

No. 736,341.

PATENTED AUG. 18, 1903.

E. T. A. AKASS.
LOOSE LEAF LEDGER AND COMPRESSOR.

APPLICATION FILED DEC. 16, 1902.

NO MODEL.

Fig. 1.

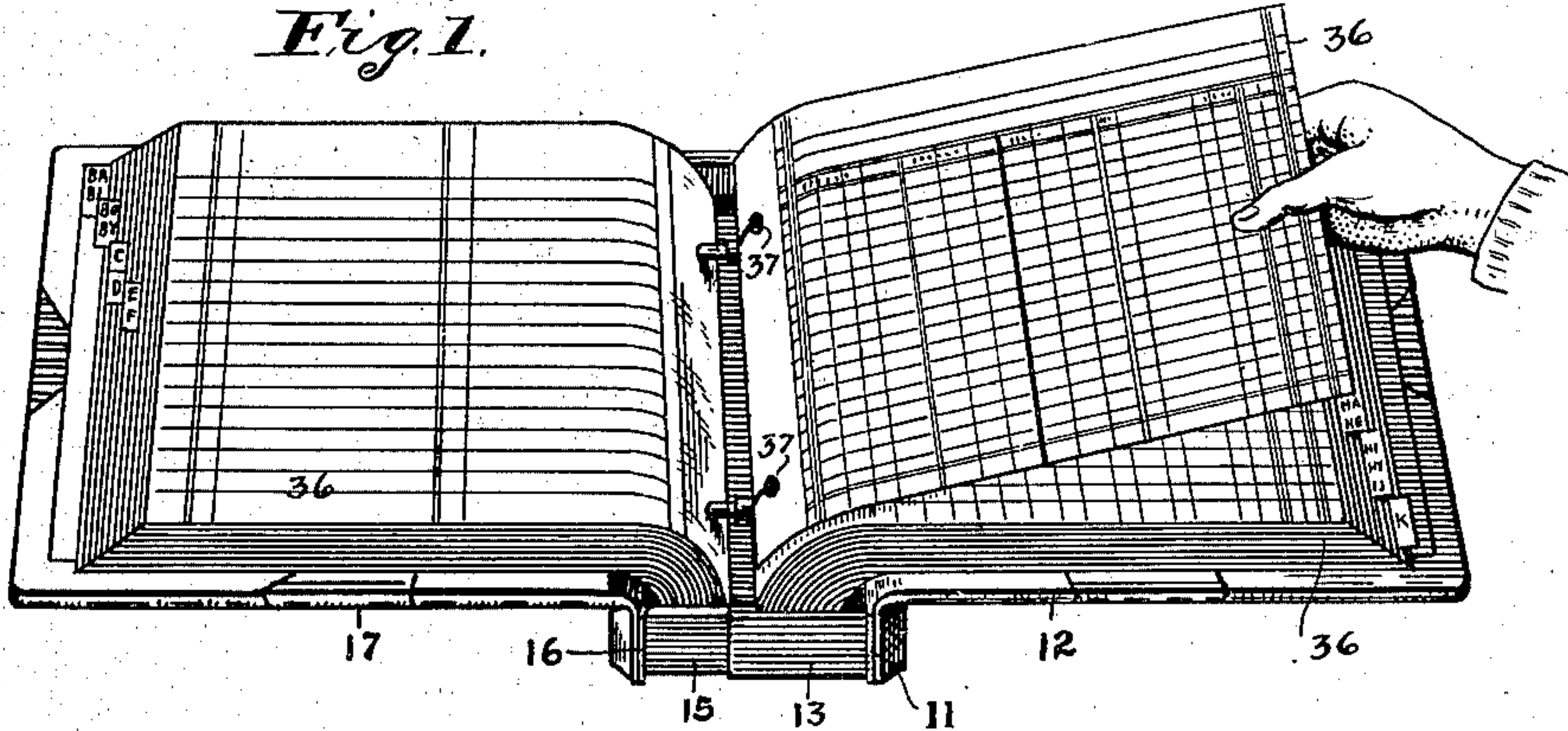


Fig. 6.

