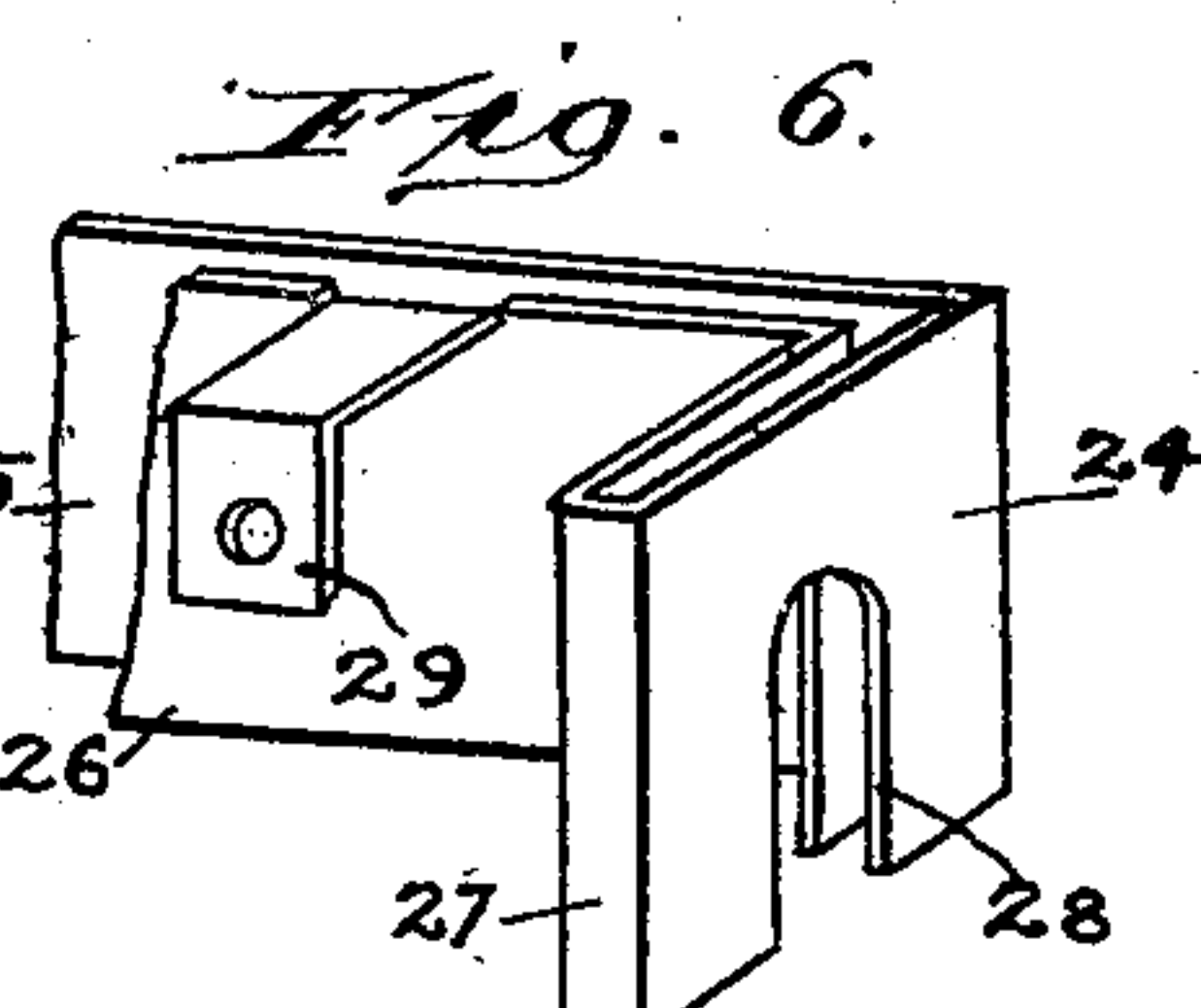
