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G. W. SHERIDAN & W. A. WHEELER.

LOOSE LEAF BINDER.

APPLICATION FILED FEB. 16, 1904.

Fig. 1.

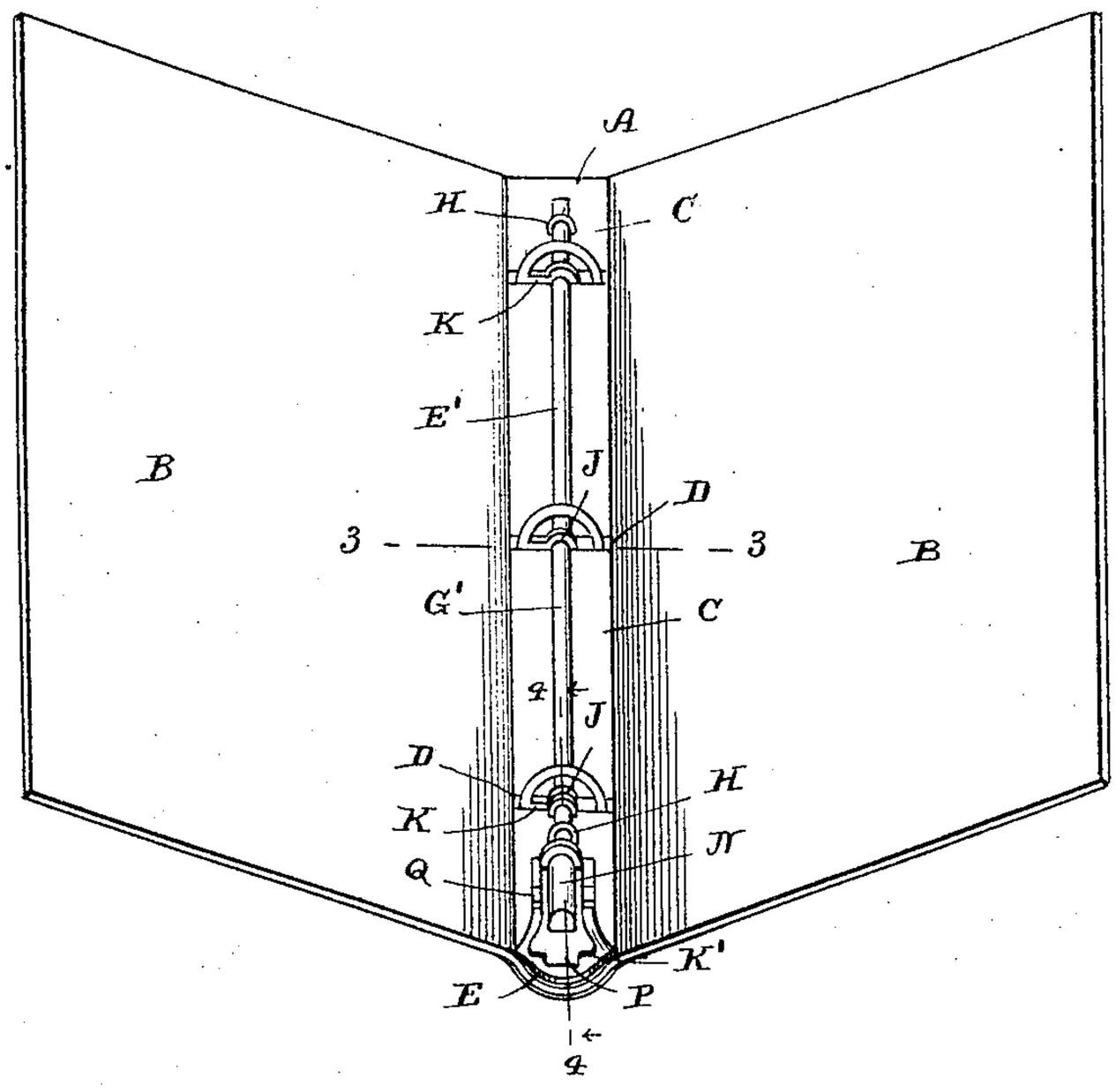


Fig. 2.