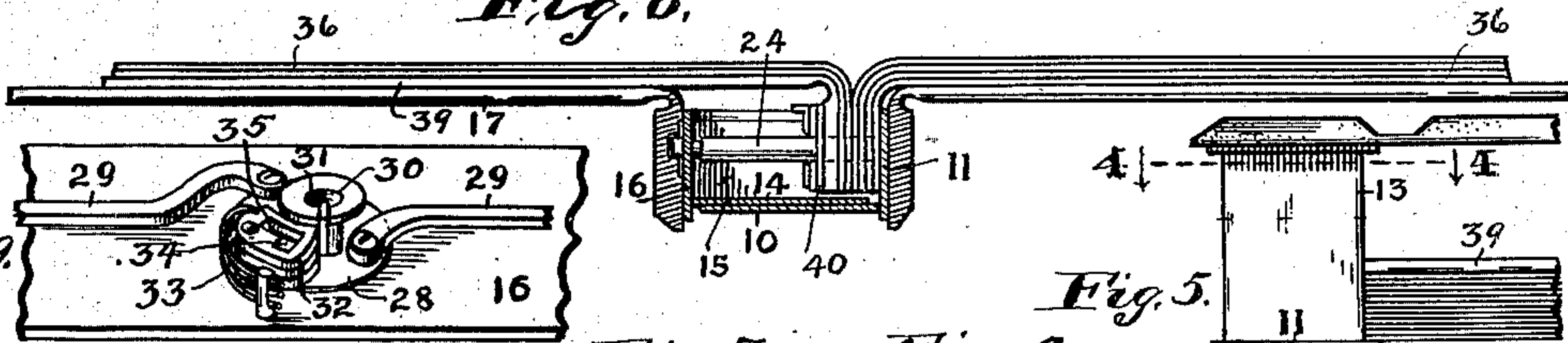


Fig. 9.

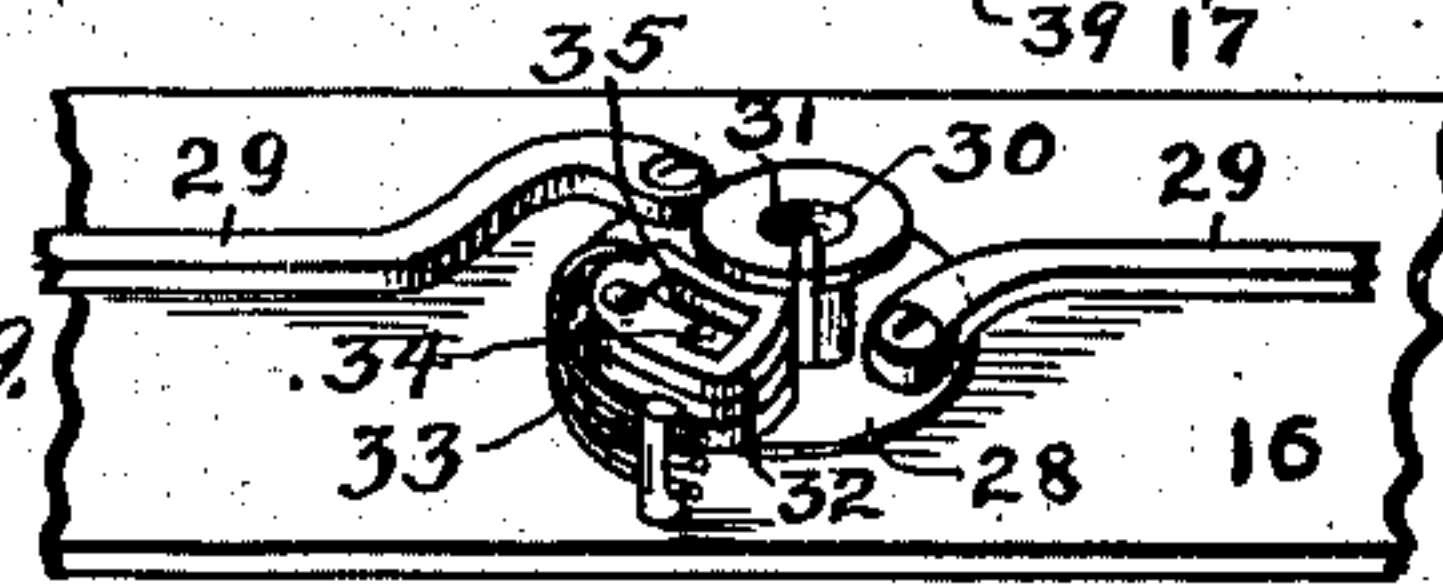


Fig. 5.

