operated to unlock the sections, said bolt will be projected in the rear of said sleeve and thereby prevent the latter from springing back into locking position with respect to the sections.

9. A loose leaf binder, comprising sections having bottoms and inwardly extending flanged ends in telescopic relation, post-carrying bars hinged to the sides of said sections and bearing lugs on said bars, latching devices carried by said sections and resiliently operated by spring means to engage said lugs and lock said bars in closed position, and unitary means operated to automatically lock the sections when closed, and manually operable in successive stages to unlock said sections preparatory to spreading them and to disengage said latching devices after spreading, whereby said bars may be swung upwardly.

In testimony whereof I affix my signature hereto.

JOHN SCHADE.