

J. C. DAWSON.
LOOSE LEAF BINDER.
APPLICATION FILED APR. 17, 1908.

906,512.

Patented Dec. 15, 1908.

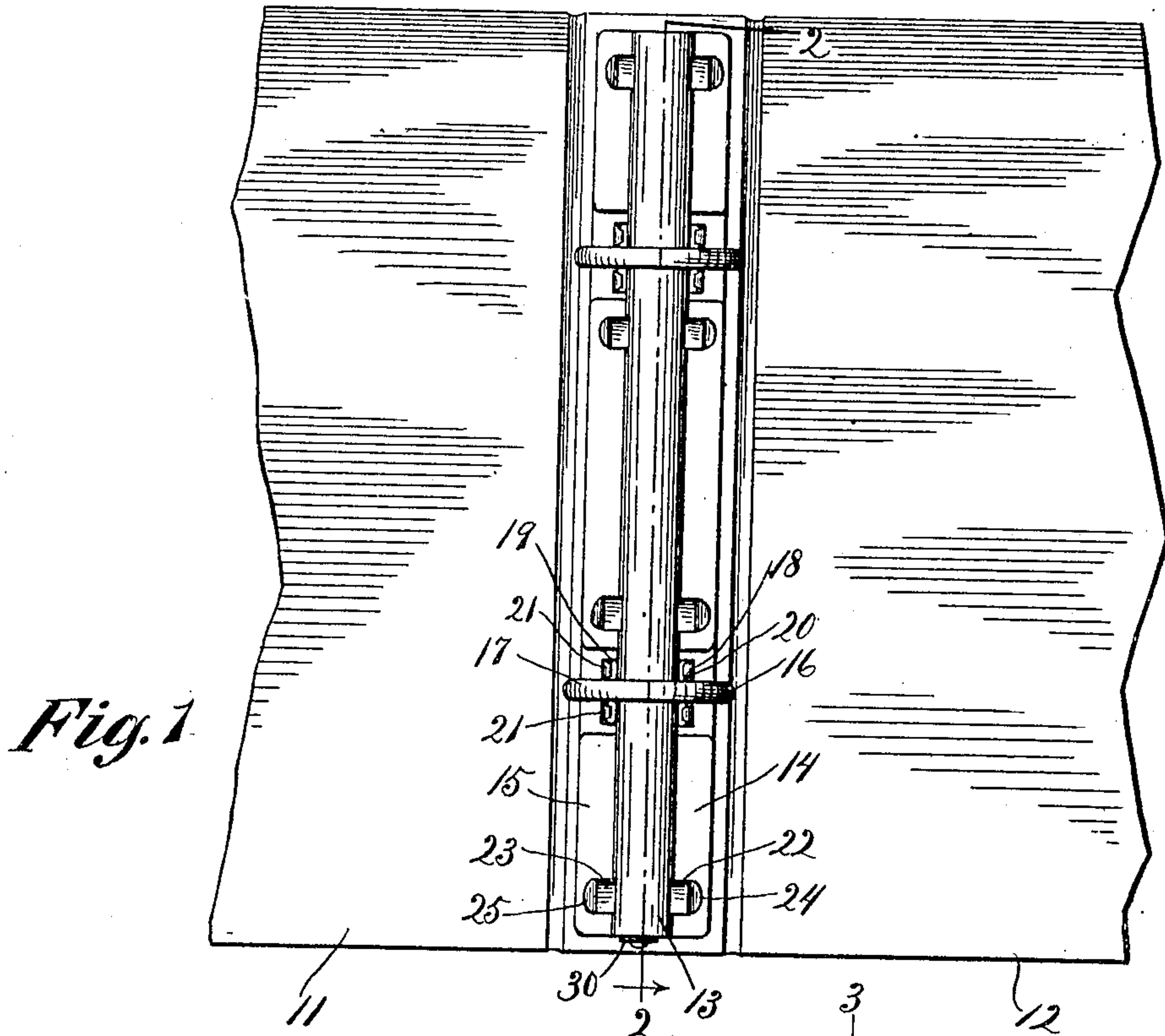


Fig. 1

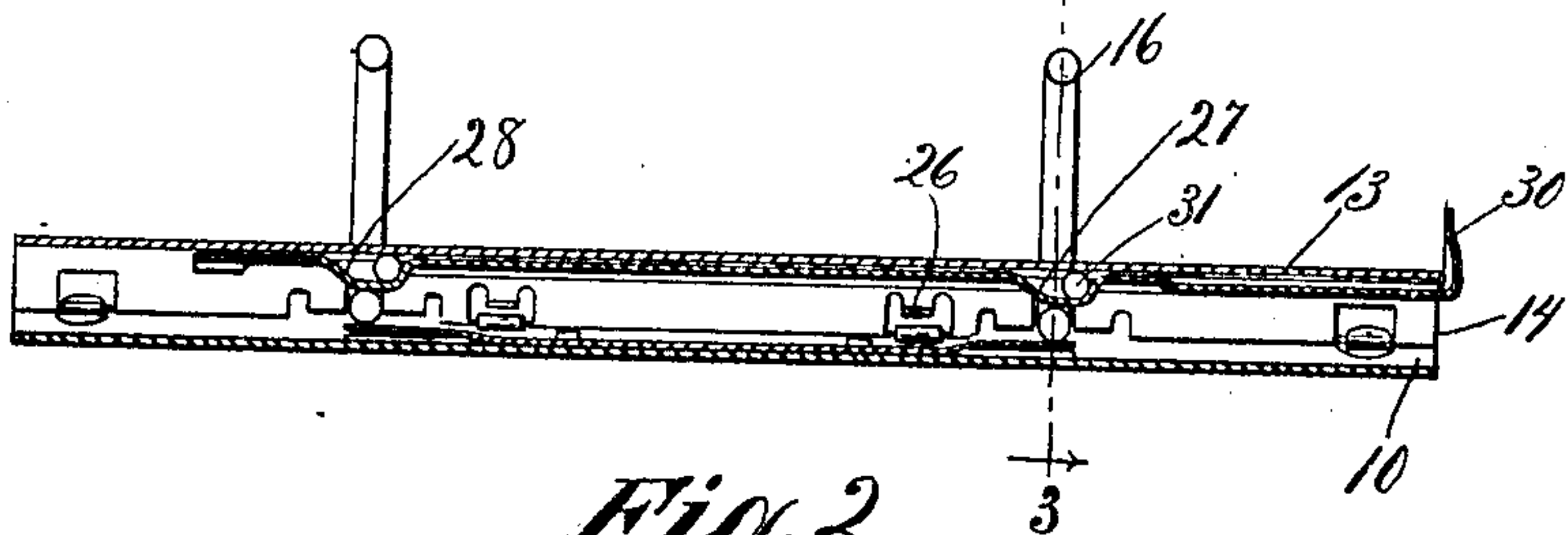


Fig. 2.

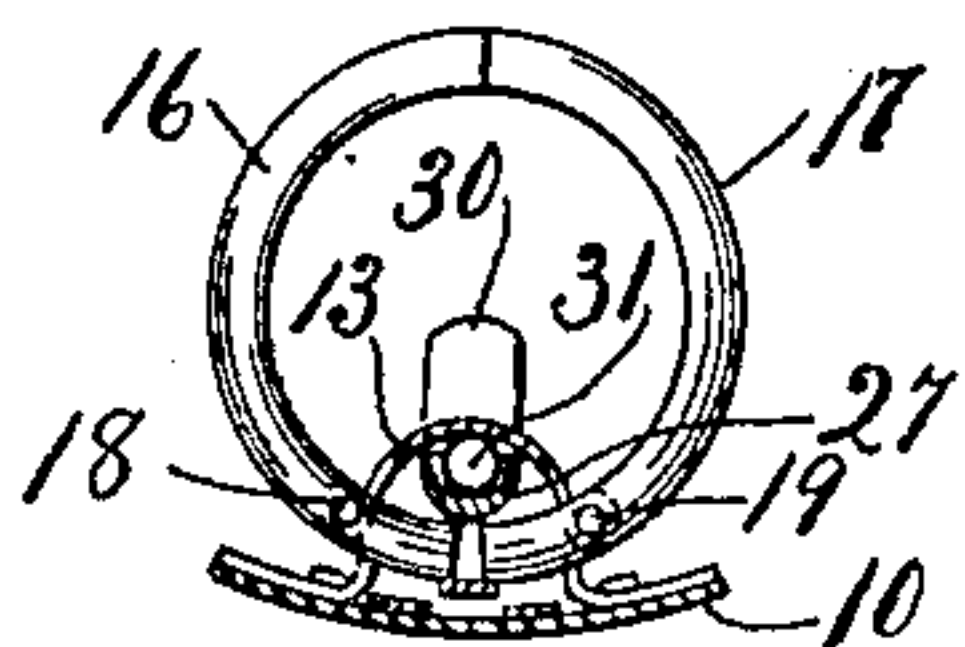


Fig. 3.



Fig. 4.

Witnesses:
W. H. Cotton
P. P. Cook.

Inventor
James C. Dawson
By Louise L. Gibson
Atty

UNITED STATES PATENT OFFICE.

JAMES C. DAWSON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SIEBER & TRUSSELL MFG. CO., A CORPORATION OF MISSOURI.

LOOSE-LEAF BINDER.

No. 906,512.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed April 17, 1908. Serial No. 427,579.

To all whom it may concern:

Be it known that I, JAMES C. DAWSON, a citizen of the United States, and resident of St. Louis, 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 class of loose leaf binders in which there is employed pivoted impaling prongs for holding perforated sheets, the prongs usually being arranged in mating pairs; its object is to provide means for operating the prongs by a cam action and securely locking them in the closed position, yet permitting the easy manipulation of the cam for the purpose of releasing them. Heretofore in binders of this type great difficulty has been found in providing for a positive and secure locking of the prongs in the closed position coupled with an easy release. For some reason the releasing movement becomes more difficult the longer the prongs remain in the closed position, when a sliding cam is depended upon.

