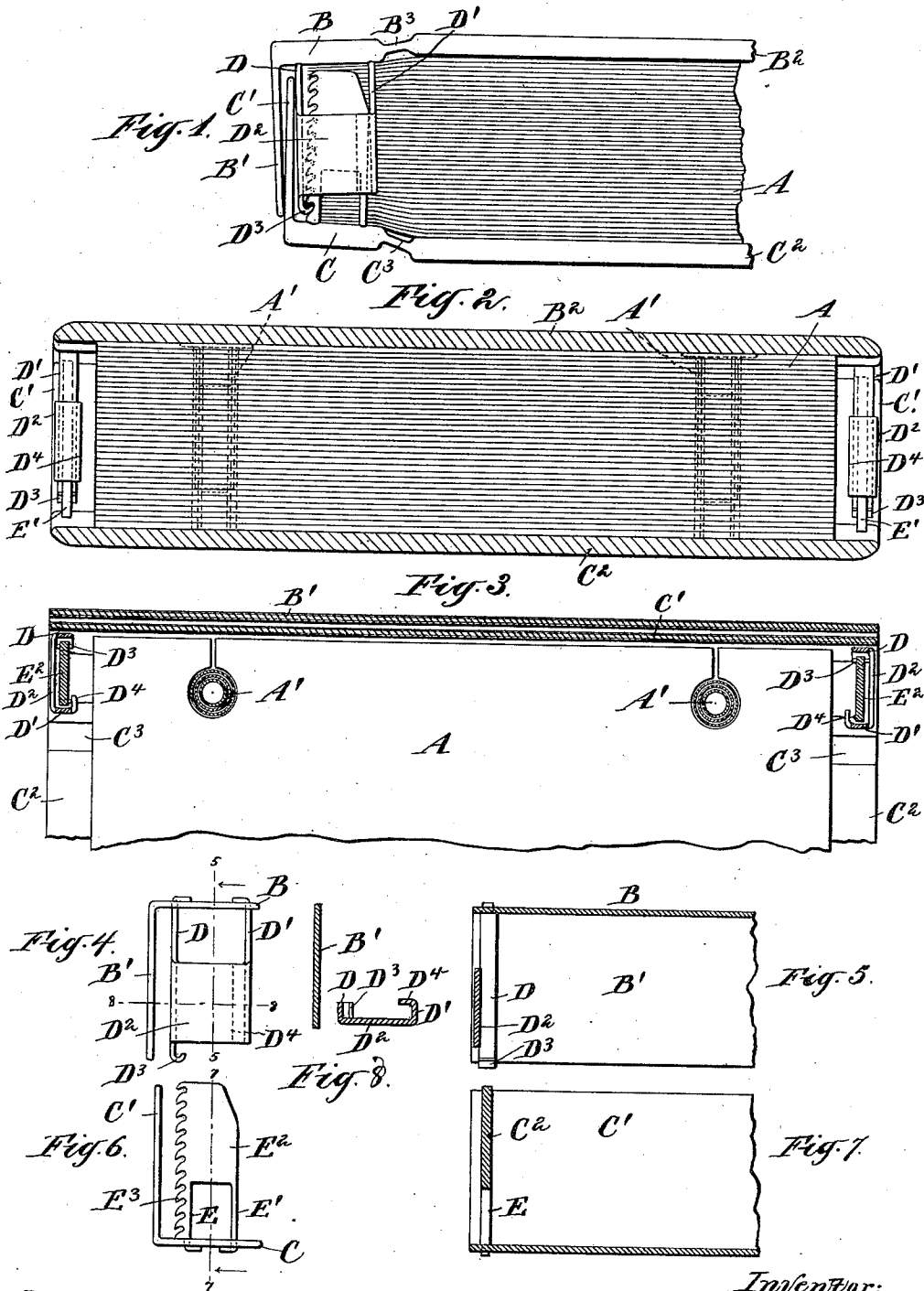


L. M. MOREHOUSE.
LOOSE LEAF BINDER.
APPLICATION FILED DEC. 13, 1910.

997,634.

Patented July 11, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

LEONARD M. MOREHOUSE, OF NEWARK, NEW JERSEY.

LOOSE-LEAF BINDER.

997,634.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed December 13, 1910. Serial No. 597,175.

To all whom it may concern:

Be it known that I, LEONARD M. MOREHOUSE, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Loose-Leaf Binders, of which the following is a specification.

The invention relates to means for engaging the bars between which the sheets are compressed, and the object of the invention is to provide an economically manufactured device for automatically engaging the bars, which may be easily and quickly released to permit the separation of the bars for the insertion or removal of leaves, and having a great range or capacity for the accommodation of large numbers of leaves.

Another important object is to provide and locate the engaging means in such manner as to permit the outer faces of the bars to be smoothly inclosed by binding material and free from projections or openings.

The invention consists in certain novel features, and details of construction and arrangement by which the above objects are attained, to be hereinafter described and pointed out in the claims.

The accompanying drawings form a part of this specification and show the invention as it has been carried out in practice.

