J. C. DAWSON & T. E. HEETER.

LOOSE LEAF BINDER.

APPLICATION FILED OCT. 24, 1910.

986,910. Patented Mar. 14, 1911.

Fig. 1.

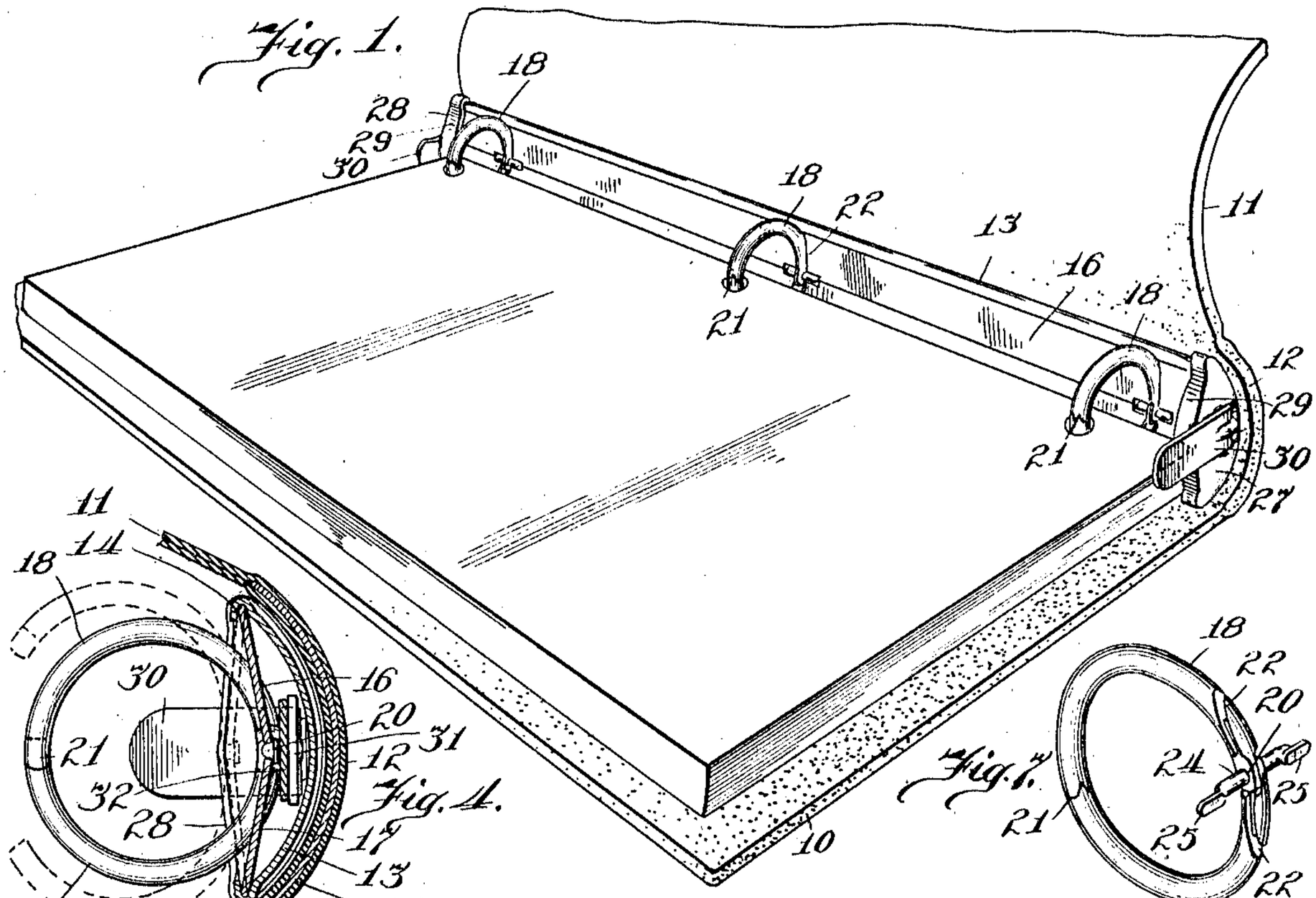

Fig. 4.

Fig. 7.