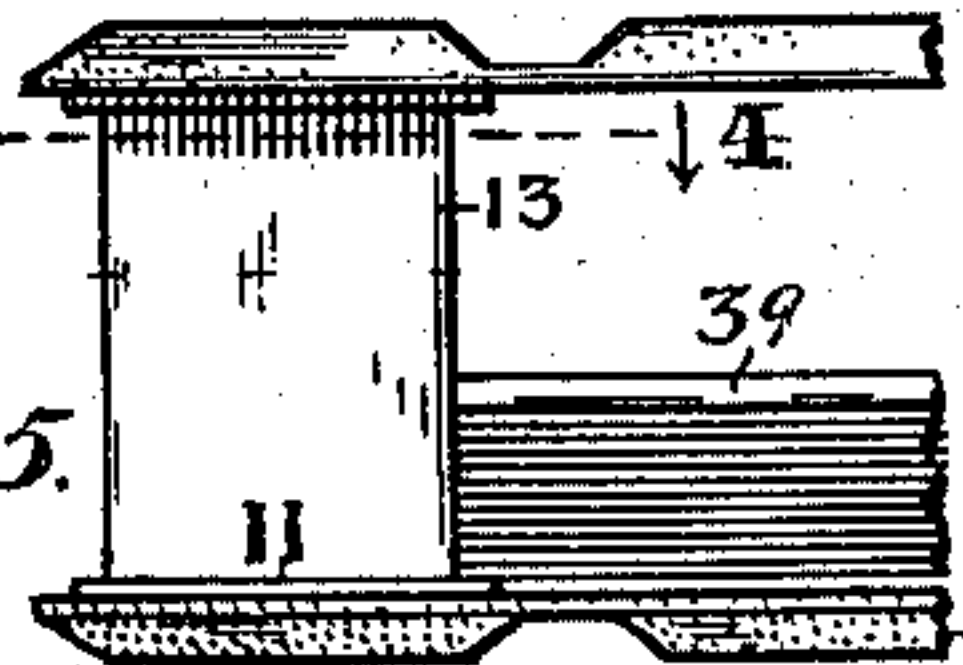


Fig. 3.

Fig. 4.

