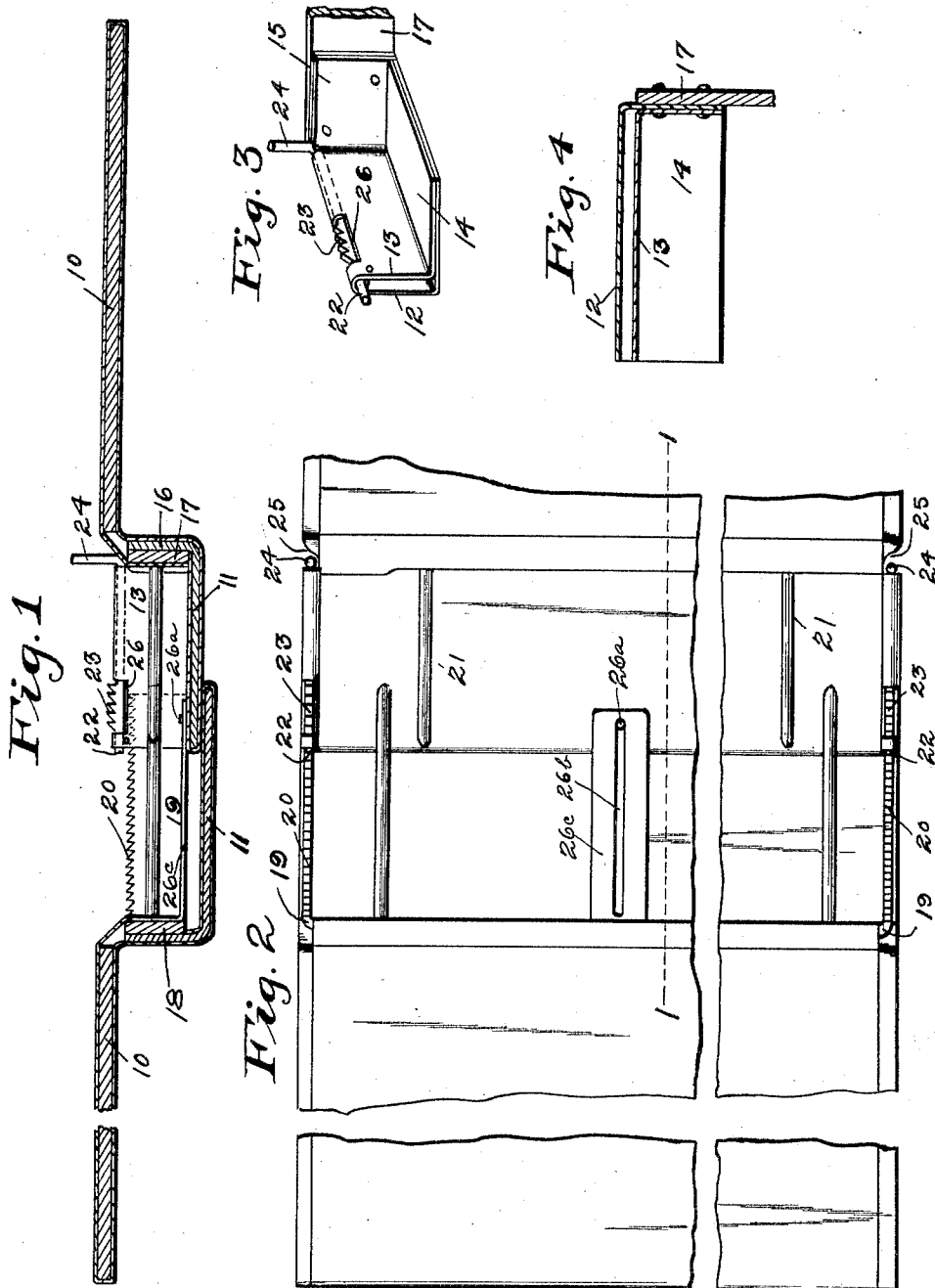


1,009,685.

Patented Nov. 21, 1911.

2 SHEETS—SHEET 1.



Witnesses
F. C. Caswell
W. A. S. S. S.

