Oct. 22, 1929. G. W. NEWMAN 1,732,584

LOOSE LEAF BINDER

Filed June 16, 1926

Fig. 1

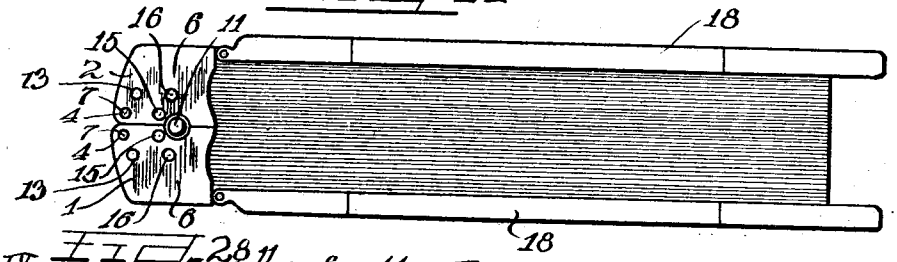


Fig. 2

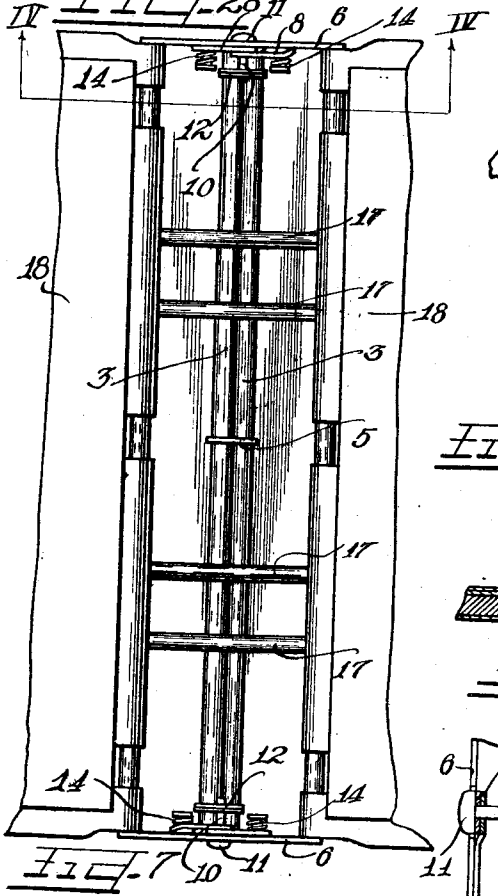


Fig. 3

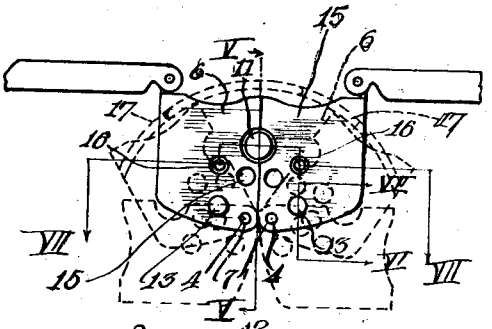


Fig. 4

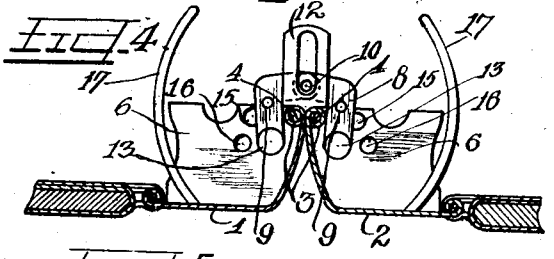


Fig. 5

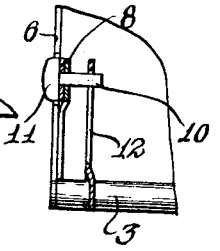


Fig. 6

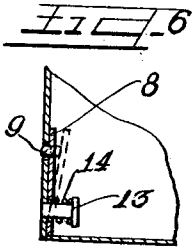
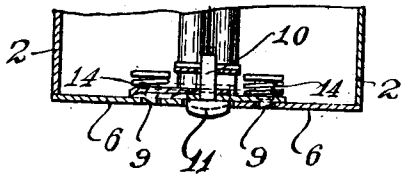


Fig. 7



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UNITED STATES PATENT OFFICE

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LOOSE-LEAF BINDER

Application filed June 16, 1926. Serial No. 116,274.