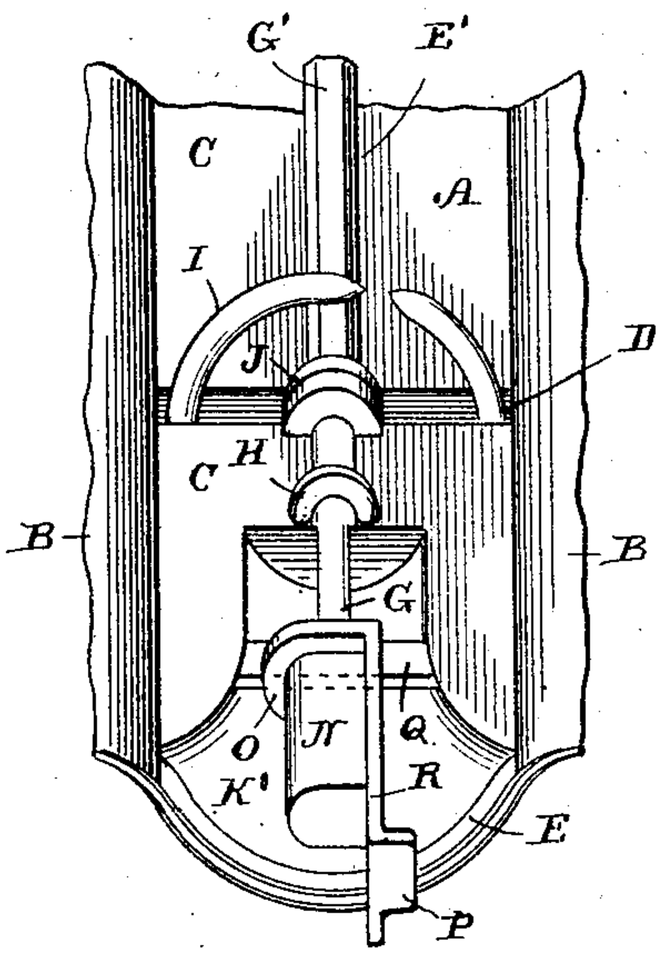


Fig. 3.

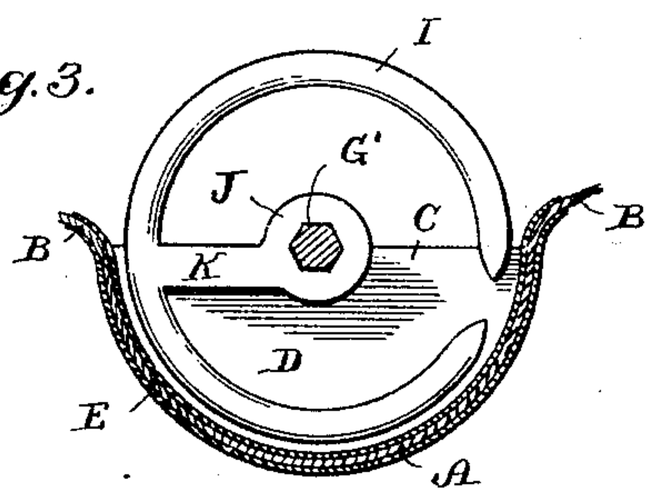
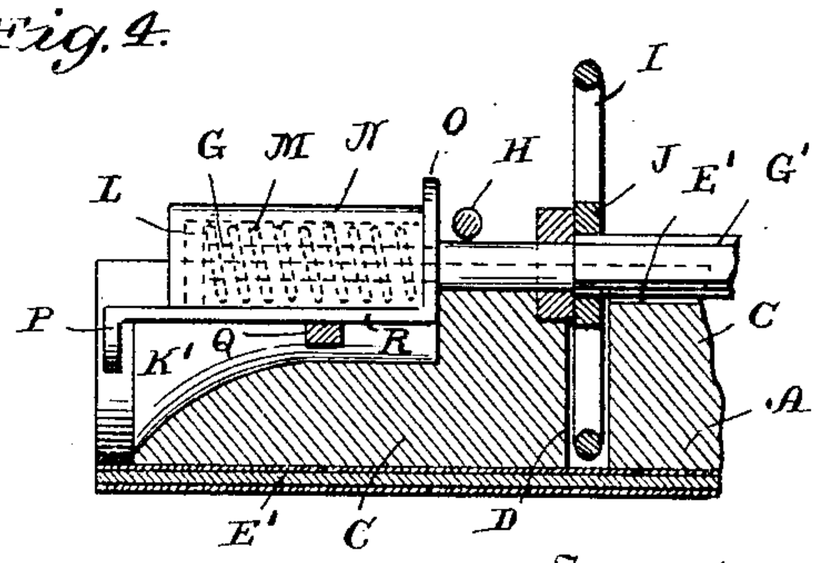


Fig. 4.



