No. 859,303. PATENTED JULY 9, 1907.

E. L. KRAG.

LOOSE LEAF BINDER.

APPLICATION FILED APR. 27, 1907.

Fig. 1.

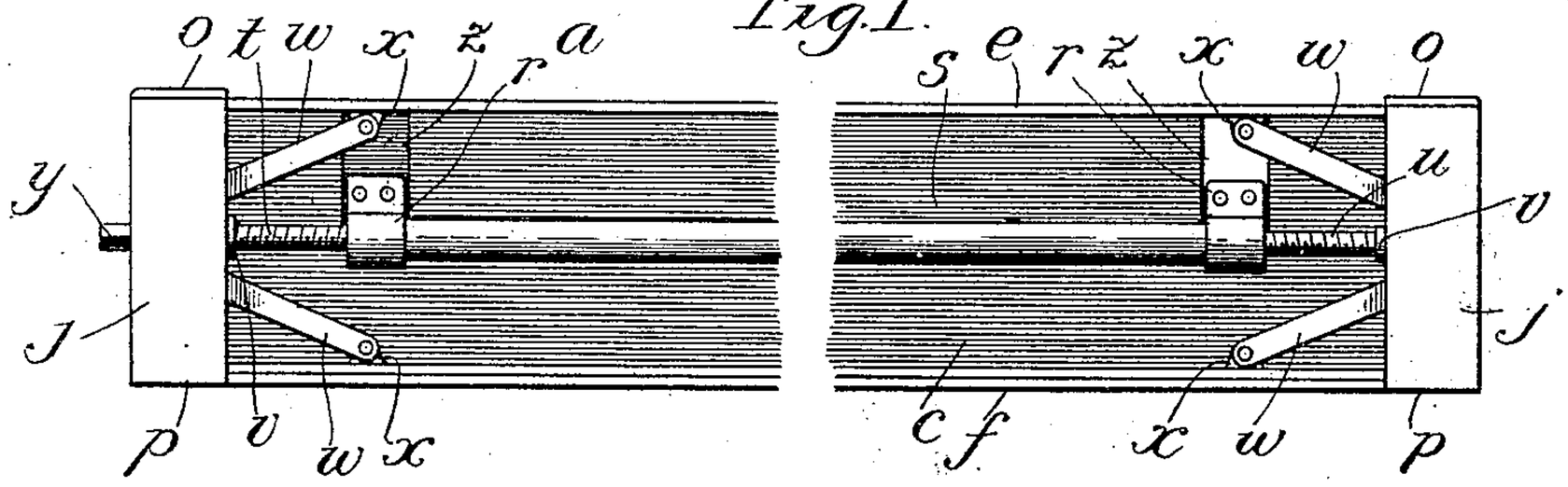


Fig. 2.

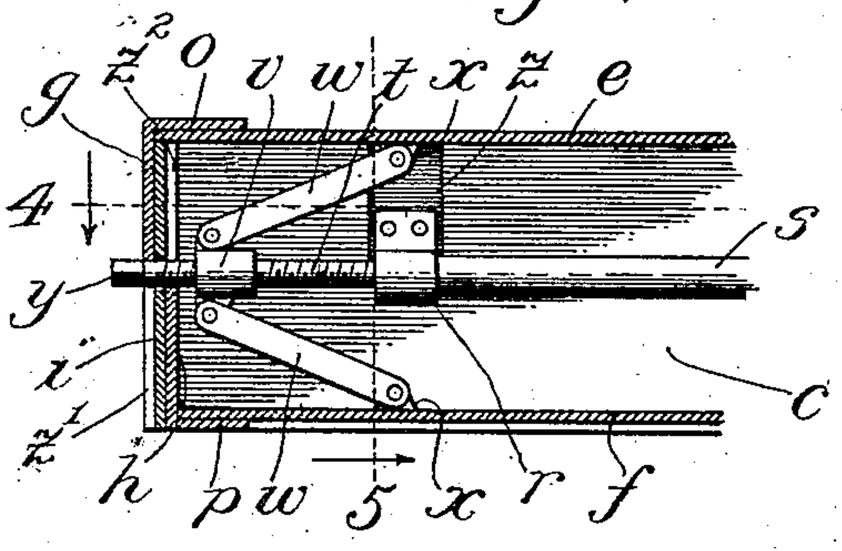


Fig. 3.

