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Patented Apr. 29, 1902.

F. K. KRAG.
LOCK FOR LOOSE LEAF BINDERS.

(Application filed July 2, 1901.)

(No Model.)

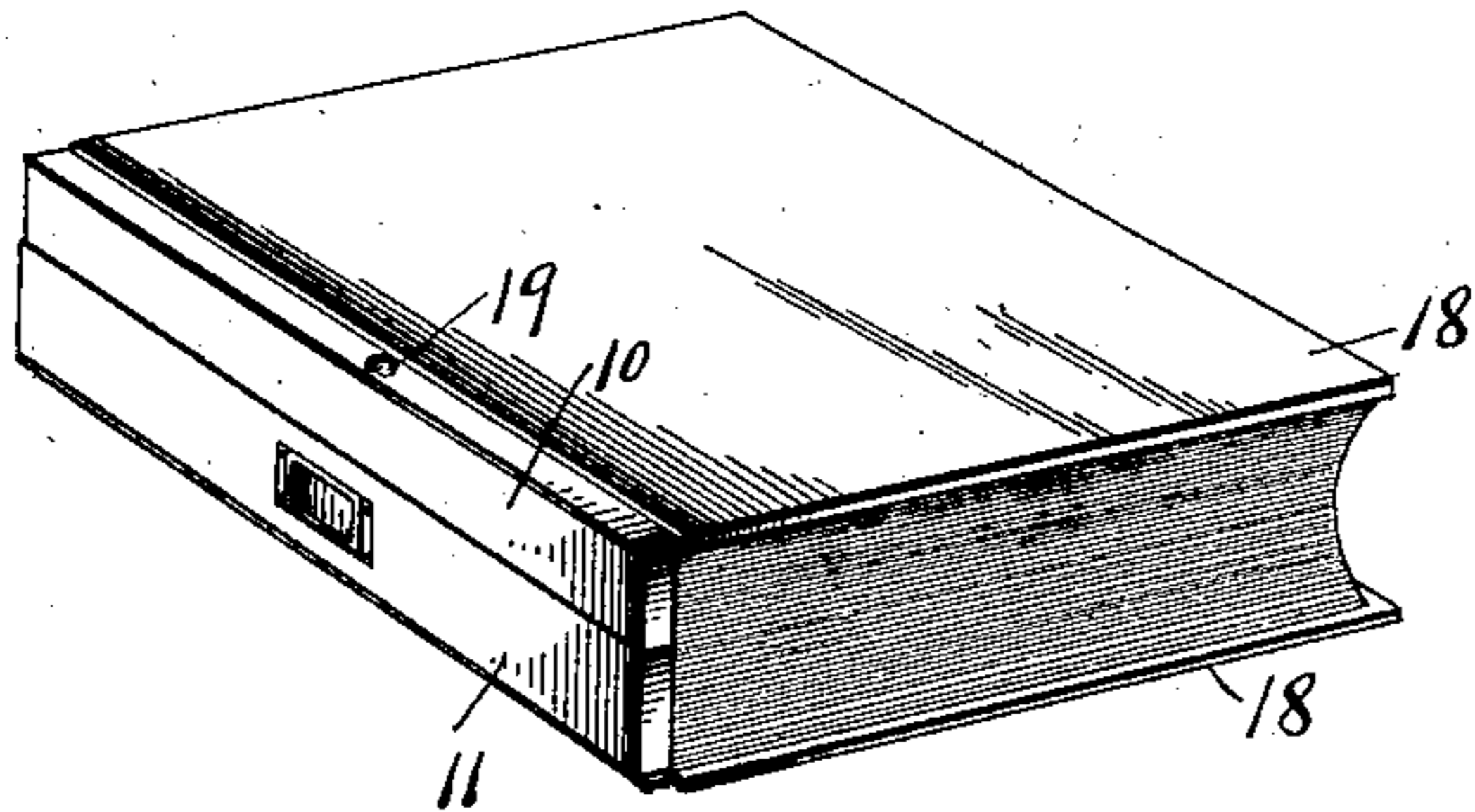


Fig. 1

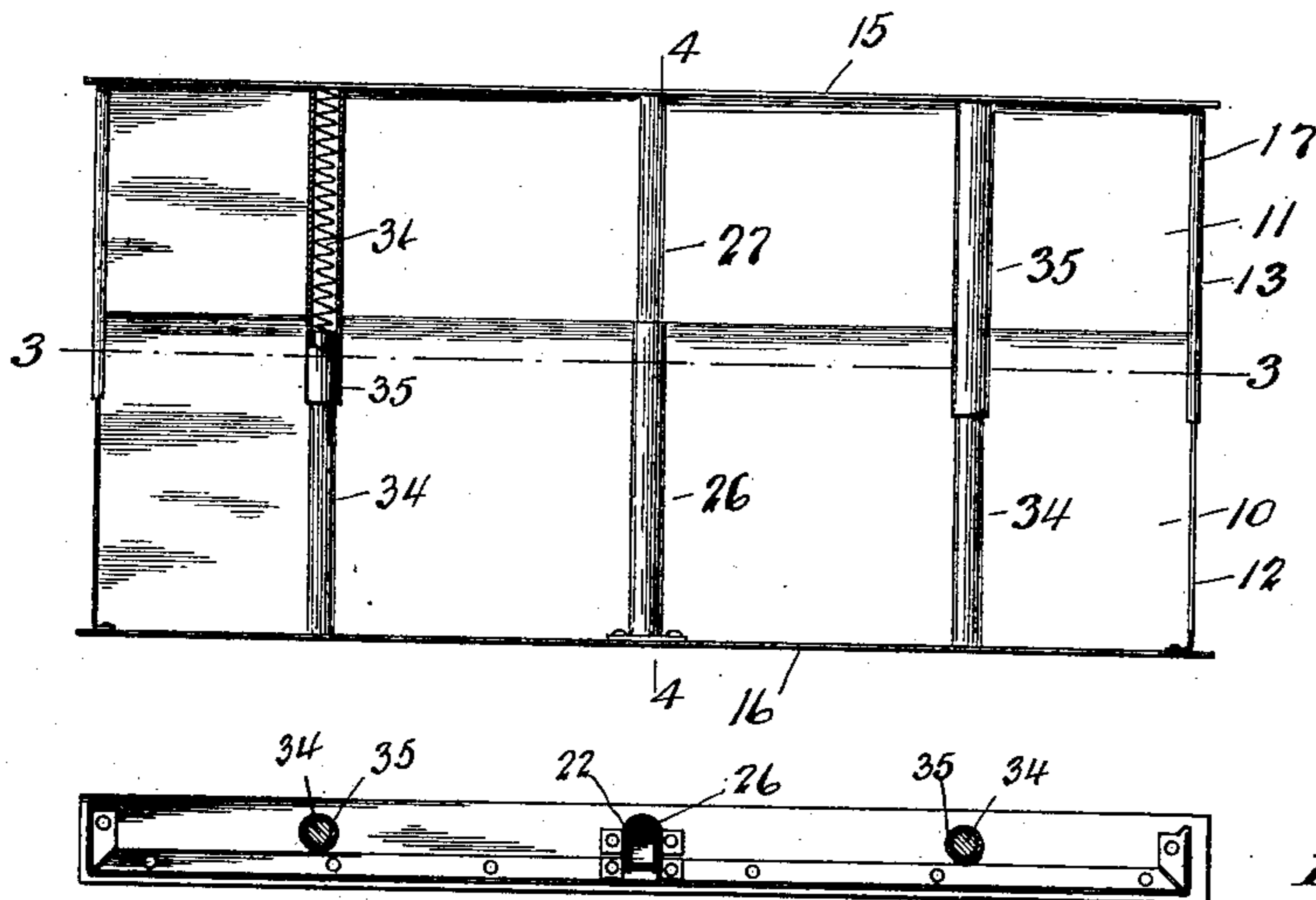


Fig. 2

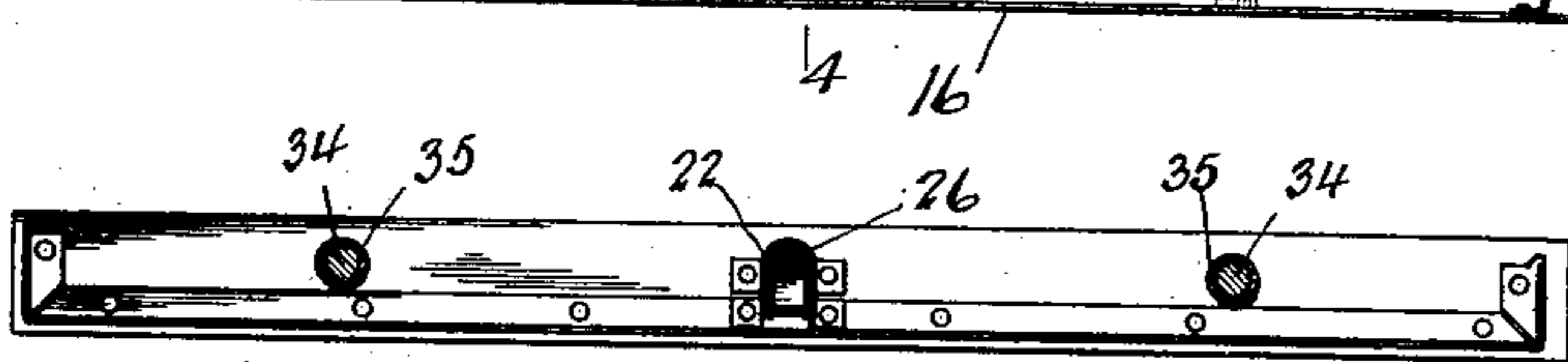


Fig. 3

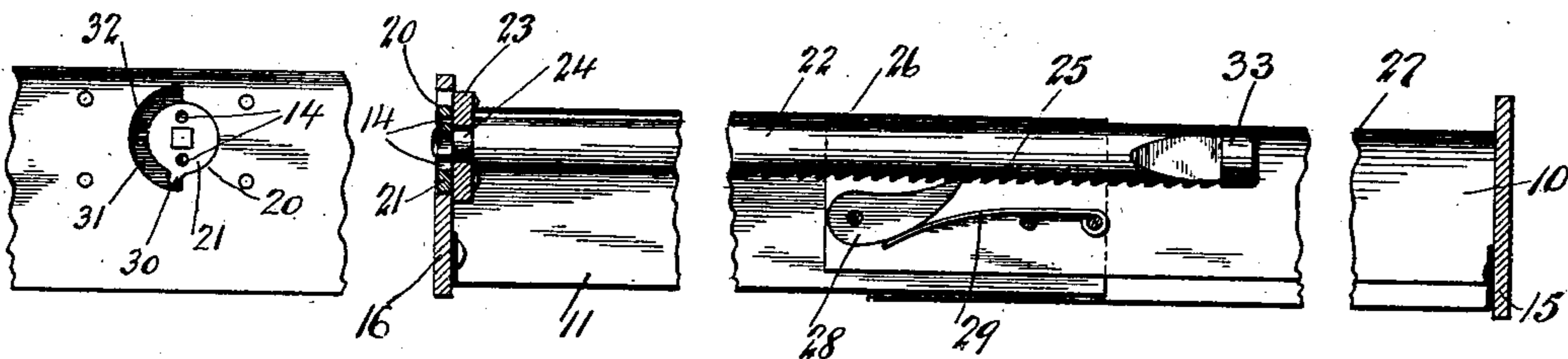


Fig. 5

Fig. 4

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LOCK FOR LOOSE-LEAF BINDERS.

SPECIFICATION forming part of Letters Patent No. 698,969, dated April 29, 1902

Application filed July 2, 1901. Serial No. 66,925. (No model.)

To all whom it may concern:

Be it known that I, FRANTZ K. KRAG, a citizen of the Kingdom of Denmark, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Locks for Loose-Leaf Binders, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

10 This invention relates to improvements in means for locking loose-leaf binders, and has for its object to provide a device of the kind which shall be simple in construction and capable of ready manipulation for the insertion
15 and removal at will of the leaves.

The invention consists of an extensible or adjustable binder comprising a pair of adjustable binding-plates, one of which carries a toothed rod which is engaged by a spring-pawl carried by the other plate, and the rod
20 and pawl are preferably located within a telescoping housing, so as to avoid interference thereof with the leaves held by the binder. A pair of telescoping leaf-retainers are secured to the binding-plates, and the rod is
25 mounted so as to be capable of partial rotation in order to disengage the teeth thereof from the pawl whenever it is desired to expand the binder for the insertion of new
30 leaves, means being provided for preventing the separation of the binding-plates during such operation.

The invention is illustrated in the accompanying drawings, in which—

35 Figure 1 is a perspective of the invention, illustrating the manner of holding the leaves. Fig. 2 is a view of the back members in elevation and on an enlarged scale, a portion of one of the telescoping leaf-retainers being
40 broken away in order to show the expansion-spring thereof. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 2, the toothed stem and spring-pawl being shown in elevation; and Fig. 5 re-
45 lates to a detail of the toothed rod.

