

E. H. ELDER.
 LOOSE LEAF BINDER.
 APPLICATION FILED JULY 12, 1911.

1,008,631.

Patented Nov. 14, 1911.

Fig. 1.

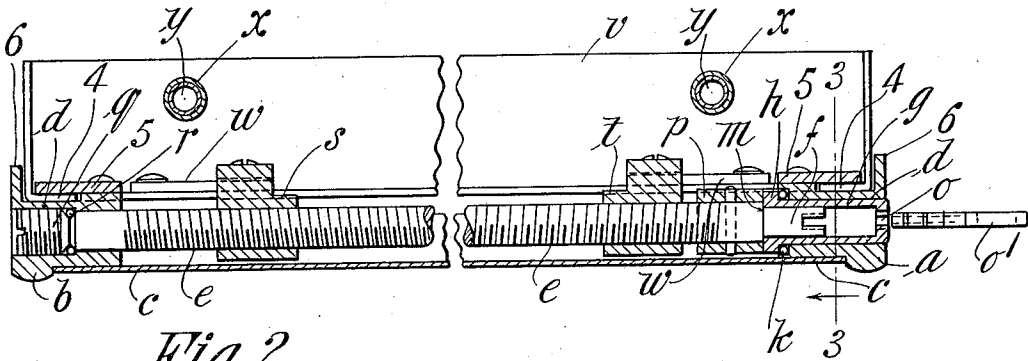


Fig. 2.

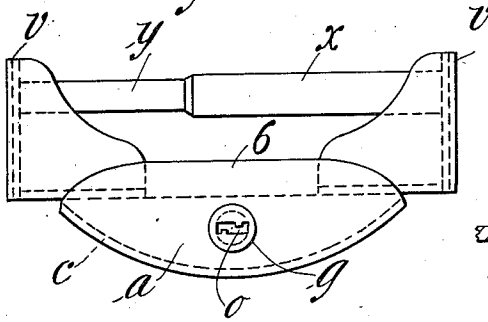


Fig. 3.

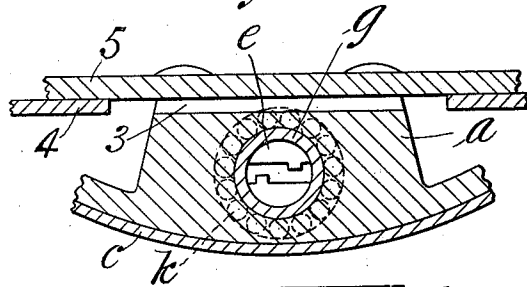
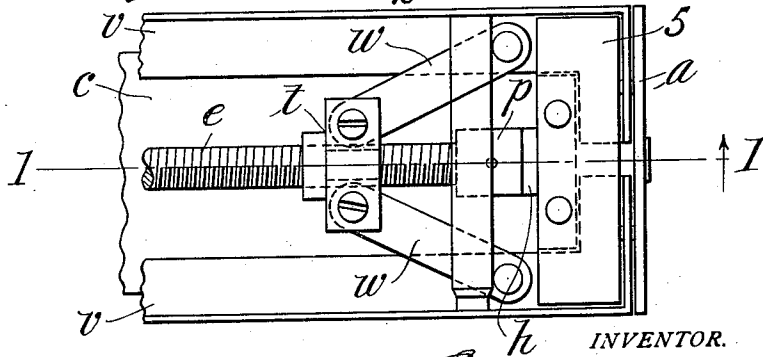


Fig. 4.



WITNESSES:

H. L. Sprague

Harry W. Bower

INVENTOR.
Edward H. Elder
 BY *Chapman & Co.*
 ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD H. ELDER, OF CHICOPEE FALLS, MASSACHUSETTS, ASSIGNOR TO NATIONAL
BLANK BOOK COMPANY, OF HOLYOKE, MASSACHUSETTS, A CORPORATION.

LOOSE-LEAF BINDER.

1,008,631.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD H. ELDER, a citizen of the United States of America, residing at Chicopee Falls, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to loose leaf binders and particularly to that type which, by various means, are made transversely adjustable to adapt the width thereof to the thickness of the combined sheets of paper bound therein, the object of the invention being to provide an improved binder whose sides are adjustable transversely to permit the insertion and removal of sheets of paper, and in the provision of means whereby the opening of the binder can be effected only by the use of some specially designed implement, as a key.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of a binder constructed according to this invention. The plane of this section is on line 1—1, Fig. 4. Fig. 2 is an elevation of the right-hand end of the binder shown in Fig. 1. Fig. 3 is a cross sectional view, on an enlarged scale, taken on the line 3—3, Fig. 1, showing the construction of the ends of the binder. Fig. 4 is a plan view of the right-hand end of the structure shown in Fig. 1. This view shows the relation of the movable sides of the binder to the solid ends thereof and the arrangement of the devices for moving the sides laterally.