This invention relates to a loose leaf binder of the Tengwall type and concerns itself with a structure that can be partially opened for posting or recording purposes, and which can be completely opened for the insertion or removel of leaves. In the first or partially open position, the leaves are still locked against removal from the hooks while in the second or open position, they are unlocked.

It is also an object of this invention to cheapen the construction of such binders in stamping the base portions from metal and hinging the same on the center-line.

The invention comprises the novel structure and combinations hereinafter described and more particularly pointed out and defined in the appended claims.

In the accompanying drawings which illustrate a preferred embodiment of this invention and in which similar reference numerals refer to similar features in the different views:

Figure 1 is an end elevational view of a loose leaf binder involving this invention.

Figure 2 is an enlarged interior fragmentary view of the same.

Figure 3 is a fragmentary end elevational view of the binder showing in dotted lines the different opening positions thereof, with parts omitted and showing the prongs in partially open position.

Figure 4 is a sectional view upon the line IV—IV of Figure 2 showing the binder in full open position.

Figure 5 is a fragmentary sectional view upon the line V—V of Figure 3.

Figure 6 is a fragmentary sectional view upon the line VI—VI of Figure 3.

Figure 7 is an enlarged sectional view taken upon the line VII—VII of Figure 3.

As illustrative of this invention, there is shown a binder comprising a pair of sheet-metal angular members 1 and 2 which are curled at their adjacent edges as indicated at 3 and rods 4 extend through the curled edges. The curled portions 3 are slitted at suitable points for receiving a hinge band 5 and the slotted guide plates 12 which encompass the rods 4. The angular members 1 and 2 are provided with closing ends 6 which are substantially at right angles to the main portions thereof and come into abutting relation when the binder is closed. Each closing end 6 is provided with an aperture 7 for receiving the ends of the rods 4 as shown in Figures 1 and 3.

An angular arm 8 is pivoted to each end member 6 by a pin or bolt 13 and carries a locking stud 9 provided with a suitably bevelled end. The upper ends of the arms on adjacent end members 6 are pivotally connected by a pin 10 having an enlarged head 11 extending through a suitable opening formed in the adjacent edges of the end members 6. The pin 10 extends through one of the slotted guides 12.

The pivot bolts 13 upon which the arms 8 are mounted extend inwardly and are provided with enlarged heads as shown in Figures 6 and 7. Comparatively stiff coil springs 14 are positioned between the arms 8 and the heads of the pivot pins 13. The tendency of each spring 14 is to force its arm 8 outwardly to engage the locking stud 9 thereon with one of the locking apertures 15 and 16 in the end member 6.

The sides of the members 1 and 2 carry suitable impaling hooks 17 as is well-known in the art, and the covers 18 are hinged to the outer edges of the members 1 and 2.

When the binder is in closed position, the studs 9 on the arms 8 are engaged in the locking apertures 16. To unlock and open the binder, the operator pushes the pins 10 inwardly with his fingers to withdraw the studs 9 from the apertures 16. If the binder has been opened at the desired spot, when the studs 9 have been withdrawn, the two parts of the binder will separate by gravity until the studs 9 are automatically snapped into the apertures 15. The parts will then be as shown in the first dotted-line position in Figure 3. In this position, the impaling hooks still overlap so that the sheets are still locked against removal, and in this position, entries can be made in the binder. However, if it should be desired to open the binder further so that leaves may be removed or inserted, the operator will again push inwardly upon the pins 10 to release the studs 9 from

the apertures 15. When the studs 9 have been withdrawn from the apertures 15, the divided parts of the binder will automatically separate by gravity so that the parts will assume the second dotted-line position as shown in Figure 3 and as shown in full lines in Figure 4, and the binder will be completely open. During the movements of the sides of the binder, the slot in the guide 12 will allow proper vertical movement of the pin 10.