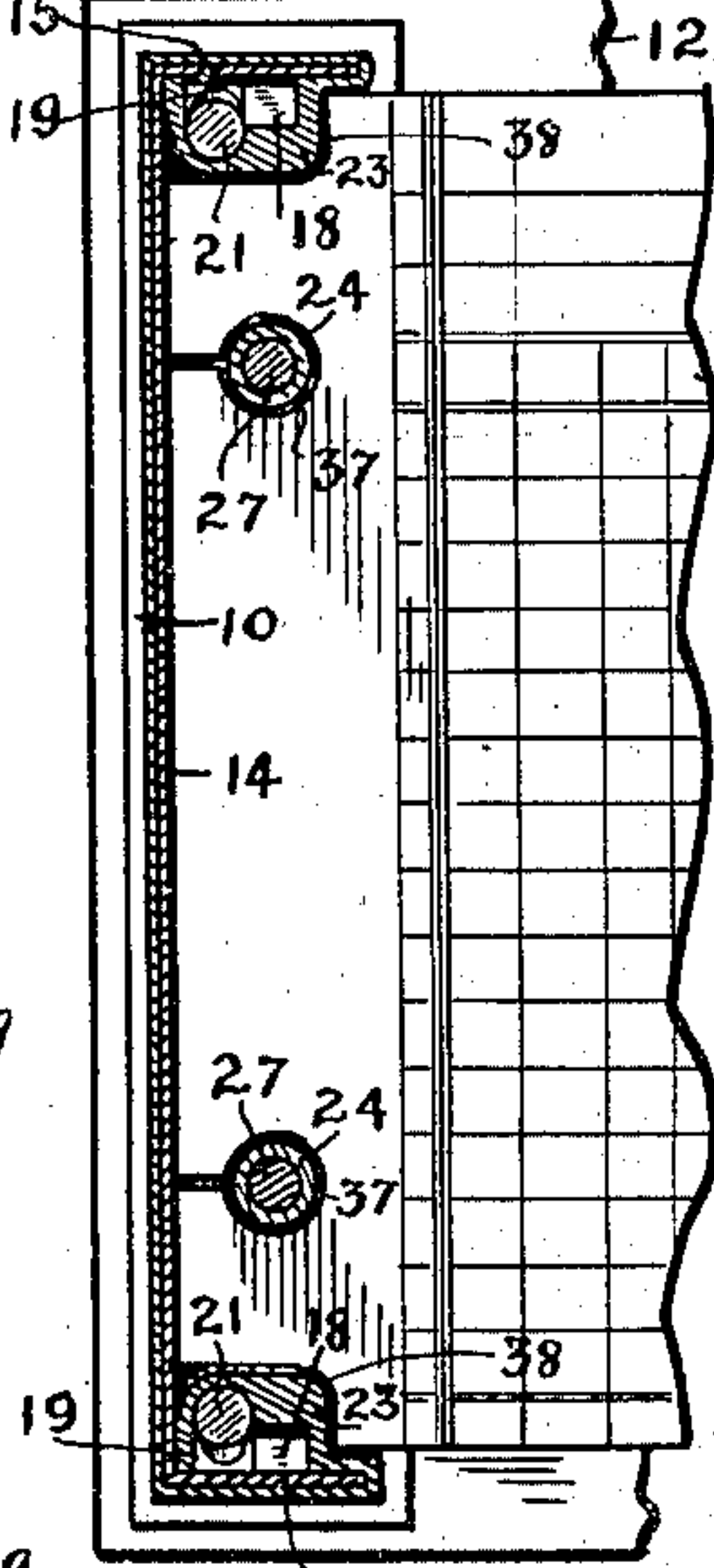
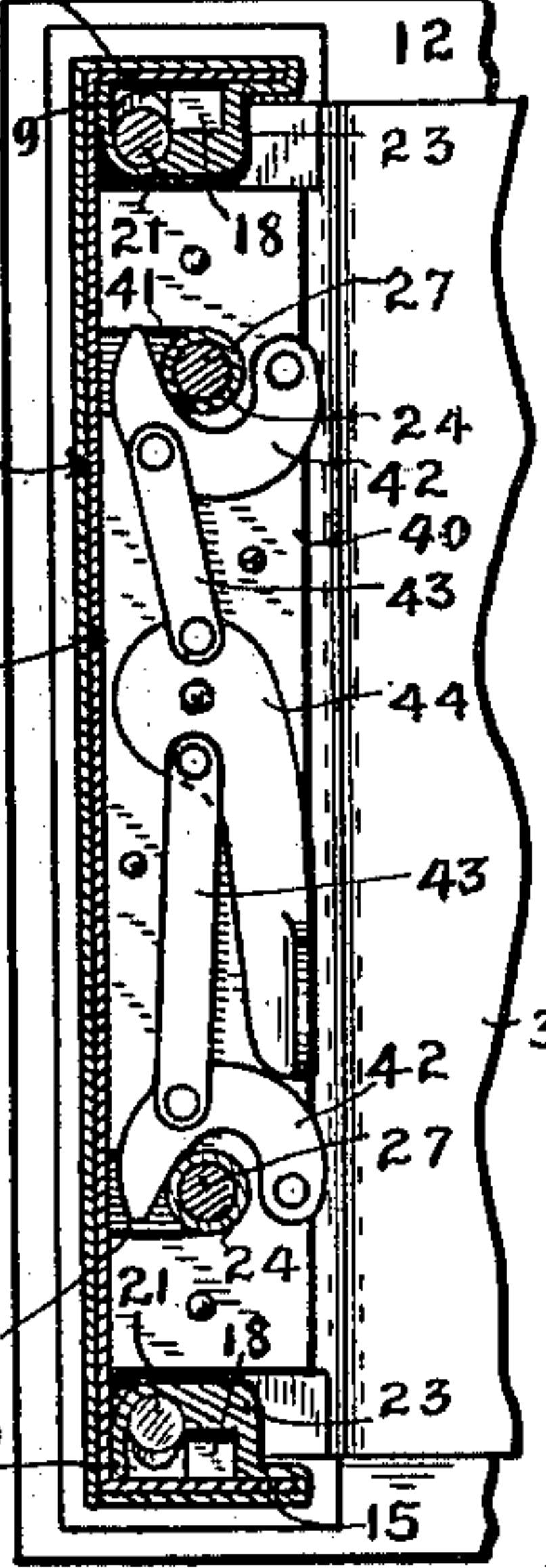
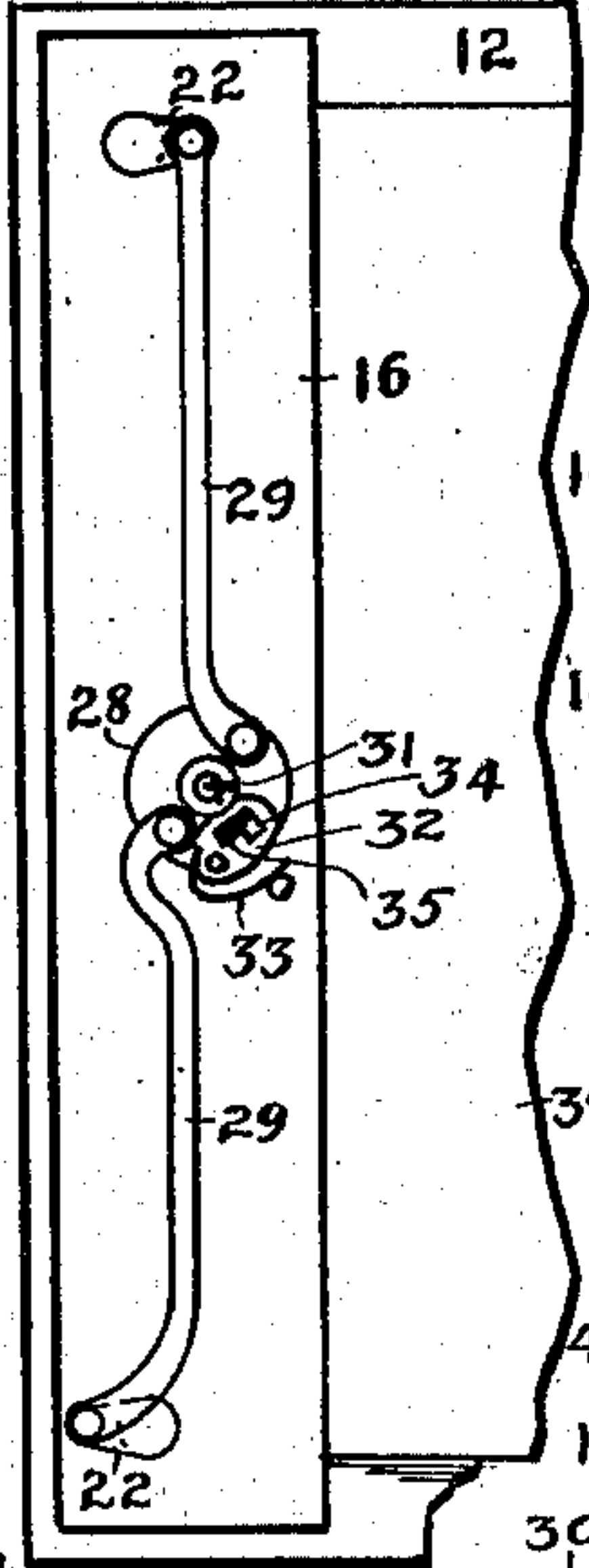