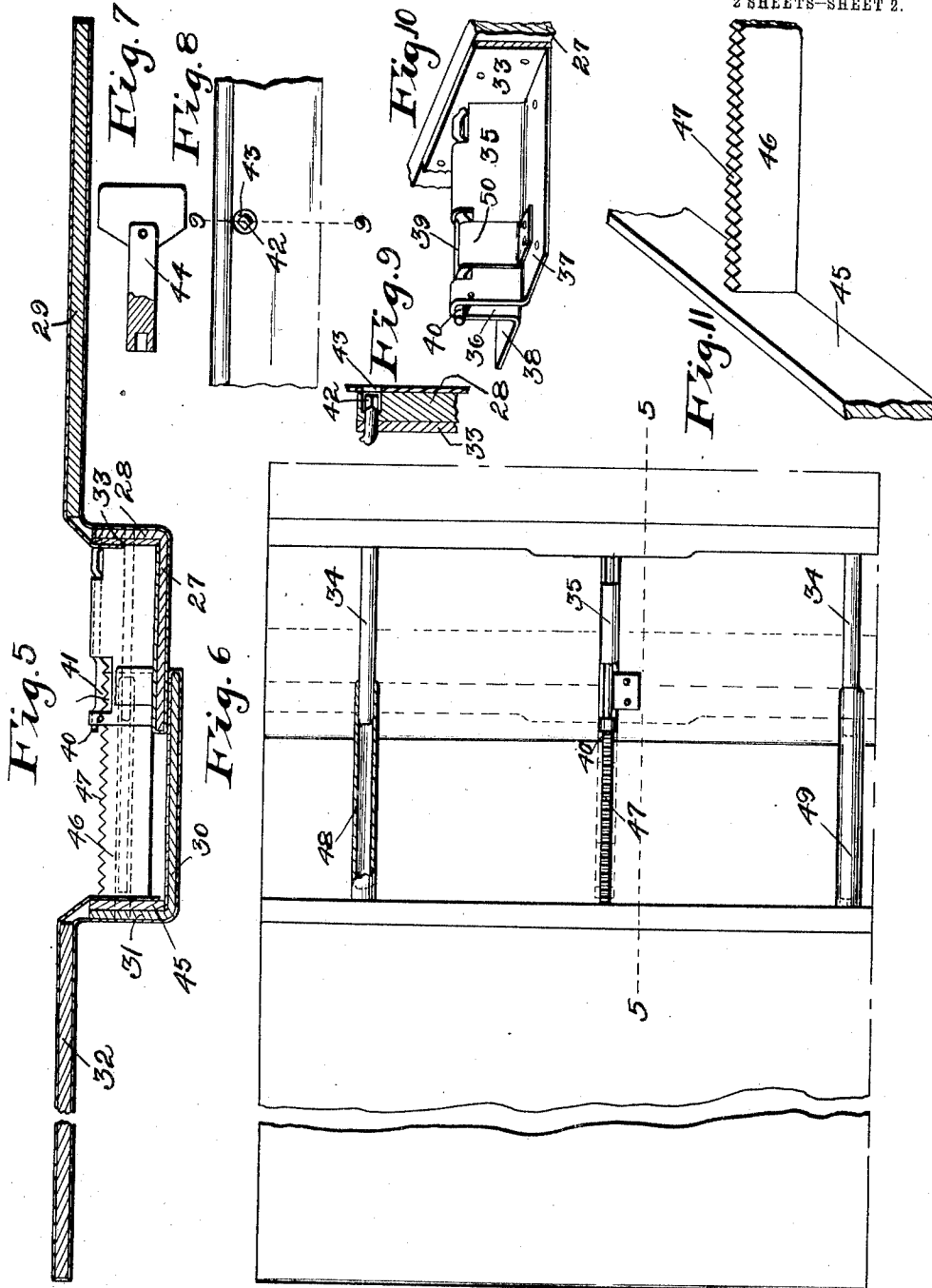
Inventors
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 by *W. A. S. S. S.* Atty

S. D. PAGE & J. C. HEDGES.
 LOOSE LEAF BOOK.
 APPLICATION FILED OCT. 24, 1910.

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2 SHEETS-SHEET 2.