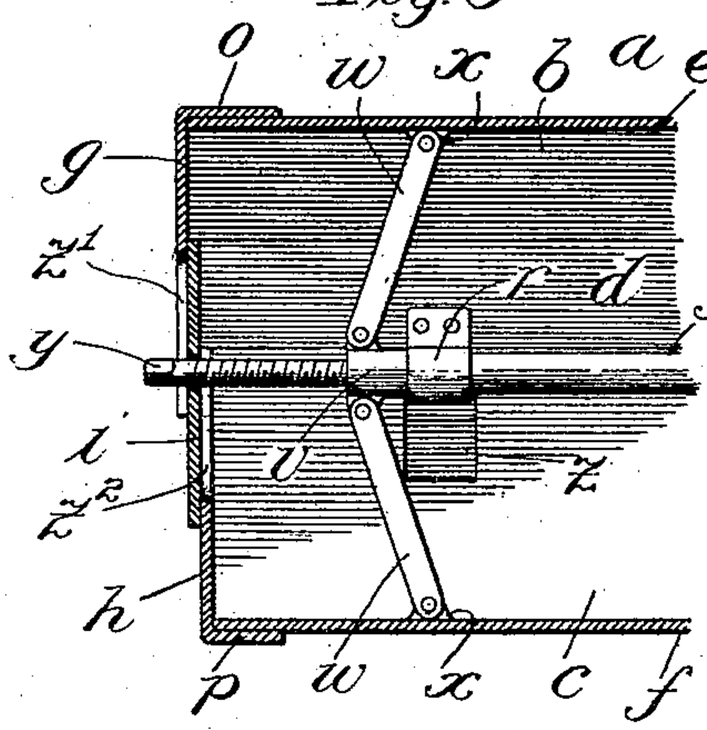


Fig. 4.

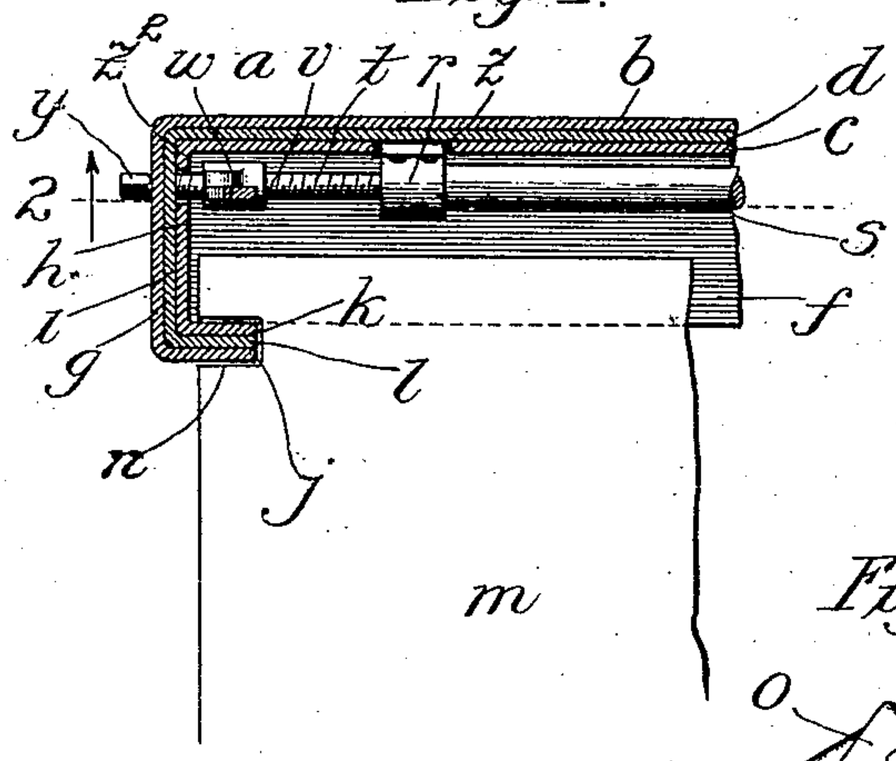


Fig. 5.