It will be appreciated that in the Tengwall binder, the hooks upon each side extend completely through all the loose leaves, and these hooks separate sufficiently when the binder is opened for removal of the leaves. It is highly desirable to provide means in such a binder for locking the binder in partially open position, in which position the leaves cannot readily be removed, so that the operator will not be bothered by leaves coming out when entries are being made.

I am aware that many changes may be made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than as necessitated by the prior art.

I claim as my invention:

1. In a loose leaf binder, a pair of angular members hinged together, said members having end plates provided with intermediate and closing apertures, and a resilient member at each end of the binder having studs for engaging said apertures.

2. In a loose leaf binder, a pair of hinged members having end plates, an angular arm pivoted on each end plate, means for pivotally connecting the free ends of the arms of adjacent end plates, a stud on each arm, each end plate having a plurality of apertures for receiving a stud and means for simultaneously flexing both of said arms.

3. In a loose leaf binder, a pair of angular members hinged together and having end plates in abutting relation when the binder is in closed position, finger-operated latches associated with said end plates and adapted for locking said members in either closed or partially open position, said end plates and latches having mutually engageable parts in such closed or partially open position and means for causing said latches to operate automatically for locking said members in partially open position when the same are moved from closed position.

4. In a loose leaf binder, a pair of angular hook-carrying members hinged together and having end plates in abutting relation when the same are in closed position, means including finger-operated elements associated with said end plates for locking said members in closed or partially closed position and means for causing said elements to operate automatically to lock said members in partially open position when said members are moved toward open position and also causing said elements to operate automatically when the binder is closed to lock said members in closed position.

5. In a loose leaf binder, a pair of angular prong-carrying members hinged together and having end plates in abutting relation when the same are in closed position, means including finger-operated and yielding elements associated with said end plates for locking said members in closed position and arresting said members in partially open position, said yielding elements operating to automatically arrest said members in partially open position when said members are moved toward open position.

6. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation when said members are in closed position, latching mechanism associated with said end plates including a finger-operated yielding element adapted for locking engagement with said members in closed position and adapted when released for automatically arresting said members in partially open position when said members are moving toward open position.

7. In a loose leaf binder, a pair of hinged prong-carrying members having end plates in abutting relation when said members are in closed position, latching mechanism for the end plates including a finger-operated yielding element projecting beyond said end plates and arresting said members from outward movement when the same are in closed or partially open position, said element being actuatable for releasing said members from their partially open position whereby the same may be moved to full open position, and said mechanism operating to automatically lock said members in closed position when said members are swung toward each other.

8. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation when said members are in closed position, latching mechanism upon the inner sides of said end plates including a yielding finger-operated element projecting through said end plates and operable for releasing said members, said latching mechanism operating automatically for arresting said members in partially open position.

9. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation when said members are in closed position, latching mechanism upon the inner sides of said end plates for locking said members in closed position, said latching mechanism including a finger-operated element projecting through said end plates for unlocking said members,

and means for causing said mechanism to operate automatically for arresting said members in partially open position when the same are moved outwardly.

10. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation where said members are in closed position, yielding finger-operated elements at the ends of said binder, said elements and end plates having mutually engageable parts for maintaining said members in closed or partially open position said yielding elements operating to automatically lock said binder in closed or partially open position.

11. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation when said members are in closed position, and yielding latching mechanism upon the inner side of a pair of end plates including a finger piece projecting through said end plates, said latching mechanism and end plates having interlocking parts for latching said plates in closed or partially open position, and said yielding mechanism operating automatically to latch said members in closed or partially open position.

12. In a loose leaf binder, a pair of prong-carrying members hinged together and having end plates in abutting relation when said members are in closed position, latching mechanism associated with a pair of said end plates and having a finger piece projecting therethrough said latching mechanism and end plates having cooperating latching parts for latching said members in closed or partially closed position, and means for yieldingly urging said latching mechanism into engagement with said end plates for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

GEORGE WASHINGTON NEWMAN.