Witnesses
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Inventors
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UNITED STATES PATENT OFFICE.

SAMUEL D. PAGE AND JOHN C. HEDGES, OF DES MOINES, IOWA.

LOOSE-LEAF BOOK.

1,009,685.

Specification of Letters Patent.

Patented Nov. 21, 1911.

Application filed October 24, 1910. Serial No. 588,781.

To all whom it may concern:

Be it known that we, SAMUEL D. PAGE and JOHN C. HEDGES, citizens of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Loose-Leaf Book, of which the following is a specification.

The object of our invention is to provide a loose leaf book of simple and durable construction that may be made at a minimum of expense and that may be opened or closed readily, quickly and easily to receive loose leaves or to permit the removal thereof.

A further object is to provide a loose leaf binder of simple and inexpensive construction and having few parts which may be easily, readily and quickly opened to remove leaves or to replace them in the binder and which is also so arranged that it may be locked so that leaves may not be detached or inserted without first unlocking the cover members by means of a key.

A further object is to provide means for securing the locking device in a locked or an unlocked position.

Our invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a central, transverse, sectional view through a book embodying our invention. Fig. 2 shows a top or plan view of same. Fig. 3 shows an enlarged, detail, perspective view of one of the sheet metal guides to receive the rack bars, also illustrating the locking device. Fig. 4 shows a detail, sectional view through the device illustrated in Fig. 3. Fig. 5 shows a sectional view of the modified form of our invention taken on the line 5—5 of Fig. 6. Fig. 6 shows a plan view of the same in an open position. The dotted lines in said view indicate the position of one of the sides when at its limit of movement toward the other. Fig. 7 shows a detail, sectional view of a key for use in unlocking the cover in our modified form. Fig. 8 shows a detail view illustrating the locking member designed to receive said key. Fig. 9 shows a sectional view taken on the line 9—9 of Fig. 8. Fig. 10 shows a detail, perspective view of the locking device, and Fig. 11 shows a detail perspective view of one of the cover back member supporting bars and

the rack bar thereon in the modified form of our invention.

Referring to the accompanying drawings, 60 the book cover is shown to be formed of two independent detachable members, each of which comprises a cover side 10 and a back member 11. The two back members are arranged to lie in overlapping positions 65 as clearly shown in Fig. 1. On one of said back members, we have provided two guides and on the other, two bars designed to enter said guides. The back member on which the guides are mounted has its back portion 70 11 arranged on top of the back portion 11 of the other cover member. The said back portion 11 has on each end a guide device and brace which is preferably formed complete of a single piece of sheet metal doubled 75 along its longitudinal center to form two sides 12 and 13 spaced apart from each other to form a guide. The edge portions 14 of said sides are arranged in overlapping positions and are designed to rest against the 80 back 11 and the ends 15 of said sides are also arranged in overlapping positions and are designed to rest against and be secured to the part of the back member 11 that is parallel with the sides 10 when the book 85 is closed and which is indicated in Fig. 1 by the numeral 16. In order to strengthen and reinforce this portion of the back member, we provide a metal strip 17 to extend longitudinally of the book parallel with the 90 part 16 as shown in Fig. 1.

On the side of the back opposite from the part 16, we have provided a strengthening and reinforcing metal bar 18 having its ends extended at right angles to its body portion at 19 and provided with ratchet teeth 95 20 at their upper edges. These parts 19 stand spaced apart from the adjacent back member 11, as shown in Fig. 1, and the said parts 19 are designed to enter and freely 100 slide within the guides formed by the sides 12 and 13. On each of the parts 17 and 18 we provide a number of binding rods 21 of ordinary construction and designed to enter holes formed in the leaves to be bound together to form a book. These rods are 105 arranged so that their ends will overlap each other when the sides of the book are brought together in the manner shown in Fig. 2.