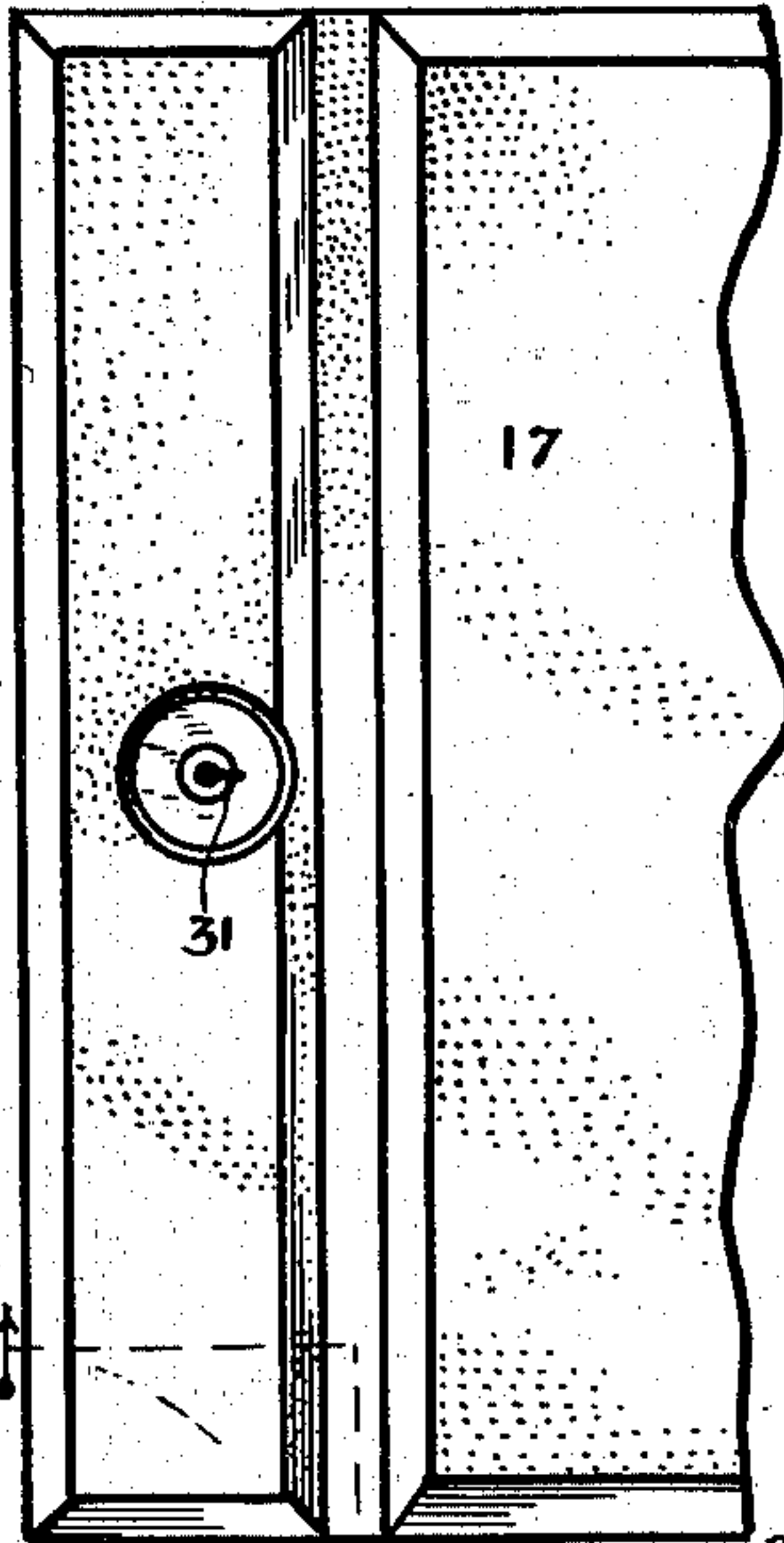
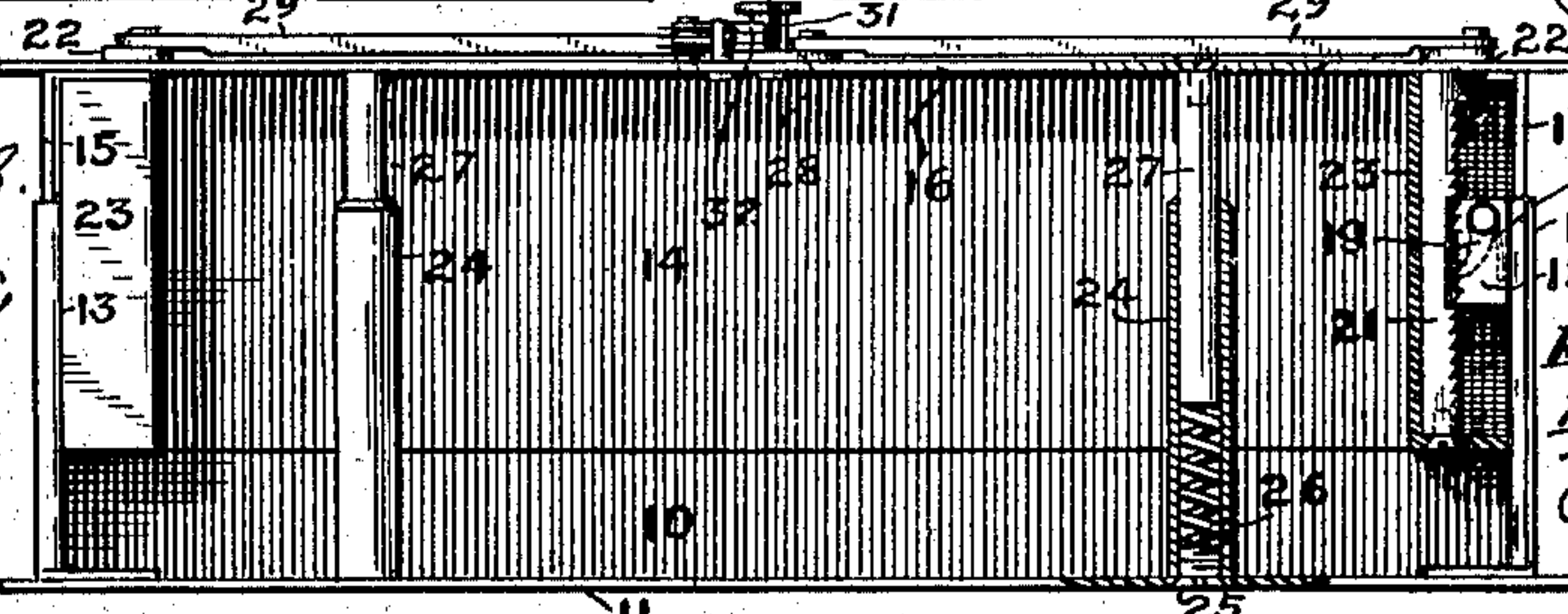