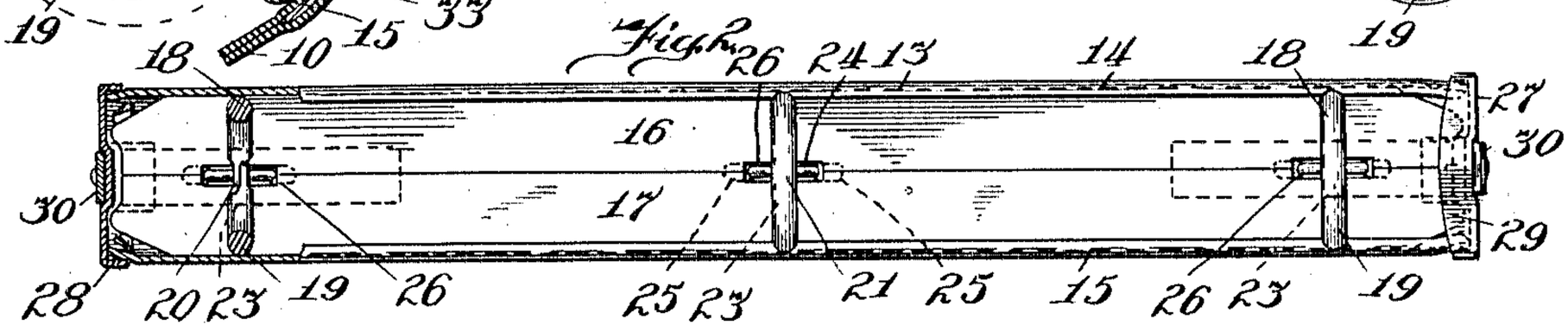

Fig. 2.

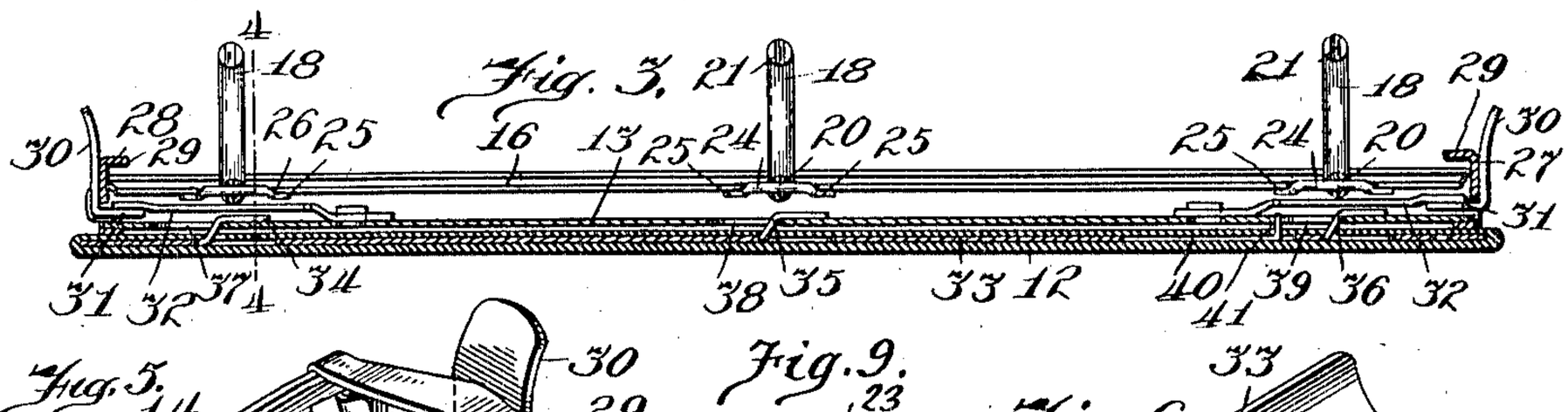

Fig. 3.

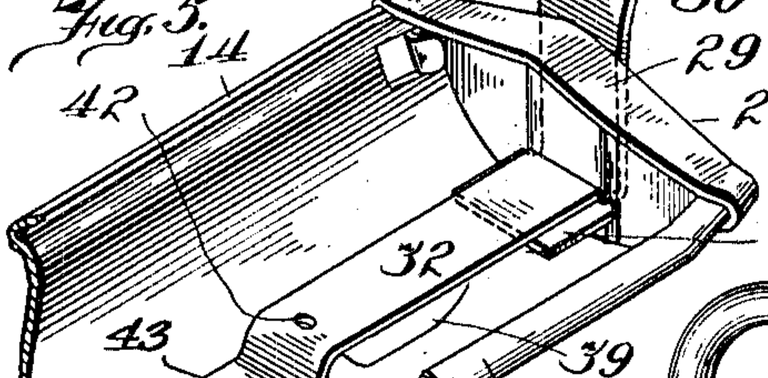

Fig. 5.