Figure 1 is an elevation showing the rear portion of the improved binder and contained leaves. Fig. 2 is a transverse section through the covers and leaves, showing the engaging means in front elevation. Fig. 3 is a corresponding horizontal section. Fig. 4 is an end view of the upper bar and its engaging member. Fig. 5 is a vertical section on the line 5—5 in the preceding figure. Fig. 6 is an end view of the lower bar and its engaging member. Fig. 7 is a vertical section on the line 7—7 in Fig. 6. Fig. 8 is a transverse section taken on the line 8—8 in Fig. 4.

Similar letters of reference indicate the same parts in all the figures.

A A are loose leaves slotted to engage telescopic posts A¹ A¹ secured to the inner faces of the bars B, C; the slots and posts may be of the usual or any approved forms.

Both the bars B and C are bent or partially folded longitudinally to provide flanges B¹ and C¹ adapted to overlap and form the back of the binder. The bars are preferably thickened or built up on the outer

faces by the addition of suitable filling strips, not shown, and are covered with leather or other binding material which is continued to the covers B² C² and arranged to provide the usual hinges B³ C³ for the latter.

Attached to the inner face of the upper bar B at each end is a housing of sheet metal comprising two legs D, D¹ extending downwardly at a right angle to the bar and joined at their lower ends by a connecting web D². The leg D is continued beyond the web and bent to form a hook or pawl D³. The legs D D¹ may be secured to the bar in any desired manner; they are shown extended through openings in the bar and fastened by riveting or upsetting the protruding portions.

On the lower bar C at each end is an upwardly extending plate E² having legs E, E¹ similarly fastened, and provided on the rear edge with a series of ratchet teeth E³ adapted for engagement with the pawl D³.

A sufficient number of leaves being applied on the posts while the upper bar B and its connected parts are removed, the bar is replaced with its portions of the posts engaged with those of the lower bar, and the plates E² E² received within the legs D D¹ and web D², and with the flange B¹ overlapping the flange C¹; the upper bar is then firmly forced down, compressing the rear margins of the leaves, and the pawls D³ automatically engaged with the lowest attainable ratchet teeth. Thus secured the parts present the appearance shown in Fig. 1 in which the resistance or elasticity of the compressed leaves tend to tilt the bars relatively to each other in the direction to maintain the engagement.

To release the bars pressure is applied by the thumbs of the operator upon the leg D¹ at each end of the bar B while the flange B¹ is grasped by the fingers and the pawls thus forced out of engagement with the teeth. A lifting movement while thus conditioned separates the bars.

In order to maintain the plates E² and their housings in alinement, and to prevent separation by lateral movements of the pawls and teeth relatively to each other, each leg D¹ is provided with a lug D⁴ extending partially over the inner face of the plate E² and forming with the web D² a guide to prevent such movements.

It will be noted that the arrangement

provides for a large increase in the thickness, the capacity for additional leaves depending on the length of the ratchets E³ and the location of the pawls.

5 The outer faces of the bars and their flanges are practically smooth and continuous, and when covered with binding material show unbroken surfaces by which abrasion of the desk or other support is
10 obviated.

As the ratchet mechanisms are conveniently presented outside the leaves and protected by the overhanging ends of the bars, openings in the latter for screws or other
15 forms of fastenings are unnecessary and the damage to the binding material due to the operation of such fastening means is avoided.

The openings in the plates and housings
20 permit tongues of the binding material to be passed through between the legs of these parts and permit a neat finish to be easily obtained.

The angle form of the bars insures the required rigidity, and the ratchet plates and housings are easily formed by suitable dies. The whole offers an eminently simple, inexpensive, easily operated and efficient binder.

I claim:—

30 1. In a loose leaf binder, an upper and a lower bar adapted to receive leaves between them, a ratchet at each end of one of said bars and housings for said ratchets at each end of the other bar, one member of
35 each housing extended to form a pawl for coöperation with the adjacent ratchet.

2. In a loose leaf binder, an upper and a lower bar adapted to receive leaves between them, a ratchet at each end of one of said
40 bars and housings for said ratchets at each end of the other bar, one member of each housing extended to form a pawl for coöperation with the adjacent ratchet, each bar

being provided with a flange, said flanges arranged to overlap and form the back of
45 the binder.

3. In a loose leaf binder, an upper and a lower bar adapted to receive leaves between them, a ratchet at each end of one of said bars, housings for said ratchets at each end
50 of the other bar, one member of each housing extended to form a pawl for coöperation with the adjacent ratchet, each bar being provided with a flange, said flanges arranged to overlap and form the back of
55 the binder, and telescopic posts on said bars adapted to extend through the leaves.

4. In a loose leaf binder, upper and lower bars adapted to receive leaves between them, a ratchet carried by one of said bars, and a
60 housing carried by the other bar and comprising substantially parallel legs with a connecting web, with one of the legs extended beyond the web and bent to form a hooked pawl for coöperation with said
65 ratchet.

5. In a loose leaf binder, upper and lower bars adapted to receive leaves between them, a ratchet carried by one of said bars, a housing carried by the other bar and comprising
70 substantially parallel legs with a connecting web, one of said legs being extended toward the web to form a hooked pawl for coöperation with said ratchet, said ratchet adapted to slide in said housing, and an
75 inwardly extending lug on the housing forming with the web of the housing a guide to prevent lateral separation of the hook and ratchet teeth.

In testimony that I claim the invention
80 above set forth I affix my signature, in presence of two witnesses.

LEONARD M. MOREHOUSE.

Witnesses:

CHARLES R. SEARLE,
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