No. 711,536. Patented Oct. 21, 1902.

L. G. SCHULT.

LOOSE LEAF BINDER.

(Application filed Mar. 22, 1902.)

(No Model.)

Fig. 1

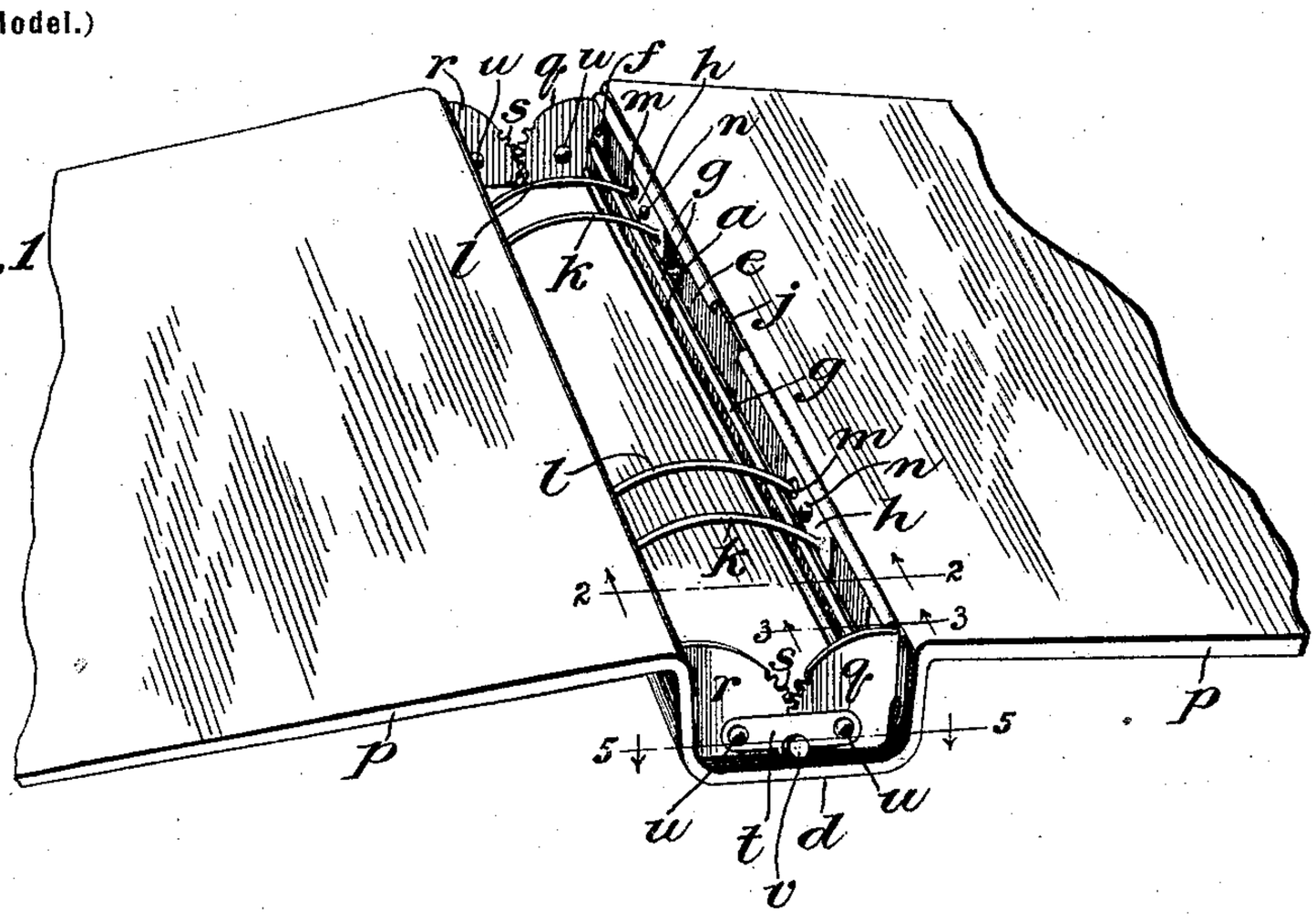


Fig. 2

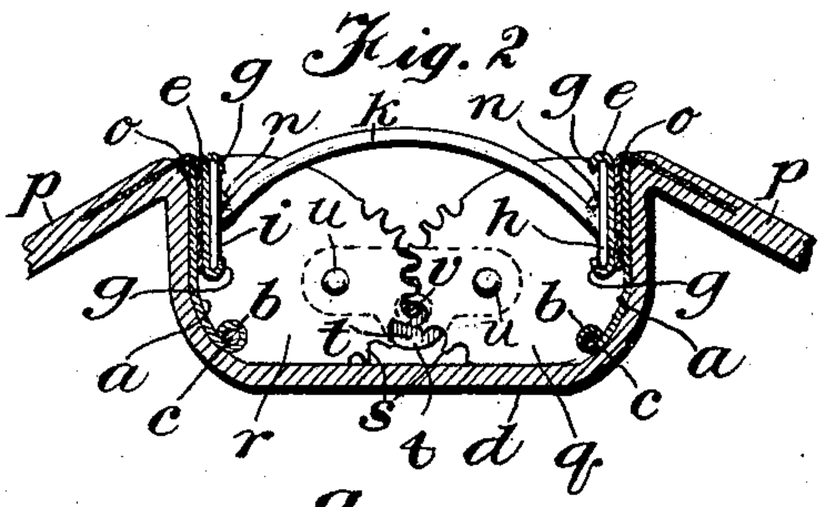


Fig. 3

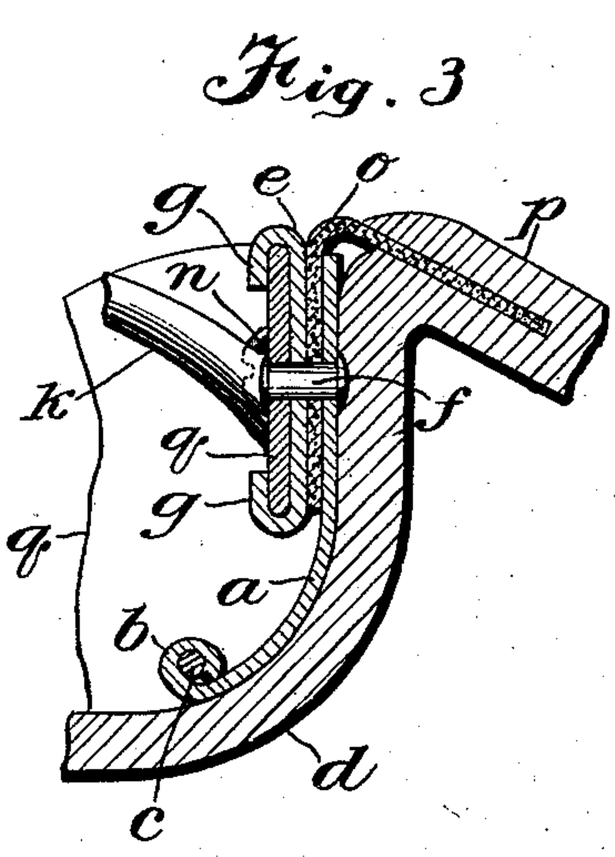


Fig. 4

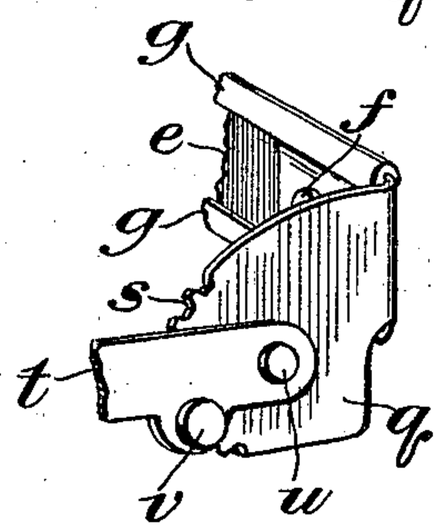
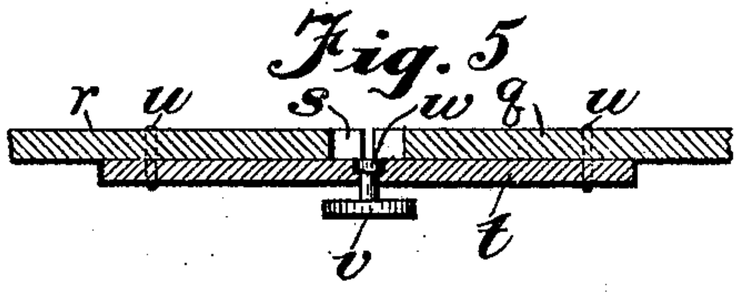


Fig. 5



Witnesses:

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UNITED STATES PATENT OFFICE.

LARS G. SCHULT, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 711,536, dated October 21, 1902.

Application filed March 22, 1902. Serial No. 99,477. (No model.)

To all whom it may concern:

Be it known that I, LARS G. SCHULT, of 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 full, clear, and exact 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 simple, cheap, durable, and effective binder for loose leaves which may be so constructed that the prongs or leaf-retaining elements therein may be adjusted to leaves in which the perforations for retaining them in place may be variously located.

A further object is to provide a simple, cheap, and effective locking or catch mechanism for locking the parts in a normal position, all of which is hereinafter more particularly described and specifically claimed.

In the drawings, Figure 1 is a perspective view of a binder embodying the features of my invention. Fig. 2 is a transverse sectional view in detail, taken upon the line 2 2, Fig. 1. Fig. 3 is an enlarged sectional view in detail, taken upon the line 3 3, Fig. 1. Fig. 4 is a perspective view in detail of a portion of one end of my improved device; and Fig. 5 is a sectional view in plan, taken upon the line 5 5, Fig. 1.

