

No. 837,698.

PATENT D DEC. 4, 1906.

C. C. MALTBY.
LOOSE LEAF BINDER.
APPLICATION FILED AUG. 1, 1902.

2 SHEETS—SHEET 1.

Fig. 1

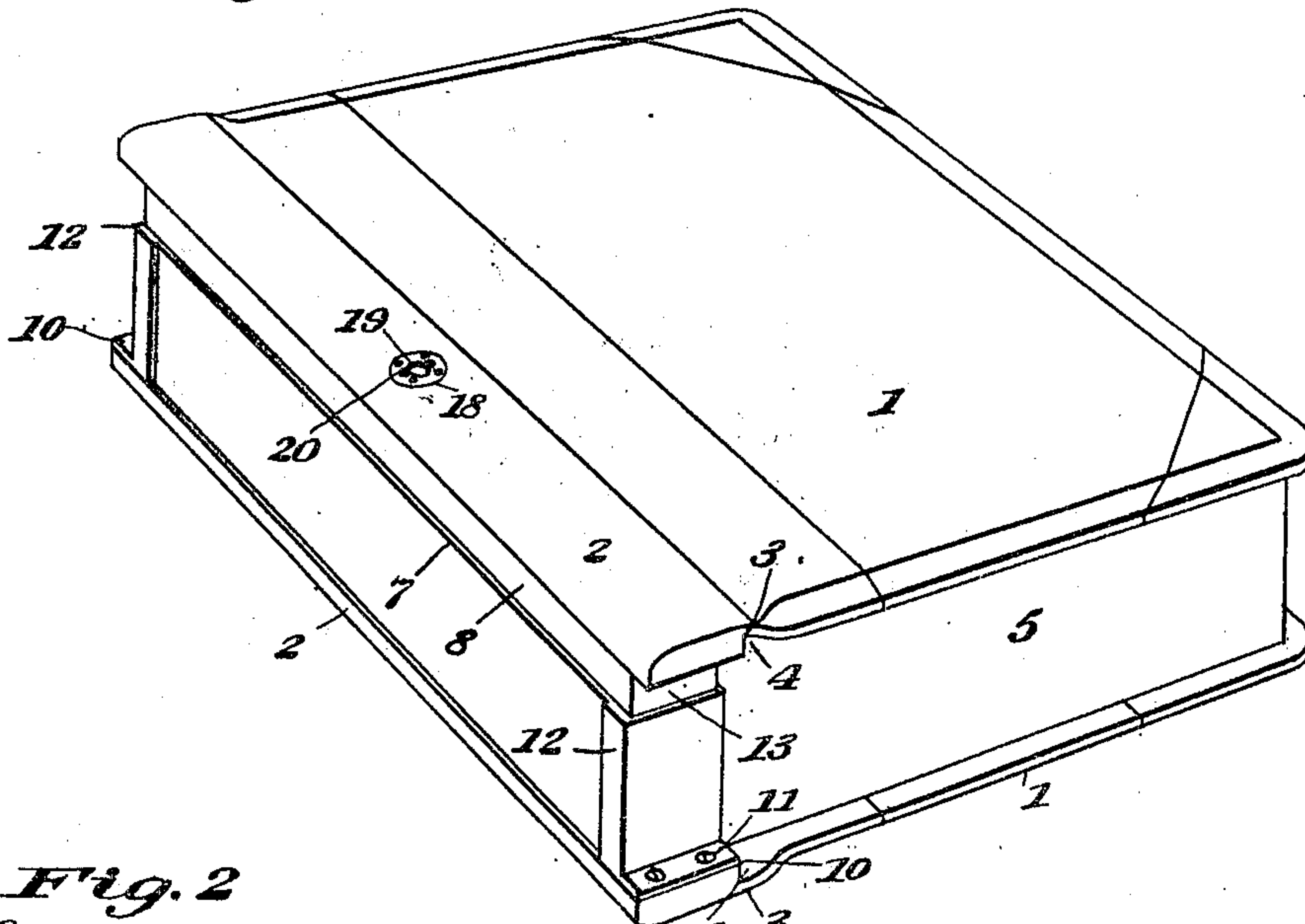