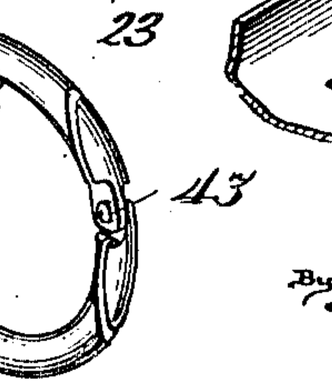

Fig. 9.

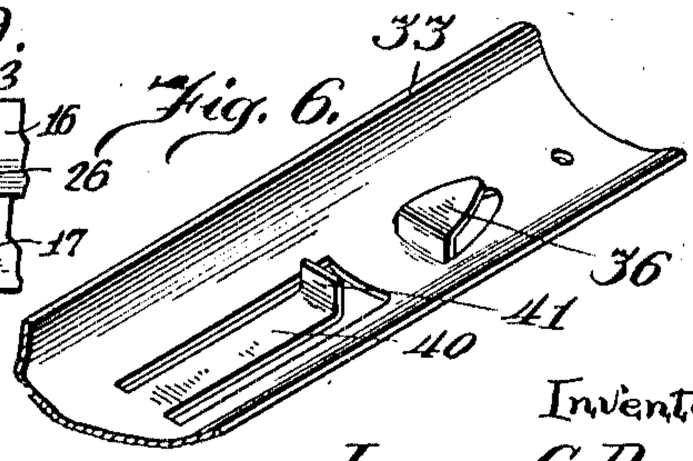

Fig. 6.

Fig. 8.

Witnesses
Milton Lenoir
E. M. Klatcher

Inventors
James C. Dawson
and
Thomas E. Heeter.
By Gillson & Gillson
Attorneys.

UNITED STATES PATENT OFFICE.

JAMES C. DAWSON, OF WEBSTER GROVES, AND THOMAS E. HEETER, OF ST. LOUIS, MISSOURI, ASSIGNORS TO SIEBER & TRUSSELL MANUFACTURING COMPANY, A CORPORATION OF MISSOURI.

LOOSE-LEAF BINDER.

986,910. Specification of Letters Patent. **Patented Mar. 14, 1911.**

Application filed October 24, 1910. Serial No. 588,909.

To all whom it may concern:

Be it known that we, JAMES C. DAWSON and THOMAS E. HEETER, citizens of the United States, and residents, respectively, of Webster Groves, county of St. Louis, State of Missouri, and of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to that type of binders in which the sheet-holding prongs are substantially semi-circular in form and are so mounted upon the back of the cover that they may be held in either the open or closed position by the action of a spring acting upon a pair of plates to which the prongs are directly affixed.

The object of the invention is to generally improve upon binders of this type; to provide a more secure and stable construction; improved means for opening the prongs, and improved means for securing the binder mechanism to the back of the cover.

The invention consists in a structure such as is hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a detail perspective of the binder, one of the covers being thrown back. Fig. 2 is a plan view of the binder mechanism removed from the cover and being shown partly in section; Fig. 3 is a longitudinal central sectional view of the binder mechanism as applied to the back of the cover; Fig. 4 is a sectional detail on the line 4—4 of Fig. 3; Fig. 5 is a detail in perspective of the binder mechanism, some of the parts being removed; Fig. 6 is a detail in perspective of the plate for securing the binder mechanism to the cover; Fig. 7 is a detail in perspective of a pair of impaling prongs; Fig. 8 shows a detail of the impaling prongs, embodying a modified form of construction; and Fig. 9 is a detail of the prong-carrying plates with the prongs removed.

The binder is especially adapted for small books of the kind commonly known in the art as price books. The book comprises a pair of cover plates 10, 11, which may be of any suitable material, such as leather, cloth, or board, being here shown as limp, the two cover plates being united by a flexible back 12.