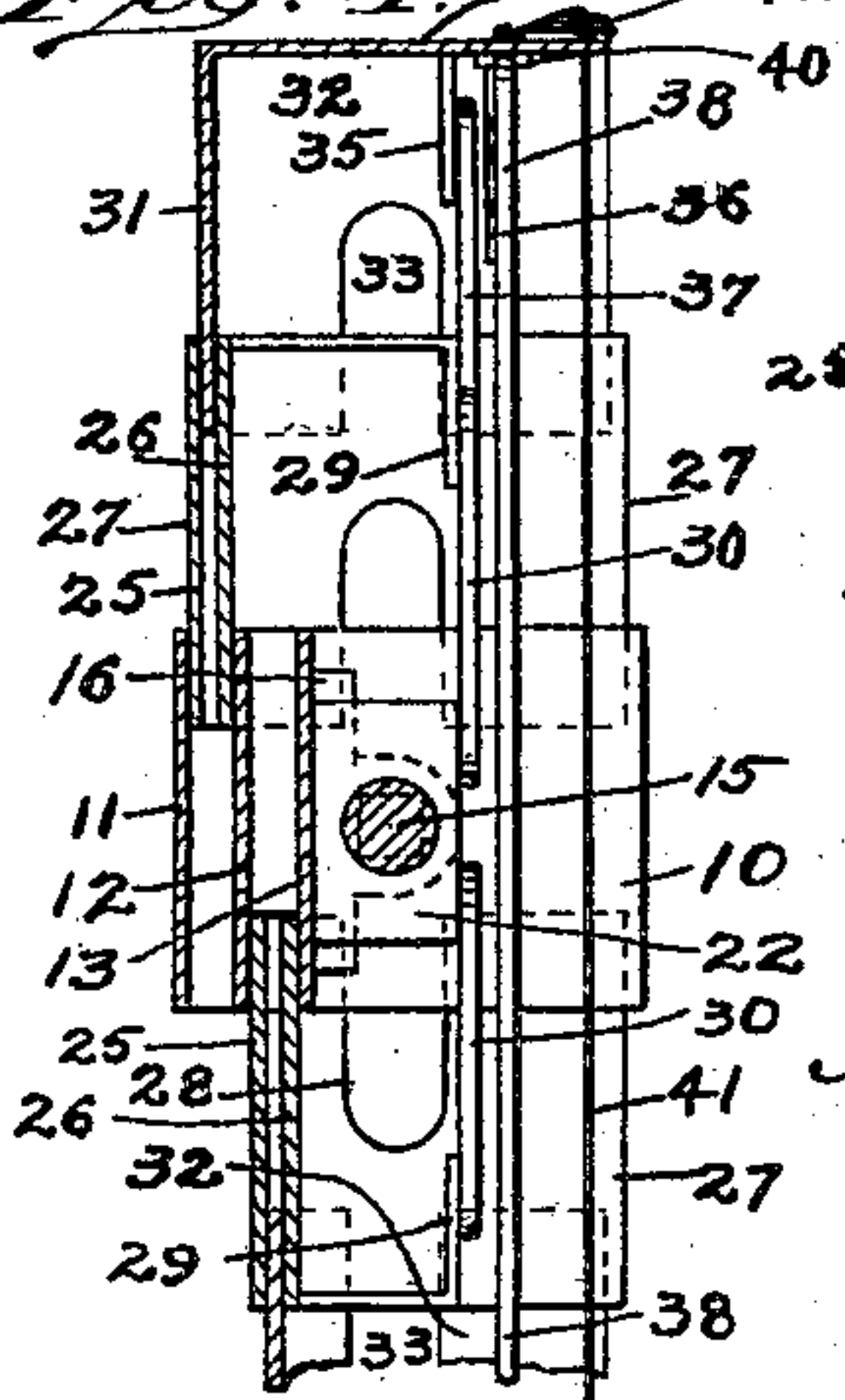