Fig. 2

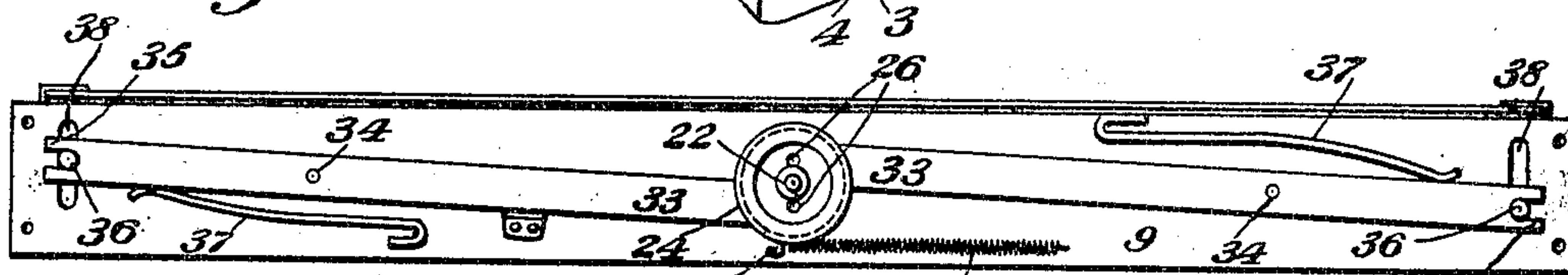


Fig. 3

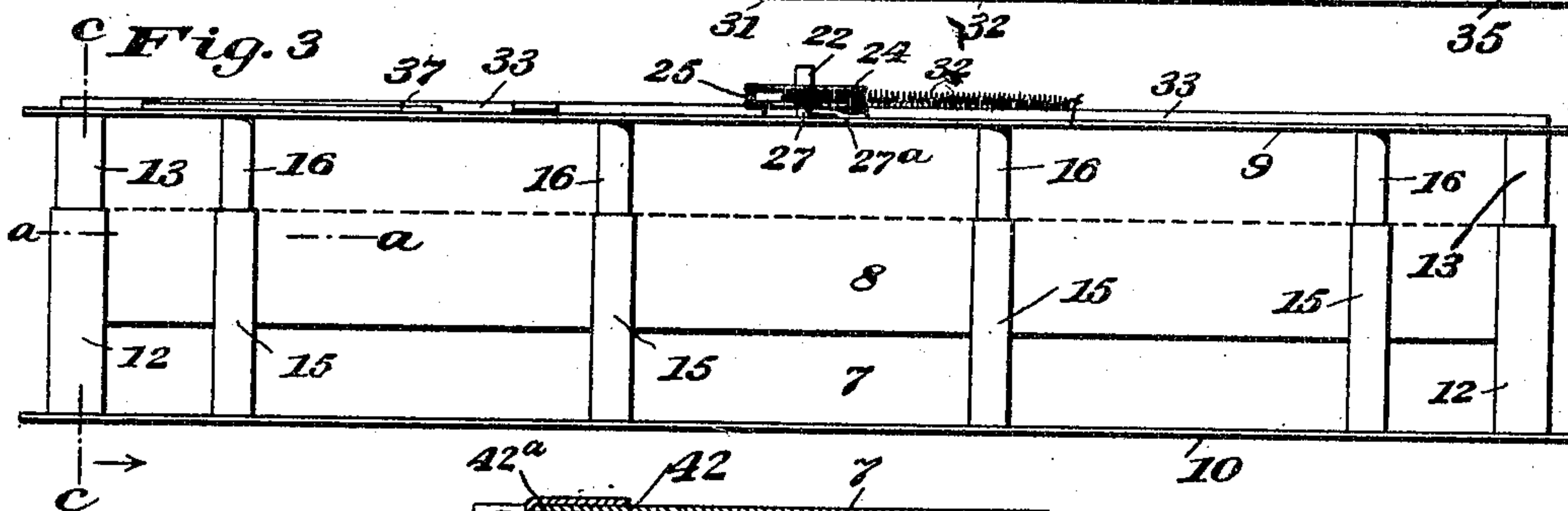
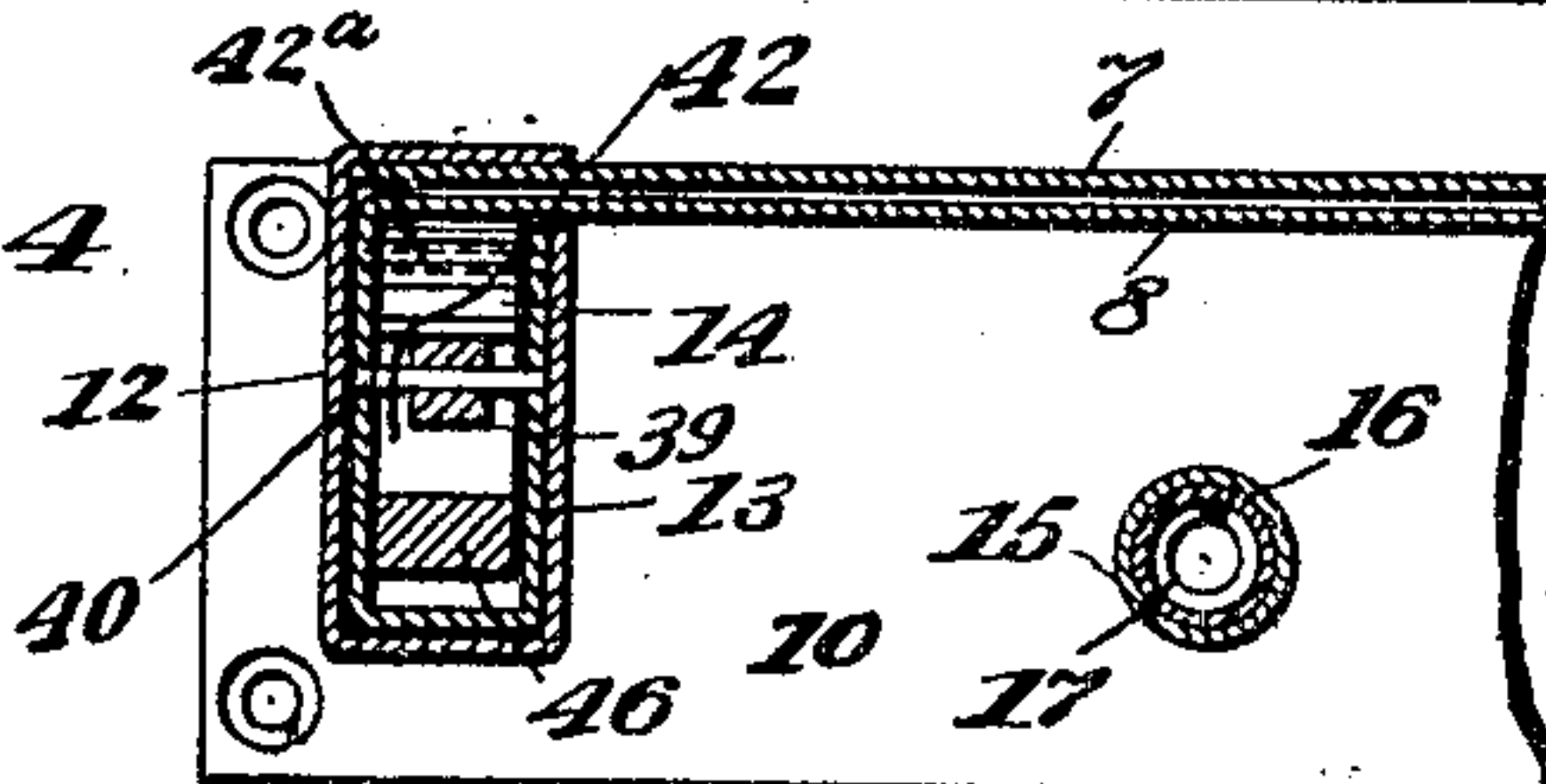