Referring to the drawings, *a a* represent two frame-plates, which are formed from sheet metal and are arranged parallel to each other. Said plates constitute the main frame of the binder, their edges being extended rearwardly and preferably bent, as shown at *b b*, around wires *c c* to stiffen them and provide rounded surfaces for a cover or back *d*. A longitudinal sheet-metal retaining-plate *e* is rigidly attached to each of the plates *a* by means of rivets *f*, Figs. 1, 3, and 4, or in any approved manner, each of said plates *e* being provided with flanges *g g*, which are bent parallel therewith, sufficient space being provided between said flanges and the main body for the reception of an indefinite number of adjustable plates *h i*, the former of which is shown in Figs. 1 and 2, while the latter is shown in Fig. 2. The top or outer flange *g* of each of the retaining-plates *e* is cut away, as shown at *j*, Fig. 1, to provide a space for the insertion of the plates *h i*, which are adapted to slide between and be retained by said flanges, which form guides therefor. Said plates *h i* are placed upon opposite sides of the binder with respect to each other. Each of the plates *h* is provided with a curved leaf-retaining prong *k*, rigidly attached thereto, while each of the counterpart plates *i* is provided with a like curved prong *l*, the prongs *k* alternating with the prongs *l* and extending in an opposite direction therefrom. In each of the plates *h* is provided an opening *m*, Fig. 1, for the reception of the free end of the prong *l* opposite thereto, while in each of the plates *i* is a like opening for the reception of the prong *k*, which is opposite thereto. A set-screw *n* is tapped into each of the plates *h* and *i*, which screws are adapted to engage with the face of the plates *e*, thereby enabling the plates *h* and *i* to be secured in any predetermined position with respect to each other throughout the length of the retaining-plates *e*. When one of the plates—*h*, for example—is located and secured in place by the tightening of the set-screw, the plate *i* opposite is adjusted accordingly and secured in like manner, so that when the binder is closed or in its normal position the free end of the prong of one plate will rest in the opening *m* of the other. The opposite plates are not only adjusted, as described, with respect to each other, but the several pairs of plates are adjusted lengthwise of the retaining-plates to conform to the varying distances from each other of the perforations in the leaves intended to be held in place by the prongs.

In order to secure the backing *d* in place, I insert a strip *o*, Figs. 2 and 3, of canvas or other suitable flexible material, between the retaining-plates *e* and the plates *a*, which strip is firmly held in place by means of the rivets *f*, the projecting portion of which strip is cemented or otherwise attached to the lid or cover *p*, thus forming a hinge therefor, as shown.

Rigidly attached by means of the rivets *f* to the respective ends of each of the plates

h i are end plates *q q r r*, Figs. 1 to 4, inclusive, portions of which are bent, as shown, at right angles to the plates *e*, the portions so bent being segmental in form and provided with intermeshing teeth *s*. The parts *q r* are connected with each other by means of a link *t*, pivotally connected by means of pins *u u* with the segmental plates *q r*, each of the pins *u* forming the center of a circle the arc of which is described by the segmental teeth *s*.

A pin *v*, having an enlarged head, as shown, is loosely inserted through a bore in the link *t*, the inner end of said pin being slightly enlarged, as shown in an exaggerated form at *w*, Fig. 5, so that it cannot be withdrawn from the bore in which it is placed, but yet is so countersunk that when drawn out, as shown in said figure, its inner end will be flush with the face of the link, thereby allowing the serrated faces of the plates *q r* to roll freely upon each other; but when the parts are in the position shown in Fig. 1, the pushing in of the pin, so to engage the teeth *s*, serves to lock the segmental ends in place. Upon withdrawing the pin and grasping the opposite sides of the binder with both hands it may be opened sufficiently to enable the leaves to be inserted between the opposite prongs or removed therefrom at will.

An important advantage of my improved device is that it enables the leaf-retaining prongs to be adjusted to sheets of varying size and having variously-located perforations.

Having thus described my invention, I claim—

1. A device of the class described, in which is combined a suitable cover, oppositely-disposed, parallel retaining-plates secured therein, prong-supporting plates supported within guides in said retaining-plates, and means for adjustably securing said prong-supporting plates in position.

2. The combination with the frame of a loose-leaf binder, of prongs for retaining the leaves in position, adjustable plates to which said prongs are secured, and guides arranged longitudinally of the frame and parallel with the back thereof, whereby the prongs may be adjusted to conform to variously-positioned perforations in the leaves to be retained thereby.

3. The combination with the frame of a loose-leaf binder, of adjustable prong-supporting plates located in guides, said plates being disposed in pairs, the respective members of each pair being disposed upon opposite sides with respect to each other, and set-screws for securing said plates in predetermined positions.

4. The combination with the frame of a loose-leaf binder, of segmental end pieces, having intermeshing teeth and a link connection having its ends pivoted to said end pieces at points concentric respectively with the arcs described by said segments.

5. The combination with the frame of a loose-leaf binder, of segmental end pieces having intermeshing teeth, a link connection having its ends pivoted to said end pieces at points concentric respectively with the arcs described by said segments, and means upon said link for engaging said teeth to lock said binder in a closed position.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 20th day of March, 1902.

LARS G. SCHULT.

Witnesses:
D. H. FLETCHER,
NELLIE O. MILLER.