In order to provide for locking the two 110 back members of the book in any position of their adjustment, we have mounted in the upper portions of the guides the rock shafts 22, each of which is provided with a ratchet

tooth portion 23 designed to engage and co-act with the ratchet teeth 20 and on one end of each of said rock shafts is a crank 24 designed, when in one position, to project upwardly from the back of the book and in another position to project downwardly and to rest in a small recess 25 formed in the end of the book adjacent thereto as shown in Fig. 2. In order that the ratchet teeth 23 on the rock shaft 22 may freely turn within the guide, we cut away portions of the guide at 26 as shown in Fig. 3. The rivet 26^a in the back portion 11 engages the slot 26^b in the bar 26^c on the bar 18 to limit the outward movement of two back portions 11.

In the modified form of our invention, the book cover is shown to be composed of two cover members. One cover member comprises a back portion 27 having an upright side member 28 and a side 29 flexibly connected with the part 28. The other cover member comprises a back portion 30 having an upright side portion 31 and a side portion 32 flexibly connected with the side portion 31. Mounted on the part 28 on its inner surface is a flat metal bar 33 extended longitudinally of the cover and having spaced apart from its ends two binding rods 34. At the central portion of the bar 33 is a locking device and guide comprising a single piece of sheet metal doubled at its central portion and having sides 35 and 36 spaced apart. The edge portions thereof are extended outwardly in opposite directions at 37 and 38 and are secured to the back portion 27. The said guide is provided with an opening at 39 in its upper portion and mounted between the sides 35 and 36 is a rock shaft 40 having ratchet teeth 41 thereon. This rock shaft extends through the bar 33, as shown in Fig. 10, and is provided with an angular end 42, there being an opening formed in the side of the cover at 43 through which a key 44 may be inserted and fitted to the angular end of the shaft 40. Attached to the inner face of the part 31 of the cover is a flat metal bar 45 having a bar 46 attached to its central portion and extended at right angles. This bar 46 is provided with teeth 47 at its top edge and it is designed to enter between the sides 35 and 36. The said bar 45 also has attached to its end portions the tubes 48 and 49 designed to receive the rods 34. A spring bar 50 is fixed to the edge portion 37, and is designed to engage the teeth 41 on the shaft 40 when said shaft is turned to position to disengage the teeth 47 on the bar 46, thus securing said teeth in an unlocked position, and also to engage the flat side of the part on which the teeth 41 are formed, when the teeth 41 engage the teeth 47 to secure the said teeth in a locked position.

In practical operation, it is obvious that

the device may be constructed at a minimum of expense for the reason that the only place where strength is required is in the metal bars 17 and the parts connected with them. These metal bars may be placed within the leather covering, as shown in Fig. 1, so that they will be concealed. The bar 17 has connected with it the two guide devices and the two binding rods, and the bar 18 on the opposite side has connected with it the two rack bars and two binding rods.

In assembling the book, the two cover members are placed together with the bars 19 inserted in the guides. The ratchet teeth 23, when placed in an upright position, as shown in Fig. 1, will not in any way interfere with the sliding movement of the two cover members relative to each other. When the leaves of the book are placed in position the rods 21 will extend through openings in them and the cover members are pushed toward each other until the two portions of the back engage the sides of the book leaves. Then the operator turns the crank arms 24 to such a position that the teeth 23 engage with the teeth 20 thus firmly locking the two cover members against movement away from each other. One of the advantages of this arrangement is that the guides and the bars 19 form ends for the book cover to limit longitudinal movement of the leaves within the book.

In the modified form of our invention, the leaves to be bound together are provided with openings to receive the tubes 48 and 49 and also with notches to receive the bar 46. The sides of the binder are first separated, then the leaves are inserted and finally the sides are moved together until they engage the leaves. Then the rock shaft 40 is turned until the teeth 41 thereon engage the teeth 47 of the bar 46 whereupon the device is locked into position and none of the leaves can be removed until after a key is inserted and the shaft 40 is rotated a part revolution. The spring bar 50 yieldingly secures the teeth 41 in position in or out of engagement with the teeth 47. The construction of the device is obviously very simple and inexpensive and comprises only a few parts. Hence it may be made cheaply and at the same time will have all of the advantages as to ease of operation of other loose leaf binders of this class.