Fig. 4



Witnesses

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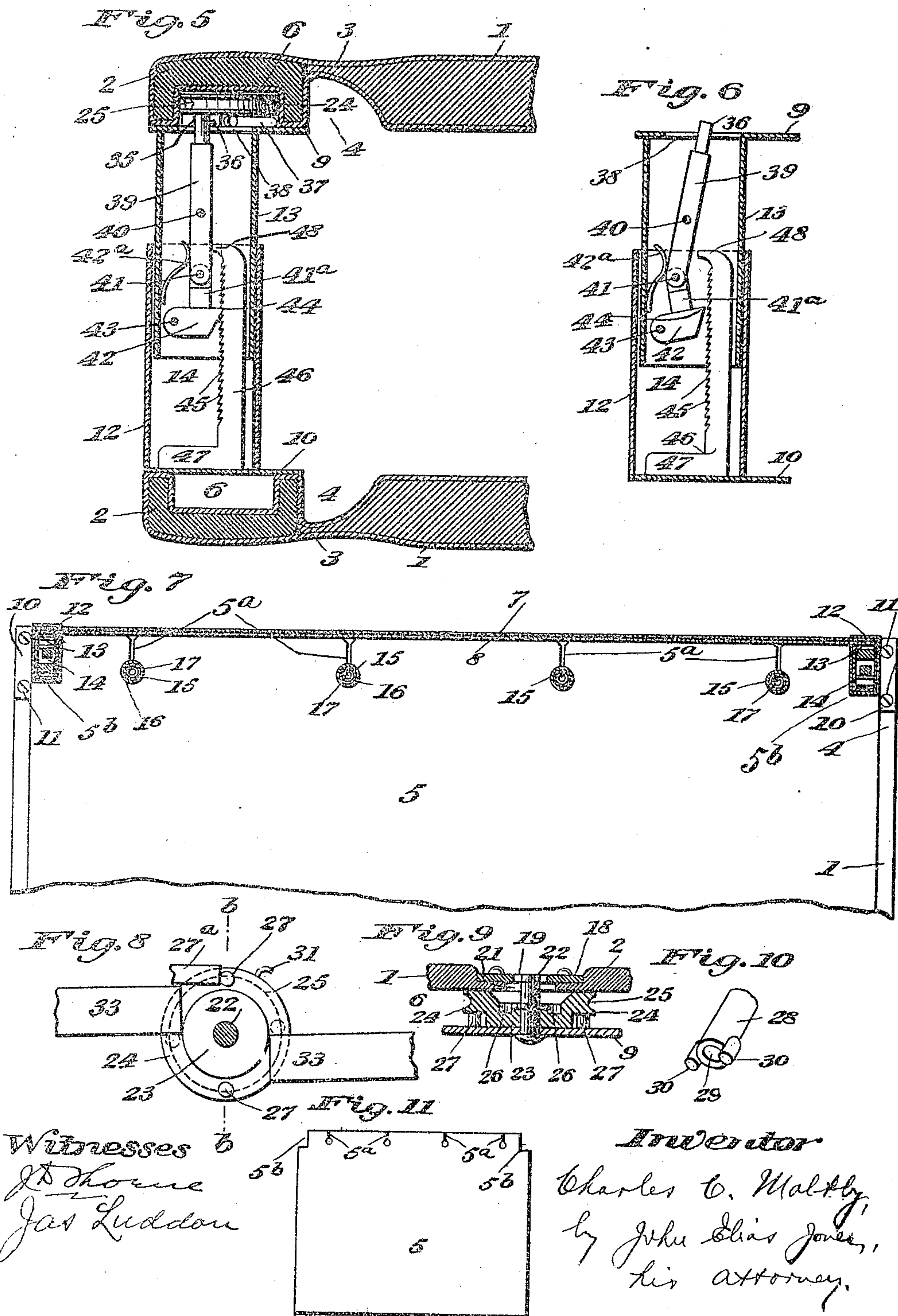
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LOOSE LEAF BINDER.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

