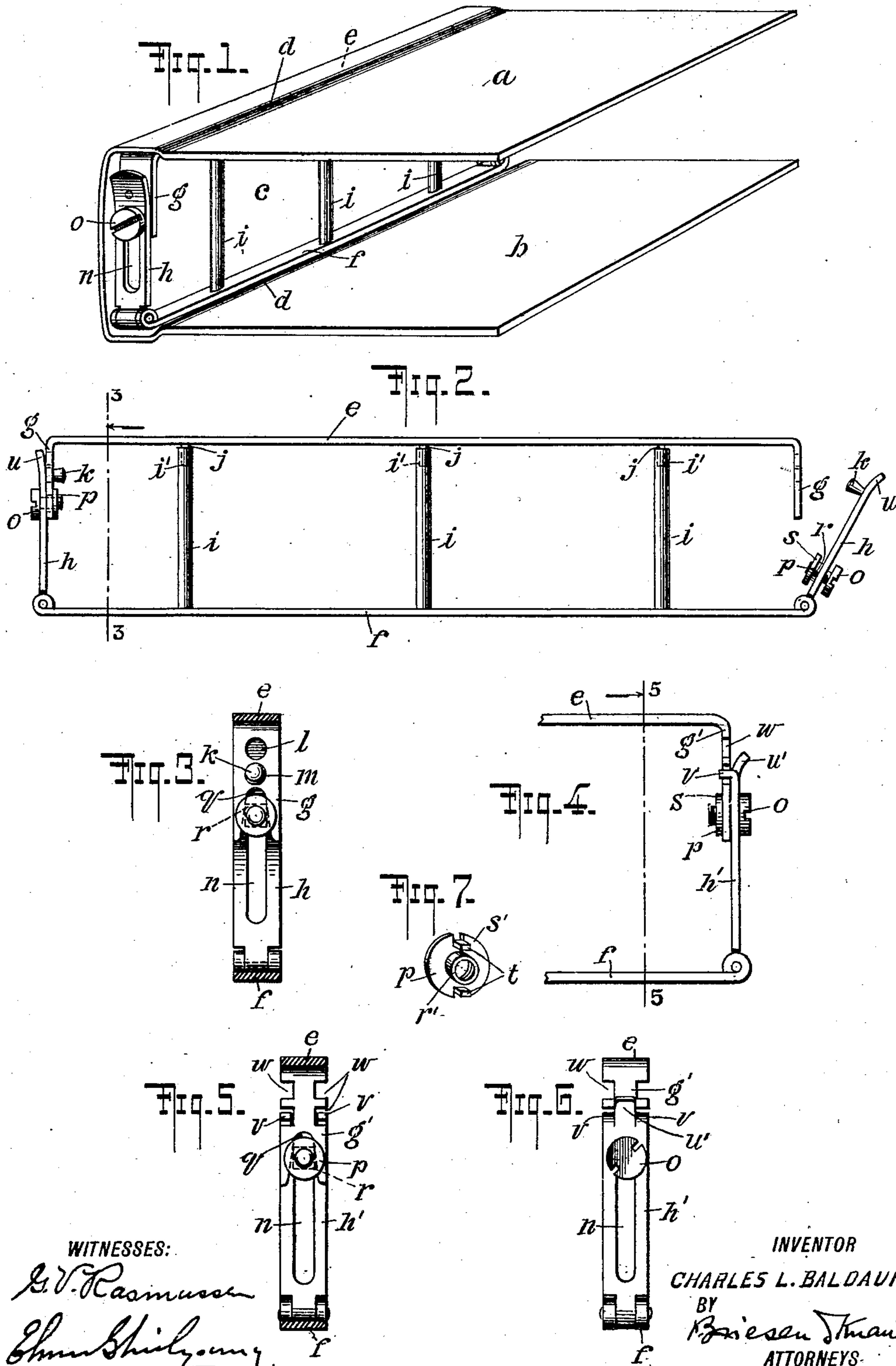


C. L. BALDAUF.
LOOSE LEAF BINDER.
APPLICATION FILED MAY 26, 1908.

914,781.

Patented Mar. 9, 1909.



UNITED STATES PATENT OFFICE.