Fig. 2.

Fig. 7.

Fig. 8.

Witnesses,
S. Mahlon Huggs.
John S. Sherwood.



Inventor,
Edw. T. A. Akass.
By Joseph A. Minturn
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD T. A. AKASS, OF CHICAGO, ILLINOIS.

LOOSE-LEAF LEDGER AND COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 736,341, dated August 18, 1903.

Application filed December 16, 1902. Serial No. 135,377. (No model.)

To all whom it may concern:

Be it known that I, EDWARD T. A. AKASS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Ledgers and Compressors, of which the following is a specification.

This invention relates to improvements in expansion-back loose-leaf ledgers and means for compressing and securely fastening any number of leaves in the binder from one up to the maximum capacity without the necessity of a false filling, as is usually required.

The object is to insure a uniform and equal movement of both ends of the adjustable portions of the expansion-back, so as to prevent cramping and interference of parts, and to provide independent holding devices, one at each end of the back, which are controlled by a single lock having tumblers which will prevent manipulation except when a specially-formed key is used.

The object is to simplify the construction of an expansion-back ledger and render it more efficient and durable in many ways, such as will be hereinafter fully described, and pointed out in the claims.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a ledger embodying my improvements, the view showing the ledger in open position and a leaf about to be inserted; Fig. 2, a detail in top plan view of the closed book, the portion shown being that which is adjacent to the back of the book; Fig. 3, a like detail with the front cover removed to show the mechanism for rocking the rack-bars; Fig. 4, a detail on the dotted line 4 4 of Fig. 5; Fig. 5, a detail of the bottom end of the ledger only partly filled with leaves and with the removable compressor in operative position, the ledger being shown in closed condition; Fig. 6, a lower end view of a partially-filled ledger in open condition, the view being a partial section on the dotted line 6 6 of Fig. 2; Fig. 7, a section on the line 4 4 of Fig. 5 with the compressor removed; Fig. 8, a view from the inside of the expansion-back, showing the

same apart from the leaves and covers of the ledger and showing the rack-bar case and the telescoping post at one end in vertical section; and Fig. 9, a detail in perspective of the tumbler-lock, which controls the two racks at the ends of the expansion-back.