CHARLES C. MALTBY, OF CINCINNATI, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE TWINLOCK COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

LOOSE-LEAF BINDER.

No. 837,698.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed August 1, 1902. Serial No. 117,939.

To all whom it may concern:

Be it known that I, CHARLES C. MALTBY, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to certain improvements in loose-leaf binders, and more especially in that class of such devices wherein means are provided for holding each sheet removably in place in the binder so that each sheet may be removed separately from the binder whenever it is desired so to do; and the object of my invention is to provide a device of this general character of a simple and inexpensive nature and of a strong and durable structure having improved means for holding the sheets in place, so that each sheet is securely held in position in the binder and unevenness along the edges of the sheets is prevented.

Another object of the invention is to provide improved locking means for locking the sheets in place in the binder, such means being capable of automatic action for locking the sheets in position, but being also capable of being readily actuated for unlocking the sheets to permit ready removal of the several sheets when desired.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved loose-leaf binder whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use than various other forms of loose-leaf binders heretofore devised, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a perspective view drawn to a small scale and showing one embodiment of the improved binder. Fig. 2 is a view showing, detached and in plan, the two binding strips or parts comprised in the improved binder. Fig. 3 is an elevation showing the inner surfaces of the binding strips or parts illustrated in Fig. 2. Fig. 4 is a fragmentary sectional detail

view showing certain features of construction of said locking strips or parts, the plane of the section being indicated by the line *a a* in Fig. 3. Fig. 5 is an enlarged sectional view taken transversely through one of the locking devices at the back of the binder and showing the parts of said locking device in locked position, the plane of the section being indicated by the line *c c* in Fig. 3; and Fig. 6 is a partial view similar to Fig. 5, but showing the operative parts of the locking device moved to another or unlocked position to permit removal of the sheets from the binder. Fig. 7 is a partial plan view drawn to a small scale, the binding or holding devices for the sheets being shown in section in a plane between two of the sheets. Fig. 8 is an under side plan view drawn to an enlarged scale and showing certain details of construction of the means for simultaneously actuating the independent locking devices for the sheets forming part of the improved binder. Fig. 9 is a sectional detail view taken in the plane indicated by the line *b b* in Fig. 8 and showing the construction of the parts shown in said figure. Fig. 10 is a view showing the end portion of a key adapted for use in connection with the improved binder. Fig. 11 is a view drawn to a reduced scale and showing the form of the leaves or pages adapted for use in the improved binder.

The improved loose-sheet binder constructed in accordance with my improvements is especially well adapted for use in account-books, and particularly in ledgers such as are commonly termed "loose-leaf" ledgers and wherein the several accounts are kept upon separate sheets or leaves of the book, and such sheets or leaves are capable of being readily removed whenever the accounts upon them become "dead" or closed and or being transposed or replaced by new leaves of sheets having new accounts upon them, so that in this way the ledger is prevented from becoming too bulky and the annoyance and inconvenience occasioned by the presence of such dead accounts in the book or by the transposition of accounts from leaf to leaf, such as is necessary in ledgers bound in the ordinary manner, is entirely prevented. However, while the improved binder is especially well adapted for

this use I do not desire to be understood as limiting myself to its employment in account-books or ledgers exclusively, since it will be readily understood that the device is capable
5 of other uses as well.