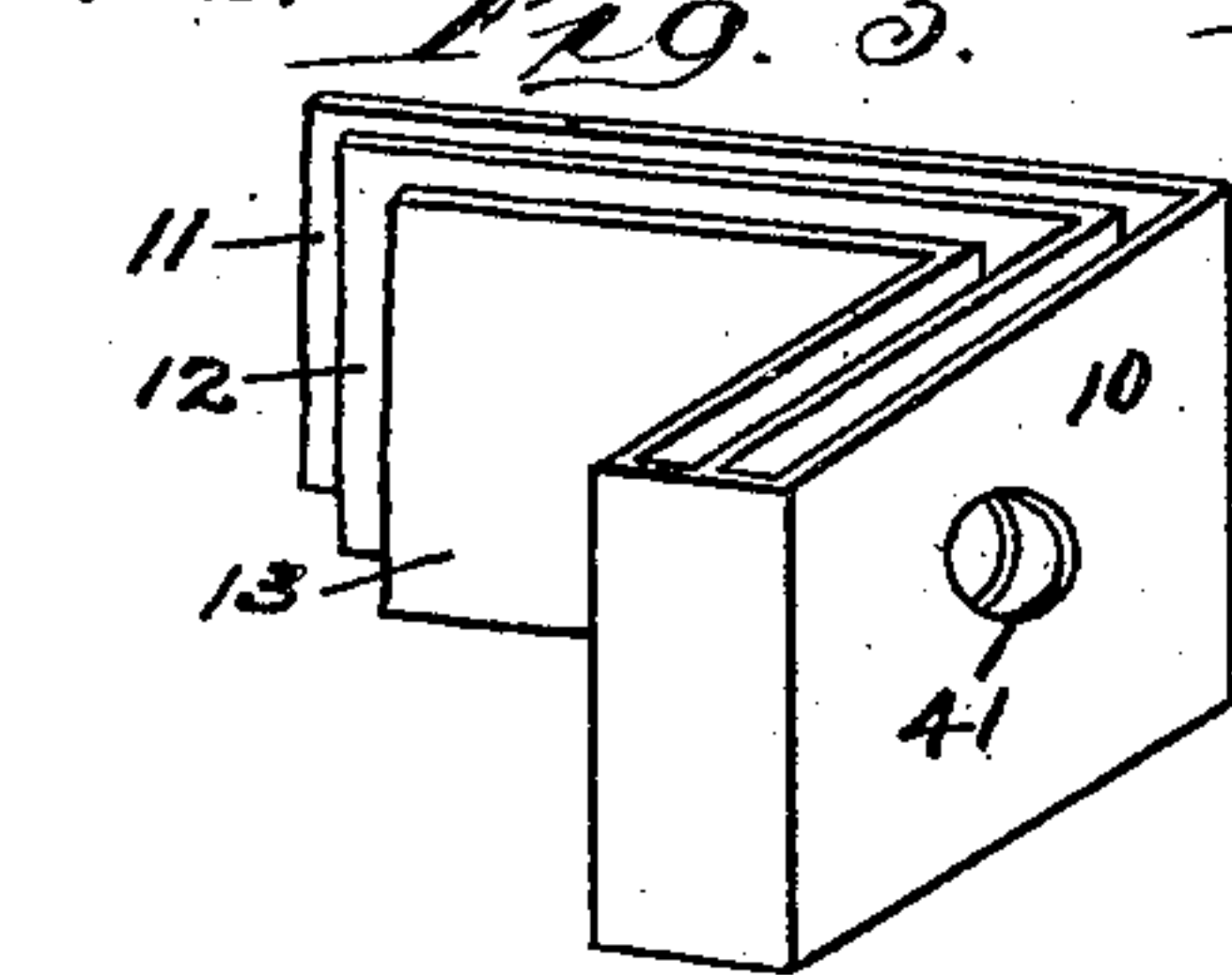
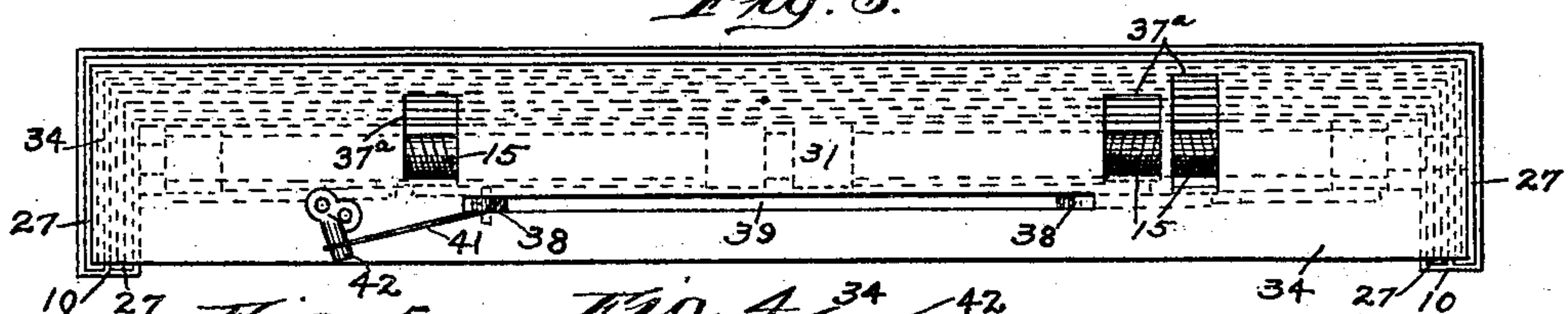