Witnesses

H. C. Dewitt

Samuel C. Shaw

Inventors

George W. Sheridan and

William A. Wheeler

By Chamberlain & Newman

Attorneys

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UNITED STATES PATENT OFFICE.

GEORGE W. SHERIDAN AND WILLIAM A. WHEELER, OF BRIDGEPORT, CONNECTICUT.

LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 779,879, dated January 10, 1905.

Application filed February 16, 1904. Serial No. 193,916.

To all whom it may concern:

Be it known that we, GEORGE W. SHERIDAN and WILLIAM A. WHEELER, citizens of the United States, and residents of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention refers to a new and improved loose-leaf binder of the kind employed to hold leaves together in book form, with means to permit of the detachment of such leaves and the substitution of new leaves as occasion might require.

It is the object of this invention to generally improve upon binders of this class, and especially to improve upon binders of the character shown in our former patent of July 21, 1903, and numbered 734,474. In this connection we have endeavored to simplify the article and lessen the cost of manufacture besides improve its efficiency and method of operation.

Among other desirable and improved features is the mechanism for locking the leaf-engaging rings in a closed position and also holding them in an open position; further, to so construct these rings that they may accommodate the greatest possible number of leaves, and, finally, to produce the parts so that different-sized binders may be made up with a comparatively small additional amount of trouble and expense.

Upon the accompanying drawings, forming a part of this specification, similar characters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows an open view of our improved loose-leaf binder complete, the leaf-holding device, however, being shown in a closed position with no leaves therein. Fig. 2 is an enlarged detail perspective view of the near end of the back of the binder, more clearly illustrating the leaf engaging and locking mechanism, which is shown in a different position from that of Fig. 1. Fig. 3 shows a cross-section, on an enlarged scale, taken on line 3 3 of Fig. 1; and Fig. 4 is an enlarged longitudinal central sectional view taken on line 4 4 of Fig. 1.

Referring in detail to the characters of reference marked upon the drawings, A indicates the back of the binder, and B the cover hinged to said back in the usual manner. This back comprises a series of semicircular-shaped blocks C, which are arranged at an equal distance apart, forming pockets D therebetween. Any number of these blocks can be employed in a way to form any desired number of pockets in accordance with the size of binder desired. These blocks are secured to and supported in a casing E, which is of a shape corresponding with that of the back of the blocks and adapted to cover the same. The blocks are further provided with a central longitudinal groove E′ to partially receive a hexagonal operating-shaft G, turned off round at each end, which turned portions are journaled in bearings H H at either end of the back.

The leaf-engaging devices comprise specially-formed open rings I, provided with a hub J, having a hexagonal hole therethrough to freely receive the operating-shaft in a manner to allow said rings to be readily slid thereon. The hub and ring are connected by a single arm or spoke K, as clearly appears in Fig. 3, the same being arranged slightly to one side of a central line taken from the center of the hub, so as to insure said arm lying below the surface of the blocks when said ring is in a closed position, as shown in Fig. 3, and so as to allow the greatest possible room for the operating of the leaves when the rings are in a locked position. The thickness of these rings is preferably slightly less than that of the width of the pockets in which they operate, thus affording play or room for the rings to yield or shift slightly within their pockets to better accommodate said rings to any variations which there might be in the distance between the ring-holes punched in the leaves.

As before stated, the rings are mounted upon the shaft, which in turn is journaled in bearings, and consequently said rings are rotatable with said shaft in a way to permit of

the opening in the rings being shifted in and out of the pockets to close and open the device. Said rings are shifted to the open positions, as shown in Fig. 2, for the purpose of attaching and detaching the leaves, and they are likewise shifted to the position shown in Fig. 3, where they are locked to hold the leaves in the binder, as will be obviously apparent.