As shown in the drawings, the improved binder comprises two sides or covers 1 1, each of which has connection with a strip or piece 2, preferably formed of a metal bar of
10 suitable form and strength, over which the leather or other covering of the corresponding side or cover 1 is extended, such leather or other covering being arranged to form a flexible or hinge connection between the said side
15 or cover and said strip or piece 2, as indicated at 3 on the drawings. The flexible or hinge connection 3 thus produced between the side or cover 1 and the corresponding strip or piece 2 is, as shown in Fig. 5, located
20 at the outer surface of the side or cover, so that a space or recess 4 is produced upon the inner surface of each side or cover of the binder and along the corresponding strip or piece 2. This arrangement of the flexible or
25 hinge connections of the sides or covers permits the said sides or covers to be opened flat, so that the several sheets or leaves held within the improved binder may also be opened in a substantially flat form, whereby practically
30 the whole surface of each leaf or sheet is readily accessible. The sheets or leaves held within the improved binder are severally indicated at 5 on the drawings.

Each of the metal strips or pieces 2 2 of the
35 sides or covers 1 1 is formed with a recess or hollow 6 upon its inner surface, so that the structure may be made as light as possible, and the recess or hollow 6 of one of said strips or pieces 2 is arranged to house certain por-
40 tions of the locking mechanism, as will be hereinafter explained. The back of the binder is formed from two plates or pieces 7 and 8 of sheet metal, arranged to lap one inside of the other and extended at right an-
45 gles from the inner surfaces of the strips or pieces 2 2 of the sides or covers, the plate or part 7 being provided with an angular body portion 10, adapted to fit flush upon the inner face of the strip 2 of one side or cover
50 over the recess or hollow 6 therein, and the plate or part 8 being formed with a similar angular portion 9, adapted to be fitted flush upon the inner face of the strip 2 of the other
55 side or cover 1 over the recess in said strip or piece 2, as clearly shown in Fig. 5.

At opposite ends of the back of the binder thus formed of the plates 7 and 8 are arranged the locking devices, the detailed structure of which will be hereinafter de-
60 scribed, and these locking devices are adapted for simultaneous operation by means of a single key to release the sheets or leaves. Each locking device comprises parts carried, respectively, by the two sides or covers of the
65 binder, and these parts are housed or in-

closed within casings or shells at the ends of the back of the binder, such shells or casings being each formed of two telescoping members 12 and 13 of rectangular cross-section, the
70 part or member 12 being carried upon the plate 7, which forms one wall thereof, and having an open end in which is arranged to fit and slide the other member 13, which is carried on the plate 8 and has one wall formed
75 by said plate. In the inner wall of each member 12 is formed a slitted opening adapted for the passage of the plate 8 when the two parts of the back are slid one over the other.

Outside of the casings or shells thus formed the angular portions 9 and 10 of the plates
80 8 and 7 are extended to form flanges having openings adapted to receive screws 11 or the like, by means of which said plates may be held upon the strips or pieces 2 2 of the covers, and other similar retaining means may
85 be arranged as may be necessary between the two casings or shells. Between the two casings or shells are arranged a series of leaf or sheet retaining means each formed of tele-
90 scoping members 15 and 16 in tubular form, the members 15 being carried upon the portion 10 of plate 8 and having open ends to receive the open lower ends of the members 16, which are of less diameter and are car-
95 ried upon the portion 9 of plate 7. Within the tubular telescoping members 15 and 16 are arranged springs 17, adapted by their tension to press the two sides or covers of the binder away from each other when said sides
100 or covers are released by the operation of the locking devices.

Each of the leaves or sheets 5, held within the binder, will have its binding edge ar-
105 ranged to fit closely adjacent to the inner surface of the back formed of the plates 7 and 8, as shown in Fig. 7, and for engagement with the retaining means formed of the tele-
110 scoping members 15 and 16 each sheet or leaf 5 is formed with a circular opening just forward of the binding edge of the leaf or sheet and with a slitted opening 5^a extended
115 from such opening back to the said binding edge. This means for securing the sheets or leaves in the binder by engagement with the retaining means of the binder is well known
120 and will require no special description herein. At the ends of the back of the binder where the casings or shells of the locking means are located the sheets or leaves 5 are also formed
125 with open right-angled cut-out portions 5^b 5^b, adapted to fit around the angle formed by the inner and forward sides of the said re-
130 spective shells or casings, as shown in Fig. 7, the upper and lower ends of the sheets or leaves being in line with the corresponding walls of the said shells or casings. By this means it will be understood that when the leaves or sheets 5 are locked within the binder between the strips or pieces 2 2 of the sides or covers which extend along the bind-

ing edges of the sheets or leaves the open right-angled upper and lower corners of each sheet will engage upon the shells or casings at said open angular cut-out parts 5^b 5^b in such a way as to altogether prevent lateral or pivotal movement of the leaves or sheets upon the retaining means and upon each other, so that the edges of the several leaves or sheets 5 will be held in alinement and will be prevented from becoming uneven.

The provision of the open cut-out angular corners 5^b 5^b facilitates the removal or disengagement of the respective sheets when desired and without disturbing any of the other sheets or turning the several sheets up at the opposite ends of their binding edges.