Like characters of reference indicate like parts throughout the several views of the drawings.

10 is a flat plate, preferably of metal, one side of which is turned at right angles to form the flange 11, to which one of the covers 12 is secured by screws, rivets, or any suitable manner. The ends of the plate are bent at right angles in the same direction as the flange 11 to form the end flanges 13 13, which latter are parallel with each other.

14 is a plate similar to the plate 10. Its ends are bent at right angles to form the parallel flanges 15 15, which fit between the flanges 13 13, making a close fit therewith. The outer edges of the flanges 13 are bent around the outer edges of the flanges 15, so as to prevent movement of plate 14 except in a transverse direction. The outer side edge of the plate 14 is bent at right angles to form the flange 16, to which the other one, 17, of the two covers is secured.

Secured to the return bent edges of flanges 13 13 are the lugs 18 18, having perforations in which pawls 19 19 are swivelly mounted, (see Fig. 8,) and the pawls are pressed inwardly by the springs 20 against the rack-shafts 21 21. The shafts 21 pass through the flange 16 and have cranks 22 on their outer ends. Each lug and adjacent shaft are inclosed by a case 23, which supports the bottom of its shaft. The flange 11 has the two sleeves 24 24 fastened thereto by means of the screws 25, which pass through said flange and screw into the screw-threaded ends of said sleeves. Resting on said screws within the sleeves are the springs 26, and taking into the open end of the sleeves and bearing upon said springs are the posts 27 27, the outer ends of which are fastened securely to the flange 16. The action of the springs tends to separate the flange 11 from the flange 16, or, in other words, to expand the back which connects the two covers. This expansion is prevented by engagement of pawls 19 with

the teeth of the rack-shafts. The two covers may be pressed together until the side flange 16 contacts with the ends 13; but their separation can be effected only by disengaging the pawl from the ratchet-teeth. I accomplish the latter by rocking the two shafts simultaneously far enough to present smooth sides to the pawls. To this end I provide a rocking plate 28, which is swivelly secured to the outer face of the flange 16, and I connect this plate by means of the bars 29 29 with the cranks 22 of the rack-shafts. The plate 28 has the post 30 secured to it in a rigid manner at its center, and the post has a longitudinal radial slot 31 to receive the flat blade of a key by which the post is turned in a direction to rock the plate to which the post is fastened.

Supported from the flange 16 adjacent to the plate 28 are a plurality of tumblers 32, here shown as three in number, which are pressed by the springs 33 in a direction to cause the free ends of the tumblers to contact with the post 30. The plate 28 has the post 34, which takes into slots 35 in the tumblers. These slots each have a locking-notch to receive the post 34 and prevent movement of the rocking plate except when the tumblers are shifted by a proper key, so as to bring the post into the body of the slots in all of the tumblers. The use of tumblers and a key is not new in a lock and is so well understood that further explanation is unnecessary. It is obvious that the tumblers may be variously notched to correspond with different forms of keys, whereby it will be impossible to unlock the back of the book for removal of the book-leaves except with the use of the proper key, and the tampering with the book by improper persons is prevented.

Suitable grooves and recesses will be provided in the inner side of the cover 17 to accommodate the cranks, levers, and rocking plate.

The leaves of the ledger (shown at 36) have the usual perforations 37 with slots leading thereto from the adjacent edge. The corners are notched at 38 to make a close fit against the casings 23 23. The sheets are introduced as clearly shown in Fig. 7, and to retain them securely requires that they be tightly impinged between two unyielding bodies. When the quantity of leaves exceeds in their combined thickness the minimum extension of the back, the necessary compression is readily secured by crowding the covers together, and the compression is retained by the engagement of the rack-shafts by the pawls; but when the number of leaves aggregate a less thickness than the minimum extension of the back an auxiliary compressor is required. This will be a removable cover 39 of about the size and shape of one of the leaves of the ledger. It will be reinforced at its inner end by the metal plate 40, which will have slots 41 41, leading in from the outer edge, of a width

equal to the diameter of the binding-posts. Pivoted to the plate adjacent to said slots 41 are the clamping-hooks 42 42, which after the auxiliary compressor has been placed and forced down against the leaves to be secured will be fastened to the binding-posts by passing behind the latter, as shown in Fig. 4, and clamping the posts between the hooks and the bottoms of the slots 41. This gives an attachment at front and back of the binding-posts and does not disturb the relative positions of the posts, a disturbance of which would injure their adaptability for holding the leaves of the book. The easy and simultaneous movement of hooks 42 42 is secured by their connection through bars 43 43 with the pivoted lever 44. When only a few leaves are in the ledger, the auxiliary cover forms a needed bridge over the unoccupied back, as shown in Fig. 6. When the number of leaves aggregates a thickness somewhat greater than the minimum extension of the back, the auxiliary compressor and cover is not needed, and it will then be removed from the ledger.