CHARLES L. BALDAUF, OF WEST HOBOKEN, NEW JERSEY, ASSIGNOR TO THOMAS NELSON & SONS, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LOOSE-LEAF BINDER.

No. 914,781.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed May 26, 1908. Serial No. 435,172.

To all whom it may concern:

Be it known that I, CHARLES LOUIS BALDAUF, a citizen of the United States, residing in the town of West Hoboken, county of Hudson, State of New Jersey, have invented a certain new, useful, and Improved Form of Loose-Leaf Binder, of which the following is a clear, full, and exact description.

While my invention may be used for any of the purposes to which binders of this general class are commonly applied as, *e. g.*, the holding together of ledger, record, and catalogue pages, I have designed it more especially for application to a certain class of alphabetically arranged publications such as encyclopedias, dictionaries, statistical tables, etc., in which such revisions or new matters as may appear from time to time take the form of special pages to be added to or substituted for the old pages covering the particular subject under consideration, which pages may be, of course, in any particular part of the book. To be able to make such additions and substitutions quickly and easily and yet have the aggregate of loose leaves retain the firmness, integrity, ease of handling, and appearance of a bound volume of the usual type is the principal object of my invention.

Referring to the drawings, Figure 1 is a perspective view showing a preferred form of my binder as it would appear when locked upon pages but with the pages omitted for the sake of clearness. Fig. 2 is a side elevation of the metal structure (bars and locking devices) of Fig. 1 with the locking device at one end represented as closed and, at the other end, as open. Fig. 3 is an enlarged section, looking from the right, taken on the line 3—3 of Fig. 2. Fig. 4 is a side elevation, on the same scale as Fig. 3, of one end only of the metal structure of my improved binder but using a slightly different form of locking device from that shown in Figs. 1 and 2, Fig. 5 is a section, looking from the left, taken on the line 5—5 of Fig. 4, Fig. 6 is an end elevation, looking from the right, of the construction shown in Fig. 4, and Fig. 7 is a perspective view of an alternative form of nut to be used with the clamping screw of the locking device.

a, b, are two stiff sides of covers, preferably integral with a back, *c*, and joined thereto by flexible portions, *d*, which serve as hinges.

Attached to the covers by any suitable means and just within the back are two flat bars *e, f*, the upper bar, *e*, having its two ends bent downward through a right angle to form portions, *g*, and the lower bar, *f*, slightly longer than *e*, having two hinged portions *h*. Projecting upward from *f*, and rigidly attached thereto is a plurality of pins, *i*, of length not greater than the aggregate thickness of the least number of pages to be bound; these pins have sockets, *i'*, drilled into their free ends to receive smaller pins, *j*, fixed to and projecting downward from the upper bar, *e*; or, pins *i* may preferably be made from tubing of suitable diameter and bore. The bent ends, *g*, and hinged pieces, *h*, constitute the locking device.

In use, both hinged pieces are thrown down and the covers, *a, b*, separated so as to lift the pins *j* from the sockets *i'*; the total of pages to be bound is then slipped over the pins, *i*, holes having been provided in the pages to receive them. The covers are then brought together again and the pins *j*, inserted in the sockets *i'*, after which the hinged pieces are thrown up and the pins *k* pressed into the upper holes *l* or the lower holes *m* (according to the thickness of the combined pages) which have been provided for the purpose in the bent pieces *g*.

To retain the pin *k* in its socket hole, *l*, or *m*, I provide each hinged piece *h*, with a closed slot, *n*, in which slides a suitably headed screw, *o*, provided with a nut *p*. In the ends, *g*, of the upper bar, *e*, I cut a converging slot, *q*. By then slacking nut *p* and raising screw *o* until its stem is within the limits of the beveled slot, *q*, and again tightening *o* in its nut I may then clamp the elements, *g*, and *h*, of the locking device firmly together and the book thus constituted may be treated, as a whole, just as may any well bound book without risk of looseness or loss of pages.