14 14 indicate the locking devices contained within the shells or casings at the ends of the back, and these locking devices are of similar construction and are adapted for automatic engagement or operation when the sides or covers are pressed toward each other to hold the several sheets or leaves securely clamped between the strips or pieces 2 2 along their binding edges. Said locking devices are also adapted for simultaneous actuation upon the insertion of a key for releasing the sheets or leaves to permit the removal or transposition thereof, and such actuation of said locking devices is effected by the mechanism which I will now describe.

One of the sides or covers of the binder is formed with an opening 21 in its strip or piece 2, as indicated in Fig. 9, and over the said opening 21 is secured an escutcheon-plate 18, having a circular opening 19 to receive the barrel of a key 28, (shown in detail in Fig. 10,) said key being formed with oppositely-directed wards 30 30, which are arranged to pass through notched openings 20 at opposite sides of said circular opening 19 in the escutcheon-plate. The key 28 has its barrel provided with a bore or opening 29, in which is adapted to be received when the key is engaged with the opening in the escutcheon-plate a pin or stud 22, on which is arranged to turn a disk-shaped part or member 23, recessed upon its upper side and provided with diametrically opposite openings 26 26, adapted to receive the wards 30 30 of the key when said key is inserted through the opening in the plate 19 and turned part way around.

The disk-shaped part or member 23 has an overhanging circular upper portion 24 formed with a marginal groove 25 and provided with two oppositely-arranged pins or studs 27 27, depending from its under surface, as shown in Figs. 3, 8, and 9, and one of said pins or studs 27 is adapted for engagement with a stop 27^a upon the portion 9 of the plate 7, forming part of the back of the binder, the pivot pin or stud 22 of the member 23 being riveted or otherwise held to the central part of said portion 9, as shown in the drawings.

When the member 23 stands in its normal position, the pin 27 is engaged with said stop 27^a, and to hold the parts in this position I provide a spring 32, one end of which is engaged with a projection on the portion 9 of plate 7 and the other end of which is engaged with a hook 31, extended from the grooved periphery of the overhanging portion 24 of member 23. When the member 23 is turned on pin 22 for actuating the locking devices for the release of the sheets or leaves from the binder, the spring 32 is permitted to seat itself in the annular peripheral groove 25 of the overhanging portion 24 of said member 23, so that said spring may properly exert its tension to return the member to its normal position when the key is withdrawn or released.

33 33 indicate two bars or levers pivotally held upon the portion 9 of plate 7 within the hollow 6 of the corresponding strip 2 and extended in opposite directions from the member 23 toward the casings or shells at the ends of the back of the binder, the pivots of said bars or levers 33 being indicated at 34. Each bar or lever has its inner end arranged beneath the overhanging portion 24 of member 23 and in position to be engaged by a pin 27 thereon, and the bars or levers are arranged for movement in opposite directions, so that when the member 23 is turned by means of the key each bar or lever will be engaged and moved by one of the pins 27. Springs 37 are arranged to return the bars or levers to their normal positions when the key is withdrawn or released, and member 23 is permitted to be turned to its normal position by means of spring 32.

The outer ends of the bars or levers 33 are notched or slotted, as indicated at 35, and are adapted to be engaged by the upper reduced and rounded ends 36 of levers 39, forming parts of the respective locking means in the shells or casings at the ends of the binder-back, said levers 39 being pivoted, as shown at 40 in Figs. 5 and 6, in the members 13 of the shells or casings and having their reduced upper ends passed through slotted openings 38 in plate 9 in position to be engaged by the slotted or notched ends of levers 33. The lower ends of the levers 39 have loose connection, as shown at 41, with lugs or projections extended upward from dogs or detents 42, also pivoted in the members 13 of the casings or shells, as shown at 43, and having teeth or end portions 44 adapted for engagement with ratchet-like serrations 45 upon parts or bars 46, held in the members 12 of the shells or casings, with end portions adapted to pass up within the members 13 when the parts or members are slid telescopically one upon the other, as shown in Figs. 5 and 6. The parts or bars 46 have feet 47 screwed upon the plate 10 in the shell members 12, and the upper ends of said parts or bars have hook-like

portions 48 adapted by engagement with the detents 42 to prevent disengagement of the members of the shells when said detents are disengaged from the serrations of the bars 46.

5 Springs 42^a hold the detents normally engaged with serrations 45 except when the key 28 is inserted and turned.

The ratchet-like serrations 45 of the bars 46 are arranged with their inclined surfaces 10 adapted to permit the teeth of the detents 42 to be slipped along the serrations when the sides or covers of the binder are pressed toward each other, so as to bind or clamp the edge portions of the sheets 5 between the 15 sides or covers; but said serrations prevent reverse movement of the sides or covers away from each other for the removal of the sheets except when the locking devices are actuated upon the insertion and turning of the key to 20 disengage the detents from the serrations. The parts of the locking devices are set to work in opposite directions, so that the opposite movements of the levers 33 will be simultaneously communicated to said devices 25 for the release of the sheets from the binder.