The binder mechanism comprises a spring plate 13 transversely bowed and having its side edges inturned, as shown at 14, 15, to form channels for receiving the outer edges of a pair of prong-carrying plates 16, 17, the inner edges of which are adjacent and substantially in contact. The combined width of the plates 16, 17, is greater than the normal distance between the channels, at the margins of the plate 13 within which they rest.

Impaling prongs arranged in pairs, as many pairs being employed as desired, are carried by the plates 16, 17. These prongs 18, 19, are semi-circular in form, and the members of each pair are pivoted together, as shown at 20, their free ends being notched so as to mate together, as shown at 21. Each prong is notched in its outer face, and near its heel, as shown at 22, to receive the edge of the carrying plate upon which it is mounted, this notch extending across the outer face of the prong and along its side faces toward its heel. The plates 16, 17, are notched at their inner edges, as shown at 23, the width of the notch being such that its lateral margins enter the side portions of the notch 22 in the prong, the transverse margin of this notch receiving the inner margin of the notch 23. The joint thus formed between the prong and the plate makes a close fit, the prong being held rigidly upon the plate, the engagement of the lateral margins of the notch 23 with the lateral extensions of the notch 22 materially contributing to the stability with which the prong is held in place. The pivot pin 24 uniting the prongs of each pair preferably extends some distance beyond the prong members in each direction, its outer ends being bent downwardly and flattened somewhat, as shown at 25. The plates 16, 17, are recessed, as shown at 26, to provide clearance for the straight portions of the pivot pin 24, the flattened ends of the latter lying below the inner surfaces of the plates.

The prongs 18, 19, are swung on their pivots by the rocking of the plates 16, 17, within the marginal channels of the spring plate 13. When the prongs are closed the inner edges of the carrying plates incline inwardly toward the bowed spring plate,

shown in solid lines in Fig. 4. When the prongs are open the carrying plates incline outwardly, as shown in dotted lines in the same figure. The flattened ends 25 of the pivots 24 limit the outward movement of the plates 16 and 17.

Caps 27, 28, are fitted upon the ends of the spring plate 13, and secured thereto by any suitable means, such as lugs upon one of the members passing through apertures in the other, each cap having an instanding flange 29 which projects slightly over the ends of the carrying plates 16, 17, and may serve as means for limiting their upward movement. An L-shaped lifting lever 30 is associated with each of the cap plates 27, 28, one of its arms 31 projecting through an aperture therein, its other arm normally extending upwardly against the face of the cap. A leaf spring 32 is rigidly secured at one end to the spring plate 13, its free end bearing against the upper face of the instanding arm 31 of the lever, thereby holding the outer arm of the lever upright, as plainly shown in the drawing. This leaf spring may be secured to the member 13 in any suitable manner; as shown, this is accomplished by striking up from such member a lip 43 which enters a slot in the spring, and is then folded or clenched down. Pressure upon the arm 31 of the lever to throw it backwardly or outwardly forces the spring 32 upwardly against the plates 16 and 17, and raises their inner edges for the purpose of separating the prongs. When the pressure upon the lever arm is relieved, the spring returns it to its normal position. The prongs or arches are closed by pressure upon the members of any pair thereof.

A base plate 33 is bound into the back 12 of the binder. This plate has a plurality of inwardly offset and longitudinally directed lugs 34, 35, 36, preferably formed by being punched up from the stock of the plate. The spring plate 13 is apertured to receive these lugs, as shown at 37, 38, 39. The binder mechanism is secured to this back plate by fitting it thereto in such manner that the lugs 34, 35, 36, enter the apertures 37, 38, 39, respectively, the spring plate then being moved longitudinally to the position shown in Fig. 3. A spring tongue 40 is struck up from the body of the plate 33, and has an upturned end 41, adapted to enter one of the apertures, as 39, in the plate 13 when the latter is moved to the position shown in Fig. 3, thereby locking it permanently in this position.

Should it be desired to remove the binding mechanism from the cover, the plates 16, 17, are first drawn out endwise from the plate 13, giving access to the locking mechanism just described. By forcing downwardly the spring tongue 40 the plate 13 may be moved longitudinally to disengage it from the securing lugs. As shown, and preferably, the spring tongue 40 is covered by one of the springs 31, and in order to provide access to it for the purpose of disengagement, the spring 32 may be provided with an aperture 42 through which a tool may be inserted.