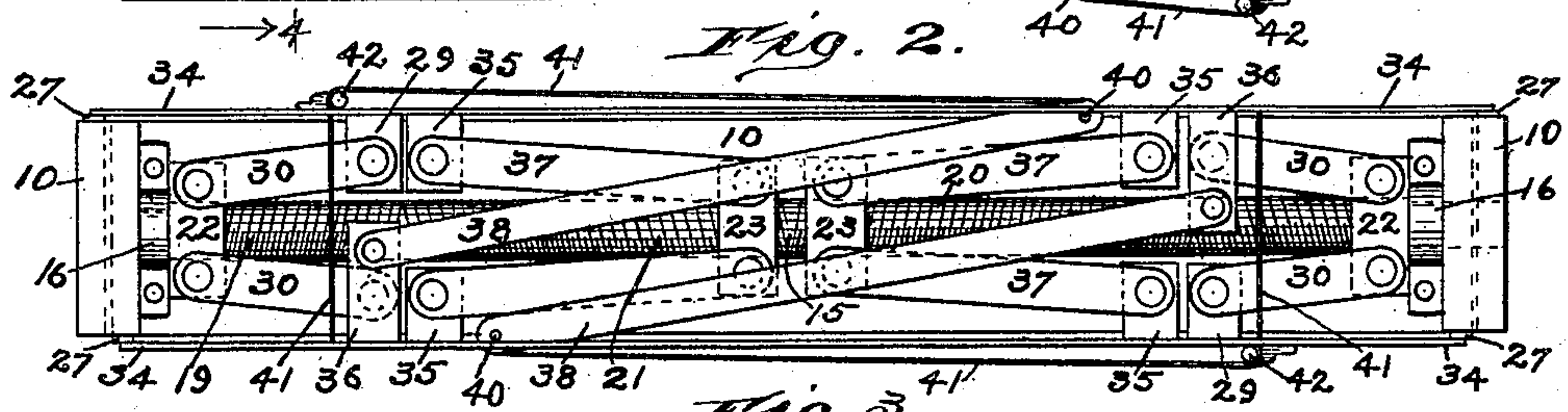