In operation when the key 28 is inserted and turned the first movement thereof will serve to engage the wards 30 beneath the plate 18, so that the key will be held against 30 removal until turned back, after which the wards will come in alinement with the openings 26 and may be pressed into the same, so that further turning of the key will be transmitted to the member 23 to turn the 35 same against the tension of spring 32, pins 27 moving in engagement with the levers 33 to swing the same pivotally, their movements being communicated through levers 39 to detents 42 to swing the teeth 44 out of engagement with the serrations of the bars 46 and 40 permit the sides or covers of the binder to be drawn away from each other, the members of the shells moving over each other and members 15 and 16 of the retaining means being also moved over each other by springs 17. 45

For thin or shallow binders the levers 39 may be omitted and the portions 41^a of dogs 42 may be carried up and actuated directly from the notched ends 35 of levers or 50 bars 33; but for thick or deep binders, where the members of the shells of the locking devices must have considerable movement, I prefer to employ the levers 39.

When the sides or covers are thus moved 55 away from each other, the sheets or leaves 5 may be inserted in or removed from or transposed in the binder in a well-known way by disengaging their binding edges from the retaining means, and when the rearrangement 60 of the sheets or leaves has been effected the sides or covers of the binder are merely pressed tightly toward each other, so as to cause the binding edges of the sheets or leaves to be clamped securely between the 65 strips 2 2 of the sides or covers, so that the

sheets or leaves will be securely held in the binder. When the sides or covers of the binder are pressed toward each other, the members of the shells or castings of the locking devices will slide one over the other, and 70 the dogs or detents 42 will traverse the serrations of the bars or parts 46, which will act by engagement of the teeth of the dogs or detents to hold the sides or covers against reverse movements until the key has been 75 again inserted and turned to release the dogs from the serrations 45. The springs 37 and 42^a serve to return the detents of the locking devices into engagement with the serrations of the bars 46 when the key is removed or re- 80 leased.

Each of the locking devices is, as will be obvious from the above description, capable of independent operation to automatic- 85 ally lock the sides or covers in clamping engagement upon the binding edges of the sheets or leaves, so that in case there should be any variation between the thicknesses of the bound sheets or leaves at the respective locking devices said sheets or leaves will still 90 be securely held in the binder and one end of the block of sheets or leaves will not be in any way loose. The cut-out portions 5^b 5^b at opposite ends of the sheets or leaves 5 also serve by engagement upon the casings or 95 shells of the locking devices to hold the bound sheets or leaves securely in place without permitting sliding or pivotal movement of the sheets or leaves upon each other, so that the edges of the sheets or leaves when 100 clamped are held perfectly even and straight and are not in danger of being torn or damaged.

From the above description of my improved loose-leaf binder it will be seen that 105 the device is of an extremely simple and inexpensive nature and is especially well adapted for use by reason of the security with which the sheets or leaves are held clamped within the sides or covers and also by reason 110 of the ease with which the locking devices may be actuated for the independent removal or transposition of such leaves or sheets. For these reasons the device is especially well adapted for use in account-books of various 115 kinds, such as ledgers, for example.

It will also be obvious from the above description that the device is capable of considerable modification without material departure from the principles and spirit of the 120 invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts as herein set forth in carrying out my invention in practice. 125

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

1. In a loose-leaf binder, the combination of sides or covers having strips between 130

which removable sheets or leaves are adapted to be held at their binding edges, locking devices each comprising parts normally engaged but adapted for disengagement, said locking devices adapted for independent operation and located adjacent to opposite ends of said strips sheet-retaining means located between said locking devices and a device having connection with each of said locking devices for simultaneously actuating the same, substantially as set forth.

2. In a loose-leaf binder, the combination of sides or covers having strips between which removable leaves are adapted to be held at their binding edges, leaf-retaining means, casings formed of telescoping members at opposite ends of said strips of the respective sides or covers, a serrated bar on each end of the strip of one side or cover and in the corresponding casing member held thereon, a dog pivoted in each casing member on the strip of the other side or cover and arranged for engagement with the serrations of the said bar and lever mechanism connected with and arranged to simultaneously actuate the dog of each casing, substantially as set forth.

3. In a loose-leaf binder, the combination of sides or covers having strips between which removable leaves are adapted to be held at their binding edges, leaf-retaining means, a plurality of locking devices for holding the sides or covers when moved to clamp the leaves, each locking device comprising parts capable of independent engagement and disengagement, a part held to turn on the strip of one side or cover and lever mechanism for actuating the locking devices from said part, substantially as set forth.

4. In a loose-leaf binder, the combination of sides or covers having strips provided with locking devices and between which strips sheets or leaves are adapted to be clamped, a rotatable part held to one side or cover and provided with pins, levers for engagement with said pins and arranged to communicate the movements of said part to the locking devices and means for returning the parts to their normal positions, substantially as set forth.