Referring to the drawings, 10 11 designate a pair of overlapping back members provided with right-angle flanges at the ends 12 13
50 and sides 15 16, the latter providing binding-plates for the binder and the edges of the flanges 13 being turned over the flanges 12,

as at 17, for holding the two back members together.

Permanently secured to the binding plates or flanges 15 16 and having a flexible connection therewith are covers 18.

One of the side flanges, as 16, is provided with an aperture 20, in which is located the head 21 of a rod 22, the said rod being held in place by an apertured plate 23, secured to
60 the flange 16, and in which a contracted portion 24 of the rod fits and in which it turns. The rod 22 along one side is provided with teeth 25, extending longitudinally to the rod, and the said rod is housed within a curved
65 plate or hood 26, extending transversely of the back member and secured to the flange 16. Into the curved plate 26 telescopes a correspondingly-curved plate 27, which is fixed to the flange 15 of the member 10, and the latter
70 plate houses a pawl 28, engaging the teeth 25 of the rod 22 to prevent the separation or expansion of the binding-plates. A spring 29 holds the pawl 28 in engagement with the teeth of the rod.
75

In order to provide for the extension of the two back members when it is desired to insert new leaves, means are provided for disengaging the pawl 28 from the teeth of the rod 22, and to this end the head 21 may be
80 provided with a projection or finger 30, adapted to play when the rod is oscillated or given a partial rotation in a curved way 31, offset from the aperture 20, in which the head 21 of the rod 22 is located, and the finger is limited in its movement by a pin 32, fixed in
85 the plate 23, and the flange 16, forming the end of the way. The head 21 has indentations 14 for the reception of a spanner used to turn the rod 22, and the edge of the cover
90 adjacent thereto is provided with an opening 19, registering with the head 21 to permit of this operation. The rod 22 is provided at its end and adjacent to the teeth 25 with a projection 33, which is thrown into the path of
95 and for engagement with the pawl 28 when the rod is oscillated to release the pawl from the teeth of the rod, thereby preventing separation of the binding-plates 15 and 16.

The leaf-retainers comprise a pair of stems 100 34, secured to one of the side flanges, as 16, telescoping with tubular pieces 35, fastened

to the side flange of the other back member, the tubes carrying expansion-springs 36, which react against the ends of the stems 34 and tend to force the binder apart, as will be readily understood.

The leaves designed to be held by the binder are of the usual style, perforated at one edge for the reception of the leaf-retainers and in addition have a portion cut out at the edge for the reception of the curved housing-plates 26 and 27. The leaves are placed between the covers 18 and their perforated edges engaged with the retainers and the binding-plates then pressed together, the pawl 28 running over the teeth of the rod 22 and holding the said plates against separation. When it is desired to insert new leaves, the rod 22 is given a partial rotation, or until the finger 30 strikes the pin 32, by a spanner employed for the purpose. The springs 36 then force the binding-plates apart; but entire separation thereof is prevented by the pawl 28, which engages the projection 33 at the end of the rod 22, the parts being so related that when the rod is turned to the limit of its movement the projection is thrown into the path of the pawl. New leaves having been inserted, the rod 22 is turned back to its original position and the binding-plates pushed together, the pawl 28 again engaging the teeth of the rod and holding the same in the adjusted position.

The binder may be entirely separated by removing the pin 32, permitting the rod to be turned so that the pawl 28 will be out of the path both of the teeth of the rod and also of the projection 33.

I claim as my invention—

1. In a loose-leaf binder, in combination, a pair of binding-plates one of which is provided with an aperture having a way offset therefrom, leaf-retainers fixed to the binding-plates, an oscillating toothed rod carried by the apertured binding-plate and having its end projecting into the said aperture, a finger extending from the rod and playing in the said way, a housing-plate secured to the other binding-plate and which receives the toothed rod, a spring-pressed pawl pivoted within the housing-plate and engaging the toothed rod, and a projection at the end of the rod and which is moved into the path of the pawl when the rod is oscillated.

2. In a loose-leaf binder, in combination, a pair of binding-plates one of which is provided with an aperture having a curved way offset therefrom, telescoping leaf-retainers fixed to the binding-plates, a plate secured to the apertured binding-plate and having an opening coinciding with the said aperture, an oscillating toothed rod journaled in the opening of the plate and having its end projecting into the aperture of the binding-plate, a nut secured on the end of the rod, a finger on the nut playing in the said curved way, a pin in the path of the finger, a curved housing-plate secured to the other binding-plate for receiving the toothed rod, and a spring-pressed pawl pivoted within the housing-plate and engaging the teeth of the rod.

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Witnesses:

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