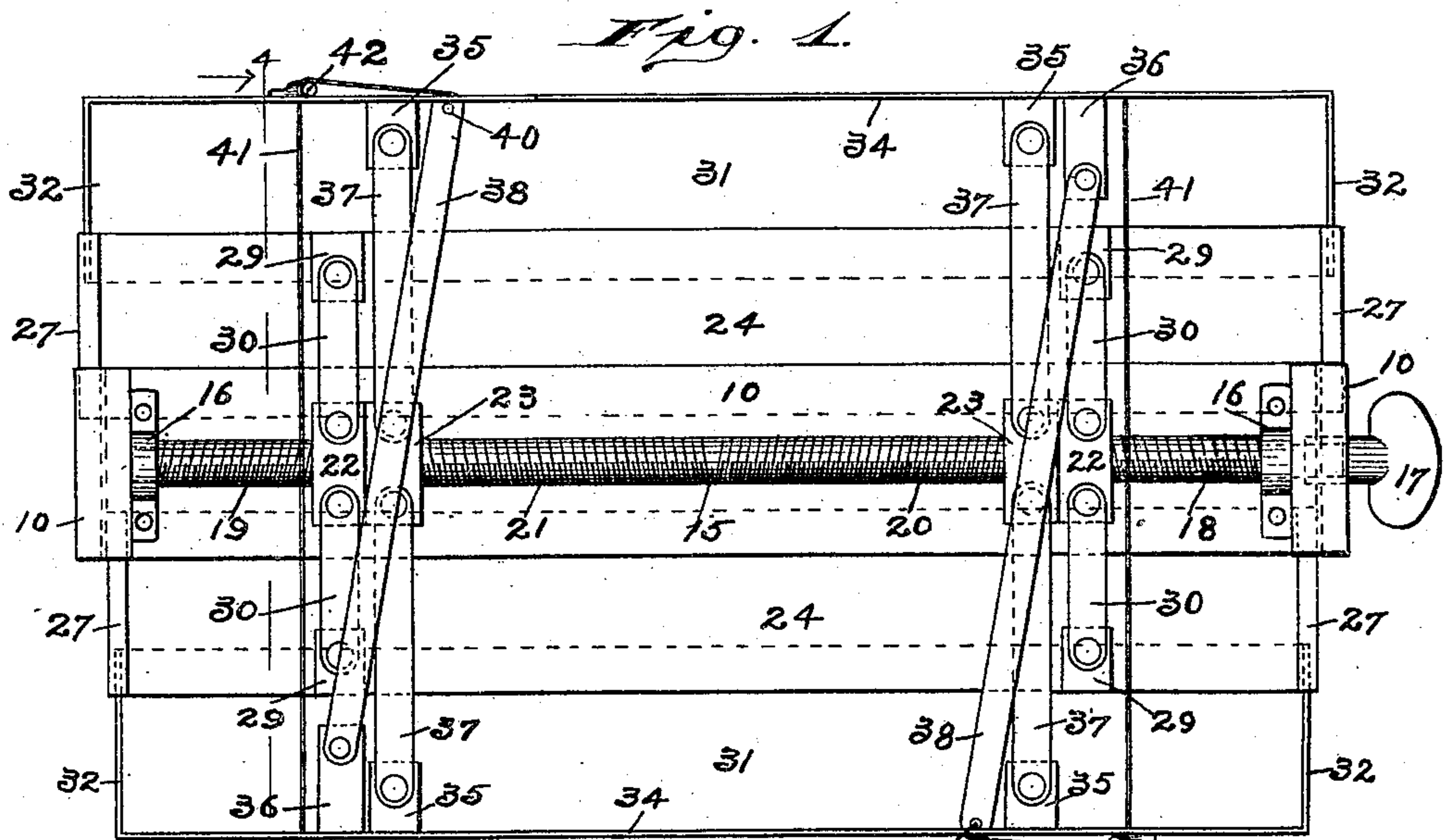