We claim as our invention:

1. An improved loose leaf book, comprising two cover members, each cover member having a back portion and a side portion, the said back portions being arranged in overlapping positions, a metal bar extended longitudinally of one of said back portions, a guiding device arranged at right angles to said metal bar and formed of a single piece of sheet metal doubled at its central portion and having two sides spaced

apart from each other, said guide device being also provided with an opening, a rock shaft rotatably mounted within said guide device and having teeth thereon adjacent to said openings, means for turning the said rock shaft, a flat metal bar fixed to the other side of the book cover and having its end extended across the back portion of the book and provided with ratchet teeth, said bar being designed to enter between the sides of the sheet metal guide and the teeth thereon being designed to be engaged by the ratchet teeth on the rock shaft when in one position of its adjustment, and said teeth on the rock shaft being designed to stand clear of the teeth on the bar when in another position of their adjustment.

2. An improved loose leaf book, comprising two cover members, each cover member having a back portion and a side portion, the said back portions being arranged in overlapping positions, a metal bar extended longitudinally of one of said back portions, a guiding device arranged at right angles to said metal bar and formed of a single piece of sheet metal doubled at its central portion and having two sides spaced apart from each other, said guide device being also provided with an opening, a rock shaft rotatably mounted within said guide device and having teeth thereon adjacent to said opening, means for turning the said rock shaft, a flat metal bar fixed to the other side of the book cover and having its end extended across the back portion of the book and provided with ratchet teeth, said bar being designed to enter between the sides of the sheet metal guide and the teeth thereon being designed to be engaged by the teeth on the rock shaft when in one position of its adjustment, and said teeth on the rock shaft being designed to stand clear of the teeth on the bar when in another position of their adjustment, and a spring fixed to said sheet metal guide device and designed to yieldingly engage the teeth on the rock shaft when they are in position out of engagement with the teeth on the bar, and being also designed to engage the sides of the toothed portion of the rock shaft when the teeth thereon are in engagement with the teeth on said bar to thereby yieldingly hold said rock shaft either in a locked or in an unlocked position.

3. An improved loose leaf book, comprising two cover members, each having a back and a side portion, the back portions being arranged in overlapping positions, a sheet metal guide device fixed to one of said back portions and being formed with sides spaced apart from each other, there being an opening in said guide adjacent to the end thereof

near the center of the back, a rock shaft rotatably mounted between the said sides of the guide device, a bearing for said rock shaft being provided by said guide device, means for turning the rock shaft, ratchet teeth formed on the rock shaft at a point adjacent to the opening in the sheet metal sides so that the shaft may be freely rocked and the teeth thereon permitted to extend out through the opening when in one position of their adjustment, said shaft, at the point where the teeth are formed, being provided with a flat side, a bar fixed to the opposite back portion of the cover and having teeth on one edge and being slidably mounted between said sheet metal sides, the teeth on the rock shaft being designed in one position to coact with the teeth on the bar, and a spring fixed to the sheet metal guide device to yieldingly engage either the teeth on the rock shaft or the flat side adjacent to said teeth, for the purposes stated.

4. An improved loose leaf book, comprising two cover members, each having a back and a side portion, the back portions being arranged in overlapping positions, a sheet metal guide device fixed to one of said back portions and being formed with sides spaced apart from each other, there being an opening in said guide adjacent to the end thereof near the center of the back, a rock shaft rotatably mounted between said sides of the guide device, a bearing for said rock shaft being provided by said guide device, means for turning the rock shaft, ratchet teeth formed on the rock shaft at a point adjacent to the opening in the sheet metal sides so that the shaft may be freely rocked and the teeth thereon permitted to extend out through the opening when in one position of their adjustment, said shaft, at the point where the teeth are formed, being provided with a flat side, a bar fixed to the opposite back portion of the cover and having teeth on one edge and being slidably mounted between said sheet metal sides, the teeth on the rock shaft being designed in one position to coact with the teeth on the bar, and a spring fixed to the sheet metal guide device to yieldingly engage either the teeth on the rock shaft or the flat side adjacent to said teeth, each of the cover back portions being provided with a longitudinally arranged metal bar, and binding devices fixed to said bars, for the purposes stated.

Des Moines, Iowa, March 12, 1910.

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Witnesses:

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W. A. LORTUS.