To prevent the nut *p* from turning with the screw *o* when the latter is tightened I provide it with a square hub, *r*, adapted to enter the converging slot *q*, but not to turn therein, and having an axial thickness not greater than that of the piece *g*. Or, I may form the nut, as shown in Fig. 7, with a cylindrical hub, *r'*, having the same axial thickness as the square hub, *r*, and a thin portion, *s'* (of diameter too great to pass through the slots, *q* and *h*) in which are cut

pairs of radial slits so as to form tongues, *t*; these tongues are bent inward so as to project into the slot, *q*, and will be stopped thereby on the one side or the other as the
5 clamp screw is turned.

By making the pin *k* in the form of a cone with its apex at the hinged piece *h*, it not only slips into its socket hole with a click but also tends to remain in the same irre-
10 spective of the clamp screw.

To facilitate throwing down the hinge piece, *h*, when the clamp screw is released I bend its top outwardly as at *u*; it is then easily caught by the finger tip, or by a coin
15 or key which may also be employed to operate the screw *o*.

In Figs. 4, 5, and 6 the locking elements *g'*, *h'* vary somewhat in detail from those used in the preceding figures in that,
20 instead of causing a pin *k* to coöperate with holes *l* or *m*, two tongues, *v*, formed upon the top of the hinge element *h'*, are caused to engage slots, *w*, placed in pairs one above the other and on opposite sides of the element
25 *g*. The tongues *v* are readily formed by slitting the ends of the hinge elements for a short distance in planes parallel to the edge of the element thus forming three tongues, the center one of which may be bent out
30 into a tongue *u'*, equivalent to *u* of Figs. 1 and 2 while the outside tongues, bent inwardly, constitute the tongues *v*.

While I have shown two forms of my invention, I do not intend to limit myself to the
35 said forms, but may vary the size, shape or arrangement of the elements of my structure, and intend, by my claims, to cover any equivalent structures.

Having thus described my invention, I
40 therefore claim:

1. The combination, with side sections adapted to removably clamp between them a variable number of loose sheets, of a locking device located at the end of said sections comprising a bent element attached to one section, a hinged element attached to the other section, mutually engaging male and female portions on the one and the other of the two elements, and a binding screw and nut
50 adapted to retain the elements in their thus engaged positions.

2. In combination in a loose leaf binder comprising two bars provided with leaf engaging means, one of the bars being further
55 provided with an extension having a slot opened from its extremity and the other with a hinged extension provided with a closed slot said hinged extension being longer than the other extension and its slot being longer

than the slot in the other extension; sockets
60 formed in the shorter extension; a socket engaging male piece fixed to the hinged extension; and a binding screw and nut adapted to slide in the closed slot so as to embrace at will and clamp together both extensions;
65 said extensions both lying outside the leaves and the hinged extension being movable in the plane of the two bars so as to fold upon the outside of the shorter extension.

3. In combination in a loose leaf binder, a
70 bar provided with leaf engaging pins of a length approximately equal to the combined thickness of the leaves to be bound, and a bar provided with means for engaging the free ends of said pins, one of said bars being further provided with an extension having a slot opened from its extremity and the other with a hinged extension provided with a closed slot said hinged extension being longer than the other extension and its slot
80 being longer than the slot in the other extension; sockets formed in the shorter extension; a socket engaging male piece fixed to the hinged extension; and a binding screw and nut adapted to slide in the closed slot so as to
85 embrace at will and clamp together both extensions; said extensions both lying outside the leaves and the hinged extension being movable in the plane of the two bars so as to fold upon the outside of the shorter extension.
90

4. In a loose leaf binder having side sections adapted to removably clamp between them a variable number of loose sheets and having mutually engaging extensions located at the end of said sections said extensions
95 being provided with an open and a closed slot respectively, a clamp screw adapted to fit in such slots and provided with a nut having reëntrant portions adapted to engage one of said slots whereby said clamp screw may
100 be advanced or withdrawn with reference to said nut.

5. In a loose leaf binder provided with slotted and mutually engaging elements adapted to hold the binder device in closed
105 relation, a clamp screw adapted to operate in said slots and provided with a nut having reëntrant portions adapted to engage one of said slots whereby said screw may be advanced or withdrawn with reference to said
110 nut.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses, this 25th day of May 1908.

CHARLES L. BALDAUF.

Witnesses:

JOHN A. KEHLENBECK,
JOHN LOTKA.