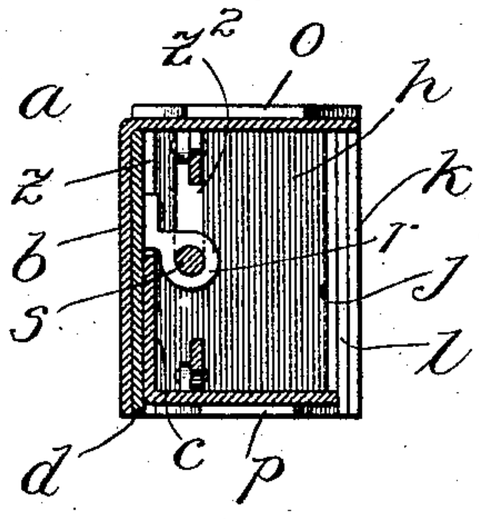
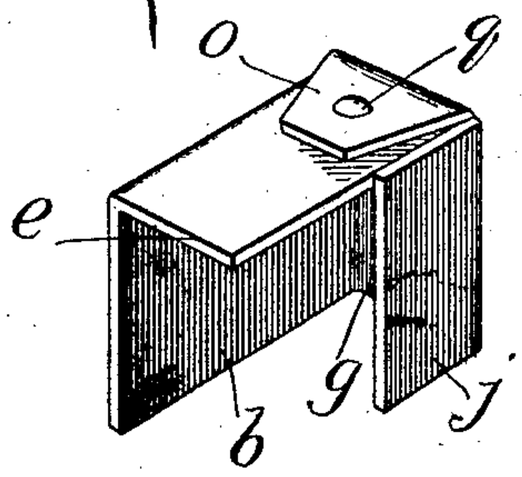


Fig. 6.



Witnesses:

John Enders.

Chas. H. Duell.

Inventor:

Erik L. Krag.

By David N. Fletcher.

Atty.

UNITED STATES PATENT OFFICE.

ERIK L. KRAG, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

No. 859,303. Specification of Letters Patent. Patented July 9, 1907.

Application filed April 27, 1907. Serial No. 370,626.

To all whom it may concern:

Be it known that I, ERIK L. KRAG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to provide a loose-leaf binder which may be composed of sections arranged to slide within or telescope with each other, said sections being stamped or otherwise formed from sheet metal and so constructed as to enable the usual binding posts or other analogous elements heretofore deemed essential, to be dispensed with.

To these ends my invention consists in the combination of elements hereinafter more particularly described and definitely pointed out in the claims.

In the drawings, Figure 1, is a face view embodying the features of my invention, Fig. 2, is a sectional view taken upon the line 2—, Fig. 4, viewed in the direction of the arrow there shown, Fig. 3, is a like view showing the parts of the frame expanded, Fig. 4, is a horizontal sectional view taken upon the line 4—, Fig. 2, viewed in the direction of the arrow there shown, the manner of securing the leaves being indicated in said device, Fig. 5, is a vertical sectional view taken upon the line 5—, Fig. 2, viewed in the direction of the arrow there shown, and Fig. 6, is a perspective view of a portion of one of the outer sections showing the formation at the end for the purpose of positioning the leaves.

Referring to the drawings, *a* indicates generally the case or frame of my improved device, which is formed from a plurality of preferably three sections *b*, *c* and *d*, which parts, so indicated, constitute the back of the structure. Each of the parts *b* and *c*, has a flange formed thereon at substantially right angles thereto, which flanges are indicated by *e* and *f*, respectively, and serve as the sides or clamping elements by which the leaves are compressed as hereinafter stated. When cut from the blank, the parts *b*, *c* and *d* are made considerably longer than the parts *e* and *f*, the extended portions at each end being bent at right angles to said back portions as shown at *g*, *h* and *i*, respectively, from whence they are again bent at right angles and parallel to the back portions as indicated at *j*, *k* and *l*.