5. In a loose-leaf binder, the combination of sides or covers having strips between which removable sheets are adapted to be held at their binding edges, members located at opposite ends of the respective strips, the members of one strip being arranged for telescoping engagement with those of the other strip, sheet or leaf retaining devices held on the strips between said members, locking means housed within said members and adapted for engagement to hold the strips and covers in relation, and sheets or leaves held at their binding edges on the sheet or leaf retaining means between the members at the ends of the strips, each leaf or sheet having

at opposite ends of its binding edge a portion cut out and the telescoping members of the strips being engaged in the cut-out portions at the binding edges of said sheets or leaves.

6. A loose-leaf book-back comprising a sectional casing, the one adapted to take upon the other, said sectional casing provided with telescopic ends and attaching tubes or rods, a rack secured within one side of said ends, a spring-controlled pawl mounted within the other side of said ends and normally held in mesh with said rack, and means secured to said pawls and extending to the outside of the casing whereby they may be thrown out of mesh with the rack and the casing expanded, said pawl and rack so constructed and related to each other as to form a lock when the book-back has been fully expanded.

7. A loose-leaf book-back comprising a sectional casing provided with telescopic tubes or attaching-rods, springs seated within said tubes and under tension when the casing is contracted, said sectional casing provided with hooded ends, the ends on the one section adapted to take into the ends on the other section of said casing, racks secured within the ends of the one section, spring-controlled pawls secured within the ends of the other section, levers pivoted within said last-mentioned ends and controllingly connected with said pawls, said levers extending through to the outside of the casing, spring-controlled mechanism secured to the one side of the sectional casing and having operative connection with said levers whereby the pawls are thrown out of mesh with the racks.

8. A loose-leaf book-back comprising a casing composed of two sections, the one adapted to take upon the other, said sections provided with telescopic attaching tubes or rods, springs set within said telescopic tubes whose normal tendency is to expand the sectional casing, hooded ends secured to each section of said casing, the ends on the one section taking within the ends of the other, locking mechanism within said hooded ends, the mechanism in the ends of one section being spring-controlled and adapted to move into or out of mesh with the mechanism in the ends of the other section, and means secured to one side of the sectional casing and controllingly connected with said spring-controlled mechanism, whereby, upon its operation, the spring-controlled mechanism is released.

9. A loose-leaf book-back comprising a casing composed of two sections, the one adapted to take upon the other, each of said sections provided with attaching tubes or rods, the rods or tubes on the one section taking within those of the other, springs set within said tubes and normally tending to expand the casing, hooded ends on each section of the casing, the ends on the one section

6
 5 taking within the ends of the other, locking mechanism within said hooded ends, the mechanism in the ends of the one section being spring-controlled and adapted to move into or out of mesh with the mechanism within the ends of the other section, said locking mechanism so constructed as to prevent the disengagement of one section from the other, and means secured to one side of the sectional casing and controllingly connected with said spring-controlled mechanism, whereby, upon its operation, the spring-controlled mechanism is released.

10 10. A loose-leaf book-back comprising a sectional casing, the one section adapted to take upon the other, said sectional casing provided with telescopic ends and attaching tubes or rods, a rack secured within one side of said ends, a spring-controlled pawl secured within the other side of said ends and normally held in mesh with the rack, means secured to said pawls and extending to the outside of the casing, said pawl and rack so constructed and related to each other as to form a lock when the book-back has been fully expanded, and mechanism secured to the outside of said casing and secured to said means whereby the latter may be operated and the pawls disengaged from the racks.

30 11. A loose-leaf book-back comprising a casing composed of two sections, the one adapted to take upon the other, said sections provided with telescopic attaching tubes or rods, hooded ends secured to each section of said casing, the ends on the one section taking within the ends of the other, racks secured within the ends of one section, spring-controlled pawls secured within the ends of the other section and normally in mesh with the racks, said racks and pawls so constructed as to prevent the entire disengagement of said sections from each other, and means connected with said pawls whereby the latter are moved out of engagement with the racks.

40 12. A loose-leaf book-back comprising a casing composed of two sections, one adapted to take upon the other, said sections provided with telescopic attaching tubes or rods, springs set within said telescopic tubes whose normal tendency is to expand the sectional casing, hooded ends secured to each section of said casing, the ends on the one casing taking within the ends of the other, locking mechanism within said hooded ends, the mechanism in the ends of one section being spring-controlled and adapted to move into or out of mesh with the mechanism in the ends of the other section, means secured within the ends of said casing whereby the action of the expansion-springs is limited, and means secured to one side of the sectional casing and controllingly connected with the spring-controlled member of the locking mechanism whereby, upon its operation, the spring-controlled member is disengaged from the mechanism within the ends of the other section.

45 50 55 60 65

Signed at Cincinnati, Ohio, this 18th day of July, 1902.

CHARLES C. MALTBY.

Witnesses:

JOHN ELIAS JONES,
 R. S. CONLEY.