The surfaces of the extension-back which are exposed to view may be covered with cloth or leather to hide the glare of the metal and give it more of the accustomed appearance of a book, or the metal surfaces may be plated or finished in any suitable and desired manner.

The key can only be inserted and removed when the tumblers are in locked position, as shown in Fig. 2. When it is desired to insert or to remove one or more sheets, the ledger is unlocked and expanded to allow space for the operation. After the binder is expanded the key is turned to locked position of the tumblers and is removed, and after the required change in the leaves has been made the sides or covers are pressed together and the back will lock automatically at intervals equal to the distance between the ratchet-teeth. The ratchet-holding device at both ends of the back provides a stronger binder than where a single middle one is used.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. In an expansion-back book, a pair of covers, a pair of plates one secured to each of said covers, said plates having sides in contact with each other and being adjustable with relation to each other to form the expansion-back of the book, a pair of rack-bars one of which bars is secured to each end of one of said plates, the teeth of said rack-bars being abrupt toward their supporting-plates and oblique on their opposite sides, and a pair of spring-actuated pawls secured to the other plate at its opposite ends to engage the rack-bars.

2. In an expansion-back book, a pair of covers, a pair of plates one of which is secured to each of said covers, said plates having contacting sides and turned ends which

fit close together, said plates having adjustment with relation to each other to increase or diminish the thickness of the book, a pair of rack-bars secured to one of the book members one bar at each end of the book-back, pawls to engage the racks secured to the plate of the opposite book member and means for rocking the racks so the teeth thereof will be out of engagement with the pawls

3. In an expansion-back book, a pair of covers, a pair of plates, one to each cover, said plates making sliding contact with each other, and having close-fitting end flanges which with the plates guide the telescoping parts, a plurality of rack bars or shafts secured to one of the adjustable members of the book, cranks on said bars, spring-actuated pawls for said rack-bars secured to the end flanges of the plate of the other adjustable member and means connected with said cranks for moving the notched portions of the bars out of engagement with the pawls.

4. In an expansion-back book a pair of covers each having a separate inwardly-projecting plate which plates make sliding contact with each other, binding-posts in two telescoping parts, springs in the binding-posts for separating the covers and locks to withstand the spring action comprising a plurality of rocking shafts, said shafts having notches located at the ends of the book-back and secured to one cover, and spring-actuated pawls secured to the plate of the opposite cover, engaging the notches, means for rocking the notched shafts out of engagement with the pawls and means for locking the shafts against rocking.

5. In an expansion-back book a pair of covers having plates which are separate but make sliding contact with each other to diminish or increase the thickness of the book, and having close-fitting right-angled end flanges which, with the plates guide the telescoping parts, binding-posts to hold the detachable leaves, a plurality of rack bars or shafts secured to one of the adjustable members of the book at the ends of the book, cranks on the ends of said bars, a pawl for each of said rack-bars secured to the right-angled end of the plate from the other adjustable

member, a rocking plate, links connecting the plate with the cranks of the rack-bars and means for rocking the plate.

6. In an expansion-back book, a pair of covers, a pair of plates one of which is secured to each of said covers, said plates contacting with each other and having adjustment with relation to each other to increase or diminish the thickness of the book, said plates being bent at right angles in the same direction at their ends making a close sliding fit, a pair of shafts notched on one side only, said shafts secured to one of the adjustable members of the book at the ends of the back of said book, a crank on the end of each of said shafts, a spring-actuated pawl for each of said shafts secured to the bent ends of the plate from the other adjustable member, a rocking plate and links connecting the plate with the cranks of the shafts.

7. In an expansion-back book, a pair of covers adjustable in their distance from each other, binder-posts secured to said covers, leaves removably secured by said binder-posts and an auxiliary cover introduced between the leaves and the front cover of the book and means for removably securing the auxiliary cover to the binder-posts comprising clamping-hooks pivoted to the auxiliary cover and removably engaging the binder-posts.

8. In an expansion-back book, a pair of covers adjustable in their distance from each other, binder-posts secured to said covers, leaves removably secured by said binder-posts, an auxiliary cover introduced between the leaves and the front cover of the book, said auxiliary cover having slots to receive the binder-posts, clamping-hooks for securing the posts between said hooks and the bottoms of said slots and a lever pivoted to the auxiliary cover and connected by links with said hooks.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 2d day of December, A. D. 1902.

EDWARD T. A. AKASS. [L. S.]

Witnesses:

S. MAHLON UNGER,
RALPH PAXTON.