The middle section *d*, is enough shorter than the outer section *b* to enable it to fit loosely within the latter, as indicated in Figs. 2, 3, 4 and 5, while the section *c* is correspondingly shortened to fit within the section *d* in the same manner. The flanges *j*, *k*, *l* are substantially parallel to and in substantial alinement with the front edges of the binding flanges *e*, *f*. These flanges serve, in lieu of the ordinary posts, to position and temporarily secure the leaves *m*, Fig. 4, which are notched upon opposite edges, as shown at *n* in said last named figure, to receive said flanges. Flanges *o*, *p* are bent from the parts *g*, *h* to overlap the parts *e*, *f*, respectively, to which they are riveted, as shown at *q*, Fig. 6, or otherwise rigidly secured.

Any well known form of locking device may be employed for clamping the side flanges upon the leaves; but I prefer that shown in the drawings, which may be constructed as follows: Rigidly attached to the inner face of the section *d* are bearings *r* in which is journaled a shaft *s*, the ends of which are reduced in size and provided with right and left-hand screw-threads *t*, *u*, upon which are mounted screw-threaded sleeves *v*, having lugs thereon which are jointedly connected by means of links *w* to lugs *x*, upon the inner faces of the sides *e* and *f*. A squared portion *y*, at the end, enables the shaft to be rotated by means of a suitable key. By turning the shaft in one direction the sleeves *v* are forced apart, through the action of the links, which serve to draw the sides *e* and *f* together and clamp them upon the intervening leaves. A reverse action serves to separate said sides as shown in Fig. 3.

Notches *z*, Figs. 1 to 5, inclusive are formed in the part *c* to permit it to slide past the bearing brackets *r*, while notches z^1, z^2, Figs. 2, 3, 4 and 5, are formed in the end pieces *g*, *h*, respectively, to receive the locking shaft and enable said end pieces to telescope with each other.

From the foregoing it will be seen that, outside of the actuating or locking mechanism, my improved device is composed preferably of the three telescoping elements formed from sheet metal and having inturned end flanges to engage with notches in the leaves. This construction, while durable and efficient, greatly reduces the cost of the device and especially adapts it to the requirements of small books. Should but little expansion be required, the middle section may be dispensed with, but I prefer ordinarily to use three or more sections.

Having thus described my invention, I claim:

1. A loose-leaf binder, in which is comprised a plurality of sections arranged to telescope with each other, said combined sections forming an expansible case for inclosing one edge, with portions of the sides and ends of the leaves.

2. The combination in a loose-leaf binder, of a plurality of telescoping sections arranged to inclose portions of the sides and edges of the leaves to be bound, said section being bent forwardly and thence inwardly at the ends to enter notches formed in the leaves.

3. In a loose-leaf binder, the combination of a series of sheet-metal telescoping sections successively nested within each other, each section having forwardly and inwardly bent portions for engaging notches in the leaves, the outermost sections having side flanges for clamping said leaves.

4. In a loose-leaf binder, the combination of a series of sheet metal clamping sections, nested in successive order, one within the other, to slide in a direction at right angles to their length, each section being provided with forwardly and inwardly bent end-portions to engage notches in the

leaves to be bound, and locking means for connecting the clamping sections.

5. The combination in a loose-leaf binder of a series of sheet metal sections nested in successive order one within the other to slide in a direction at right angles to their length, each section being provided with forwardly and inwardly bent end portions to engage notches in the leaves to be bound, the outermost sections having side flanges for engaging the leaves to be bound and locking means for clamping said side flanges upon the leaves.

6. The combination in a loose-leaf binder of a series of sheet metal sections nested to telescope one within the other in a direction at right angles to their length, each of said sections having inwardly turned end flanges arranged in planes parallel to each other as well as to the backs of said sections, and means for connecting and locking the outermost sections.

7. The combination in a loose-leaf binder, of a series of sheet-metal sections nested to telescope one within the other in a direction at right angles to their length, each of said sections having inwardly turned end-flanges arranged in planes parallel to each other as well as to the backs of said sections, a right and left-hand screw-threaded shaft mounted in bearings upon the middle section, screw-threaded sleeves upon said shafts, and links for connecting said sleeves in opposite directions to the outermost sections.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses, this 24th day of April, 1907.

ERIK L. KRAG.

Witnesses:

DAVID H. FLETCHER,

CARRIE E. JORDAN.