In lieu of the elongated pivots 25 for uniting the mating prongs, a stud pivot 43 may be struck up from the stock of one of the prongs, an aperture being formed in the other to receive it. When this construction is followed the opening movement of the prongs is limited either by contact of the plates 16, 17, with the instanding flanges of the cups 27, 28, or the joints of the prongs may be shouldered, the shoulders of the two prongs meeting when the prongs are opened to the desired extent.

We claim as our invention—

1. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried, respectively, by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a spring urging the plates toward each other, and means for limiting the inclination of the plates to separate the meeting ends of the prongs.

2. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried, respectively, by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a spring urging the plates toward each other, a pivot pin uniting the heels of coöperating prongs and being prolonged beyond the prongs and having an end inclined downwardly and engageable with the faces of the plates to limit their upward inclination.

3. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried respectively by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a spring urging the plates toward each other, a pivot pin uniting the heels of coöperating prongs and being prolonged beyond the prongs and having an end inclined downwardly and flattened and engageable with the faces of the plates to limit their upward inclination.

4. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried respectively by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a bowed spring bearing upon the outer edges of the plates, and means for limiting the inclination of the plates to separate the meeting ends of the prongs.

5. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried respectively by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a bowed spring plate having its edges bearing upon the outer edges of the first-named plates, an apertured cap fitted to the end of the spring plate, an L-shaped lever having one of its arms projecting through the aperture of the cap, a spring urging such lever arm toward the spring plate, and means for limiting the inclination of the plates to separate the meeting ends of the prongs.

6. In a loose leaf binder, in combination, a pair of plates arranged edge to edge and notched in their adjacent edges, mating prongs carried respectively by the plates and secured thereto by means of notches adjacent their heel portions, such notches crossing the outer faces of the prongs and extending laterally toward their heels and tightly receiving the marginal edges of the plate notches, a bowed spring plate having its edges bearing upon the outer edges of the first-named plates, an apertured cap fitted to the end of the spring plate, an L-shaped lever having one of its arms projecting through the aperture of the cap, a spring urging such lever arm toward the spring plate, a leaf spring attached to the bowed spring and bearing upon the lever arm, and means for limiting the inclination of the plates to separate the meeting ends of the prongs.

7. In a loose leaf binder, in combination, a base plate having upstanding longitudinally-projecting lugs, a bowed spring plate apertured to engage the lugs, a detent for holding the two plates in engagement, and leaf-carrying means supported by the spring plate.

8. In a loose leaf binder, in combination, a base plate having upstanding longitudinally projecting lugs, a bowed spring plate apertured to engage the lugs, a detent for holding the two plates in engagement, a pair of plates arranged edge to edge and having their outer edges engaged by the marginal portions of the spring plate, and mating prongs carried by the pair of plates.

9. In a loose leaf binder, in combination, a base plate having upstanding longitudinally projecting lugs, a bowed spring plate apertured to engage the lugs, a detent for holding the two plates in engagement, a pair of plates arranged edge to edge and having their outer edges engaged by the marginal portions of the spring plate, mating prongs carried by the pair of plates, a lever mounted on the spring plate and acting upon the inner faces of the pair of plates.

10. In a loose leaf binder, in combination, a base plate having upstanding longitudinally projecting lugs, a bowed spring plate apertured to engage the lugs, a detent for holding the two plates in engagement, a pair of plates arranged edge to edge and having their outer edges engaged by the marginal portions of the spring plate, mating prongs carried by the pair of plates, a lever mounted on the spring plate and acting upon the inner faces of the pair of plates, and a leaf spring secured to the bowed plate and projecting between the lever and the pair of plates.

11. In a loose leaf binder, in combination, a base plate having upstanding and longitudinally projecting lugs and an upstanding spring tongue, a bowed spring plate apertured to receive the lugs and spring tongue, a pair of plates arranged edge to edge and having their outer edges engaged by the marginal portions of the spring plate, mating prongs carried by the pair of plates, a lever carried by the bowed plate for urging the pair of plates upwardly, and a leaf spring secured to the bowed spring plate and bearing upon the lever to retract it, such leaf spring covering the spring tongue.

JAMES C. DAWSON.
THOMAS E. HEETER.

Witnesses:
F. W. RISQUE,
FRED COFFMAN.