No. 820,248.

PATENTED MAY 8, 1906.

A. OPALLA.
LOOSE LEAF BINDER.
APPLICATION FILED MAY 12, 1905.



Witnesses:

Chas. E. Gorton.
A. Gustafson.

Inventor:

Arthur Opalla

UNITED STATES PATENT OFFICE.

ARTHUR OPALLA, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

No. 820,248.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed May 12, 1905. Serial No. 260,070.

To all whom it may concern:

Be it known that I, ARTHUR OPALLA, 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 a Loose-Leaf Binder, of which the following is a specification.

This invention relates to improvements in that class of binders employed for holding together in a compact and book-like form a number of loose leaves or sheets; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a binder of the above-named character which shall be simple and inexpensive in construction, strong and durable, and so made that the leaves may be quickly secured in place therein or readily removed therefrom.

Another object of the invention is to provide means whereby the binder may be greatly expanded—for instance, to four times or more its minimum capacity—or contracted, so as to receive and retain a large or small number of leaves or sheets.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is an inner face view in elevation of the binder, showing its parts in their expanded positions. Fig. 2 is a similar view showing the parts of the binder in their contracted or folded positions. Fig. 3 is a plan view of the binder. Fig. 4 is a transverse sectional view taken on line 4-4 of Fig. 1 looking in the direction indicated by the arrows. Fig. 5 is a perspective view of one end of the back of the binder, and Fig. 6 is a similar view of one of the auxiliary plates.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The reference-numeral 10 designates the back-plate or back of the binder and comprises three parallel portions or plates 11, 12, and 13, spaced apart, as is clearly shown in Figs. 4 and 5 of the drawings. Each of the ends of the plates 11, 12, and 13, comprising

the back, is bent inwardly at right angles to the body portion of said plates and they are spaced apart, as shown in Fig. 5, to receive right-angled extensions on the auxiliary plates, as will be presently explained. One end of the back 10 is provided with an opening 41, in which is located one end of a screw-threaded shaft 15, which shaft is journaled in bearings 16, secured to the inner surfaces of the inwardly-turned ends of the back. That end of the shaft 15 which is located in the opening 41 of the back is squared or otherwise formed to engage a key 17, used for turning the shaft. As shown in Figs. 3, 4, and 5 of the drawings, the shaft 15 is located in parallelism with the plate 13 of the back and at a slight distance therefrom, and by reference to Figs. 1 and 2 of the drawings it will be observed that the shaft 15 is provided near its end on which the key 17 fits with right-handed screw-threads 18 and on its other end with left-handed screw-threads 19, which threads are of the same pitch. That portion of the shaft 15 inwardly adjacent to the threaded portion 18 is provided with left-handed threads 20, while that portion of said shaft inwardly adjacent to the threaded portion 19 is provided with right-handed threads 21, which have the same pitch or degree of inclination as the threads 20, but are of a greater pitch or inclination than the threads 18 and 19 for the purpose hereinafter to be explained.

Mounted on each of the threaded portions 18 and 19 is a nut 22, and mounted on each of the threaded portions 20 and 21 is a nut 23, all of which nuts are preferably rectangular in shape. Movably located in the ways formed by the plates 11, 12, and 13 of the back and on opposite sides thereof are auxiliary plates 24, each of which comprises two parallel plates 25 and 26, spaced apart and having their ends inwardly bent to form right-angled extensions 27 to fit in the ways of the right-angled extensions of the back. One of the extensions 27 of each of the plates 24 is provided with an open-ended slot 28 for the reception of that end of the rod 15 on which the key 17 is adjusted. Each of the plates 24 is provided on its inner surface at its outer edge with a number of inwardly-projecting and downwardly-turned brackets 29, to which are pivotally secured at one of their ends a number of links 30, the other ends of which are similarly connected to the nuts 22 on the screw-threaded shaft. By reference to Fig. 6 it will be seen that the parallel plates 25 and

26, comprising each of the auxiliary plates 24, are spaced apart, so as to form a way or channel for the reception and operation of the cover-plates 31, which are angular in cross-section, as shown in Fig. 4, and have each of their ends extended at right angles, as at 32, to the body portion of said plates, so as to fit and operate in the ways of the right-angled extensions 27 of the auxiliary plates. One of the right-angled ends 32 of each of the cover-plates is provided with an open-ended slot 33 for the reception of the screw-threaded shaft 15 when the parts are contracted. The inwardly-extending or horizontal portion 34 of each of the cover-plates may have connected thereto in any suitable manner a cover (not shown) of any desired material and size. Each of said portions also has on its inner surface a series of brackets 35 and 36, which may be integral therewith, and in the present instance I have shown them as being punched out of the horizontal portions 34, thus leaving openings 37^a in said parts.

Pivotally connected at one of their ends to the brackets 35 on the cover-plates 31 are links 37, the other ends of which are similarly connected to the nuts 23 on the screw-threaded shaft. Pivotally connected at one of its ends to each of the brackets 36 on the cover-plates is a bar 38, the other or free end of which fits and is adapted to travel in a longitudinal slot 39, provided in each of the horizontal portions 34 of each of the cover-plates.