Referring to these drawings, the two metal heads of the binder are indicated by *a* and *b*, which are connected together by the metal back-piece *c*. Each of the heads *a* and *b* is bored out, as at *d*, on the central longitudinal line of the binder to receive the screw *e*. That end of the latter located in the head *a* is turned down, as at *f*, to enter a sleeve or bushing *g* which loosely fits, and is rotatable in, the hole bored through the head. This bushing has a flanged head *h* on its inner end which serves to retain a set of balls *k* placed in a groove made by counter-boring the inner end of the hole in which the sleeve *g* is fitted, the shoulder *m* on the screw bearing against the flanged head of the bushing. The bushing has a closed outer

end in which is cut an irregular key-slot *o*, and the end of the screw which projects into the bushing has a similar irregular slot formed therein corresponding with that through the closed end of the bushing, whereby only a key *o*¹, which conforms in its cross-sectional form to that of the slot in the bushing, may enter the slot in the end of the screw.

A collar *p* non-rotatably fitted to the screw *e* and bearing against the flanged head of the bushing provides a larger bearing for the screw against said bushing, this collar having no other function. The opposite end of the screw *e* in the head *b* turns freely therein and is held in place by means of a screw-plug *q* having a tapered inner end, a set of bearing balls *r* being interposed between the end of the screw *e*, and the tapered end of the plug, as shown.

Two traveling nuts *s* and *t* are located on the screw *e*, as shown in Fig. 1, each of which is connected with two movable side plates *v*, *v*, of the binder by means of the diagonally located links *w*, each pair extending from its nut in opposite directions toward the respective ends of the binder. The side plates *v*, *v* of the binder are shown in side elevation in Fig. 1, and in end elevation in Fig. 2, a portion of the inturned ends thereof being seen in Fig. 3. Extending from each side-plate are the telescoping members *x* and *y* with which the sheets of paper engage in the well known manner in this art.

Across the flat top of each head a slot is milled (see Fig. 4) to receive the inturned lower ends 4 of the side-plates, a plate being fastened to each head to overlap these inturned ends of the plates, the outer upper ends of the heads being carried up above the said inturned lower ends of the plates, as seen at 6, to hold the latter against end-wise movement. Thus by the rotation of the screw *e* the links *w* may effect the movement of the slide plates, the latter sliding in the channels provided between the upper side of the heads and the plates 5, above described.

To rotate the operating screw *e*, the key *o*¹ is inserted in the slot in the sleeve *g* which may be rotated to bring the said slot in registration with that in the end of the screw. As the ball bearings at each end of

the screw take up the end thrust in both directions of the screw *e*, the latter may be easily rotated by a relatively small key.

What I claim, is:—

5 1. A loose leaf binder comprising solid heads and a rigid back connecting the heads, the latter having holes bored therethrough on the central longitudinal line thereof, a sleeve rotatably seated in one of said holes
10 having a flanged head bearing against the inner end of one head, said sleeve having a closed outer end with a key-slot therein, a screw having one turned-down end seated in the inner end of, and extending part way
15 only through, the sleeve, the opposite end of the screw being rotatably seated in the opposite head, and a plug in said last named head to bear against the end of the screw, laterally movable side plates slidably seated
20 in said heads and provided with transverse telescoping members; two nuts on said screw, and a pair of links extending from each nut to the side-plates, there being a key-slot in that end of the screw seated in
25 the sleeve.

2. A loose leaf binder comprising solid heads and a rigid back connecting the heads, the latter having transverse ways formed therein; a side plate located on each side of the back having ends inturned, said ends being
30 slidable in said ways, said heads having axially alined holes bored therethrough, a sleeve rotatably seated in one of said holes having a flanged head bearing against the inner end of one head, said sleeve having a
35 closed outer end with a key-slot therein, a screw having one turned-down end seated in the inner end of, and extending part way only through, the sleeve, the opposite end of the screw being rotatably seated in the oppo-
40 site head, and a plug in said last named head to bear against the end of the screw, two nuts on said screw, and a pair of links extending from each nut to the side-plates, there being a key-slot in the end of the screw seated in
45 the sleeve.

EDWARD H. ELDER.

Witnesses:

WM. H. CHAPIN,
HARRY W. BOWEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."