One of the end blocks of the back is cut out, as shown at K′, to receive the operating device which we employ for rotating the shaft and rings, as will next be described. This operating device is provided with means for locking said rings in a closed position and also holding them in an open position. In construction it consists of an operating-handle P, slidably mounted upon the flattened end G of the shaft G′, and contains a flat side R, which engages a shoulder Q of the back, which shoulder serves to prevent the turning of the handle and shaft when the rings are in a closed position. This operating-handle is also preferably provided with a spring M, which is interposed between a collar L of the shaft and the inner end of the tubular portion N of the handle in a way to normally hold said handle in against the end of the cut-out portion K′ of the end block. A flange O extends out radially from the forward end of the tubular portion N of the handle and serves to engage the shoulder Q when the handle is extended, as shown in Fig. 2, and keep it in that position, as is obviously necessary for the detachment or attachment of leaves. In this connection it will be seen that the device forms a rigid lock to hold the rings in a closed position, while the engagement for holding the rings in an open position is a frictional one and permits of the adjustment of rings to any open position desired.

It will readily be seen from the foregoing description that when the device is in a locked position the operating-handle is held in a housed and protected position, so that the binder may be stood up edgewise in a suitable compartment without said operating-handle in any way interfering, and it is also apparent that when the device is in an unlocked position the operating-handle is held by means of the bridge Q in an extended and accessible position, so that the rings may be readily rotated for the purpose of inserting or removing sheets.

The operation of our device is very simple and is as follows: With the parts in the position shown in Fig. 1 the operator would first simply withdraw the handle P to clear the shoulder Q and then turn said handle, its shaft, and rings to substantially a right angle, then releasing the handle to permit its flange to bind upon the shoulder, which friction is amply sufficient to retain the rings in the position required, as shown in Fig. 2. In this position the desired number of leaves could be attached, after which the handle and shaft would again be turned until the flat side of said handle would properly register with the shoulder and move in alongside of the same, thus positively holding the handle and rings against any further movement.

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

1. In a loose-leaf binder, the combination with a shaft, of one or more leaf-engaging rings mounted thereon, each comprising an open ring, a hub, and an arm connecting the two, said arm being arranged at one side of a radial line drawn from the center of the hub substantially as described.

2. In a loose-leaf binder, the combination with a rotatable shaft and means for operating the same, of rings mounted thereon, a hub for each ring and a single arm connecting the two, the same being located slightly off from a central line through said ring substantially as described.

3. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, leaf-engaging rings upon the shaft, a handle slidably mounted on the shaft for rotating and holding the same and the rings, and means for engaging said handle when in each of its adjusted positions and to retain the rings either open or closed.

4. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, rings secured to the shaft for the engagement of loose leaves, a handle mounted on said shaft for operating the same, means for adjusting the same independent of the shaft, and means for securing said handle in such adjusted position.

5. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, rings secured to the shaft, an operating device slidably mounted upon the shaft and adapted to turn the same, resilient means for normally holding the same in its forward position and means for locking the same when in said position to hold the rings closed and means for holding the operating device in a withdrawn position against the force of said resilient means to afford a resistance to the movement of the rings when open.

6. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, rings upon the shaft to engage loose leaves, a handle slidably mounted on the shaft, a shoulder against which the handle operates to hold the same in either of its adjusted positions, and a spring to normally hold said handle in a locked position and to press the handle against the shoulder when in unlocked position.

7. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, rings upon the shaft adapted to receive loose leaves, a spring encircling the end of the shaft and means to retain it thereon, a

handle covering the spring and operating thereagainst, a shoulder adjacent to the handle adapted to hold the handle and shaft against rotation when the rings are in a closed position and to retain the handle in a withdrawn position against action of the spring.

8. In a loose-leaf binder, the combination with a back, of a shaft rotatably mounted therein, rings upon the shaft for the engagement of loose leaves, a handle mounted on said shaft for operating the same, means for adjusting the same with respect to the shaft, and a spring for securing said handle and shaft in such adjusted position.

9. In a loose-leaf binder, the combination with a back, of a longitudinal shaft bearing a series of leaf-engaging rings, an operating device comprising a slidable handle covering the end of the shaft, a spring intermediate of the end of the handle and a collar on the shaft, a bridge to engage the handle and hold the rings in a normal closed position and likewise to engage the handle and hold the same and the rings in an open position, substantially as described.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 10th day of February, A. D. 1904.

GEORGE W. SHERIDAN.
WILLIAM A. WHEELER.

Witnesses:
C. M. NEWMAN,
W. V. DEVITT.