As shown in Figs. 1, 3, and 4 of the drawings, each of the bars 38 is provided near its free end with a transverse pin 40, which will prevent said bars passing too far through the slots 39 in the cover-plates. Secured at one of its ends to the free end of each of the bars 38 is an elastic or extensible retaining wire or cord 41, which pass over rounded bearings 42, secured on the outer surfaces of the portions 34 of the cover-plates and through openings therein and have their other ends attached to the opposite portion 34 of each of said plates. These wires or cords are employed to retain the loose leaves or sheets in position, which leaves or sheets are preferably provided with slitted eyelets, so that the wires may be passed through the slits into the eyelets of the sheets.

From the foregoing and by reference to the drawings, it will be readily understood and clearly seen that when the parts are in their contracted or folded positions, as shown in Fig. 2, the binder will be capable of receiving and retaining quite a number of sheets or leaves, which may be placed in engagement with the wires or cords 41, as above mentioned; but if it be desired to expand or enlarge the binder so as to accommodate a greater number of sheets it is evident that by fitting a key 17 on one end of the shaft 15 and turning said shaft in the proper direction the nuts 22 and 23 will be caused to approach

each other and through their connections with the cover-plates and auxiliary plates force the same apart. As the cover-plates, auxiliary plates, and back-plate are in telescopic engagement with each other longitudinally as well as at their ends, it is obvious that a strong and positively-acting binder is afforded.

In the operation of expanding or contracting the parts of the binder it will be understood that the bars 38 will be moved on their pivots by reason of their coaction with the portions 34 of the cover-plates, so that the retaining-wires 41 for the leaves will always be held taut.

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

1. In a loose-leaf binder, the combination with the back, of an auxiliary plate and a cover-plate in telescopic engagement with one another, a shaft rotatably mounted on the back and having right and left handed screw-threads, nuts engaging said screw-threads, and links connecting the nuts with said plates.

2. In a loose-leaf binder, the combination with a back having right-angled extensions at its ends and provided with a way, a channeled auxiliary plate having channeled right-angled extensions at its ends and located in the way or channel of the back, a cover-plate having at its ends right-angled extensions and located in the channel of the auxiliary plate, a shaft rotatably mounted on the back and having right and left handed screw-threads, nuts engaging said screw-threads, and links connecting the nuts with said plates.

3. A loose-leaf binder comprising a back, auxiliary plates and cover-plates in telescopic engagement with one another, a shaft mounted to turn on the back and having right and left hand screw-threads, nuts engaging said screw-threads, and links connecting the nuts with the auxiliary plates and cover-plates.

4. A loose-leaf binder comprising a channeled back having channeled extensions at its ends, channeled auxiliary plates having channeled extensions at their ends and located in the channels of the back, cover-plates having extensions at their ends and located in the channels of the auxiliary plates, a shaft rotatably mounted on the back and having right and left hand screw-threads, nuts engaging said screw-threads, and links connecting the nuts with the auxiliary plates and cover-plates.

5. In a loose-leaf binder, the combination with the back of an auxiliary plate and a cover-plate in telescopic engagement with one another, said cover-plate having an inwardly-projecting portion provided with a longitudinal slot, a bar pivoted at one of its ends and having its other end projecting into

said slot and provided with a check-pin to restrict its movement, a flexible and extensible retainer for the leaves connected at one of its ends to the free end of said bar and suitably
5 secured at its other end, a shaft rotatably mounted on the back and having right and left handed screw-threads, nuts engaging said screw-threads, and links connecting the nuts with said plates.

10 6. In a loose-leaf binder, the combination with the back, of auxiliary plates and cover-plates in telescopic engagement with one another, a bar pivotally connected at one of its ends to each of the cover-plates and hav-

ing its other end extended toward the op- 15
posite cover-plate, a flexible and extensible retainer for the leaves secured at one of its ends to the free end of each of said bars and at its other end to the cover-plate opposite
the free end of said bar, a shaft rotatably 20
mounted on the back and having right and left handed screw-threads, nuts engaging said screw-threads, and links connecting the nuts with said plates.

ARTHUR OPALLA.

Witnesses:

CHAS. C. TILLMAN,
M. A. NYMAN.