For the purpose of overcoming these difficulties it is now proposed to apply a rolling member upon which the cam takes a bearing and to this end the invention consists of the structure hereinafter described and which is illustrated, in one form of its exemplification in the accompanying drawings, in which

Figure 1 is a detail plan view of a loose leaf binder with its cover boards thrown open, Fig. 2 is a sectional view on the line 2—2 of Fig. 1, Fig. 3 is a sectional view on the line 3—3 of Fig. 2; and Fig. 4 is a detail of the cam bar or plate provided with the rolling bearing in the form of balls.

The binding mechanism is carried by a metallic plate 10, secured in any desired manner to a suitable cover, of which there are shown the side boards or plates 11, 12. Mounted longitudinally upon the base plate 10 there is a plate 13, bowed upwardly in transverse section, its margins being curved outwardly to form feet 14, 15, which conform to and rest upon the plate 10. The plate 13 is recessed to accommodate the filing prongs 16, 17, of which two pairs are shown in the drawings, each of these prongs being provided with a pivot pin 18, 19 adjacent its inner end, journaled within upturned lugs 20, 21, preferably integral with the plate 13.

The plate 13 is also provided with recesses 22, 23, as many as may be found desirable, through which project lips 24, 25, struck up from the base plate 10 and overturned upon the feet 14, 15 to bind the two plates together. In forming the apertures 24, 25 lips as 26 are provided and are turned inwardly and serve to secure against accidental displacement the cam plate or bar 27 which lies under the crown of the plate 13 and above the inner ends of the prongs 16, 17. Cams 28, 29 are formed in the bar 17 by indenting it from above, there being one of such cams for each pair of prongs, so disposed as to engage the heel portions or inner ends thereof. One end of the bar 27 projects beyond the plate 13 and is upturned as shown at 30 to form a grip by which the bar may be moved longitudinally. Within the depression or recess provided by the formation of the cams there is housed a rolling member, preferably in the form of a ball 31, which bears against the under face of the plate 13, the parts being so proportioned that when the bar 17 is pushed inwardly to bring the cams into engagement with the prongs the latter will be forced into closed position and the ball will press against the plate 13. The recess within which the ball is housed and consequently the body of the cam is prolonged somewhat beyond the length necessary to close the prongs thereby providing a face extending from the cam surface proper parallel with the faces of the plates for securely locking the prongs in the closed position. By this construction a sliding or frictional engagement of the cam bar with the plate 13 is avoided as in the initial opening movement of the bar it bears upon the balls. The relation between the size of the ball and length of the recesses within which it is housed is such that the prongs are released by the cam before the ball reaches the inclined end of the recesses, and any tendency of the ball to bind against the plate due to upward movement in running up this incline may be further obviated by a loose engagement of the lips 26 with the bar, thus allowing it to drop away slightly from the plate 13 as the cam becomes disengaged from the prongs.

In closing the prongs the cam bar is forced inwardly bringing the cams into engagement with them and the ball into engagement with the plate 13.

However tightly the parts may fit together the initial opening movement is easily accomplished as the ball is always in position to provide a roller bearing for the cam bar and the binder may be opened with ease without regard to the length of time it may have remained closed.

No means are here shown for causing the prongs to spread when released by the cams. They may be loosely mounted as illustrated or provided with any suitable spreading device.

I claim as my invention:

1. In a loose leaf binder, in combination, a support, an oscillatable prong mounted thereon, a cam member for engaging the prong, and a rotatable bearing for the cam member.

2. In a loose leaf binder, in combination, a support, an oscillatable prong mounted on the support, a longitudinal bar having a cam for bearing upon the prong, and a rotatable bearing between the bar and the support.

3. In a loose leaf binder, in combination, a supporting plate, an oscillatable prong mounted upon the plate, a longitudinally movable bar interposed between the plate and a portion of the prong, and having a cam for engaging the prong, the engaging face of the cam being prolonged parallel with the direction of movement of the bar, and a rotatable bearing member housed within a recess in the bar and engaging the plate.

4. In a loose leaf binder, in combination, a supporting plate, an oscillatable prong

mounted upon the plate, a longitudinally movable member interposed between a portion of the prong and the plate and being intended to form a cam for engaging the prong, and an extension of the cam parallel with the movement of the bar, and a ball seated within a recess above the cam and bearing against the supporting plate.

5. In a loose leaf binder, in combination, a supporting plate, a pair of mating prongs pivotally mounted on the plate and having their inner ends projecting beneath the plate, a cam bar located between the inner ends of the prongs and the plate and having a cam for bearing against the prongs, and a recess in its upper face, and a rotatable bearing member seated in such recess and engaging the under face of the supporting plate.

6. In a loose leaf binder, in combination, a supporting plate, a pair of mating prongs pivotally attached to the plate and having their inner ends projecting beneath the same, a longitudinally movable cam bar located between the plate and the inner ends of the prongs and being indented from above to form a cam for engaging the prongs, the indentation being prolonged beyond the cam of uniform depth, and a ball seated within the indentation and bearing against the under face of the plate.

JAMES C. DAWSON.

Witnesses:

W. S. OLIVER,

HARRY R. WRIGHT.