A. L. MURPHY, Sr.

LOOSE LEAF BINDER.

APPLICATION FILED JULY 10, 1909.

960,674.

Patented June 7, 1910.

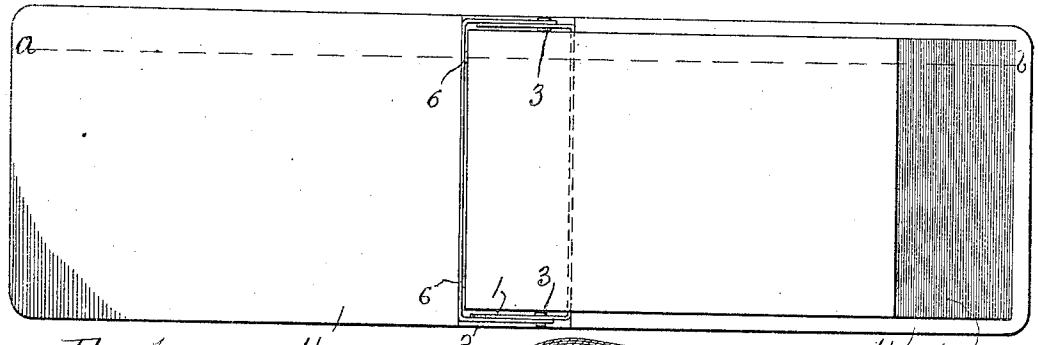

Fig 1

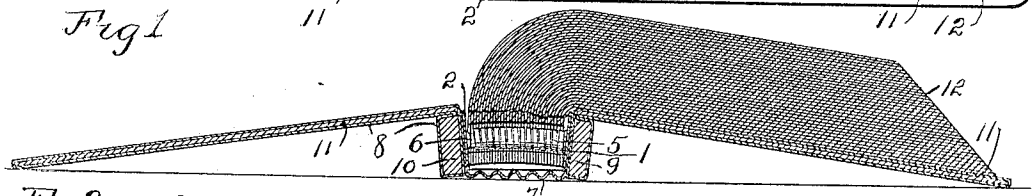

Fig 2

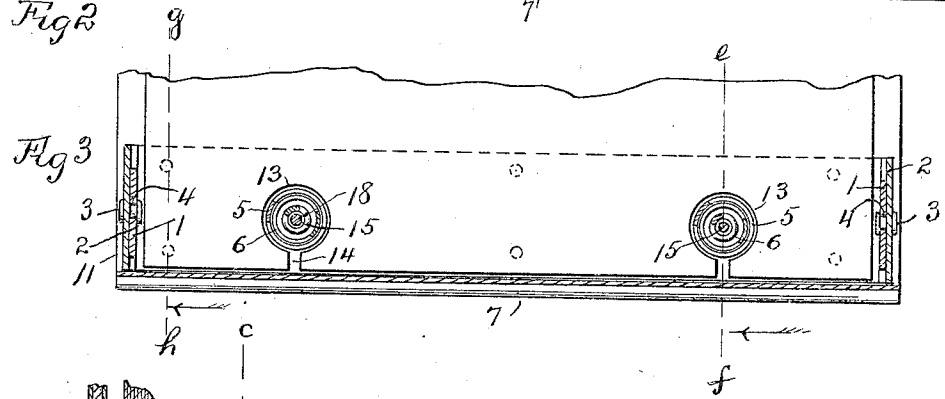

Fig 3

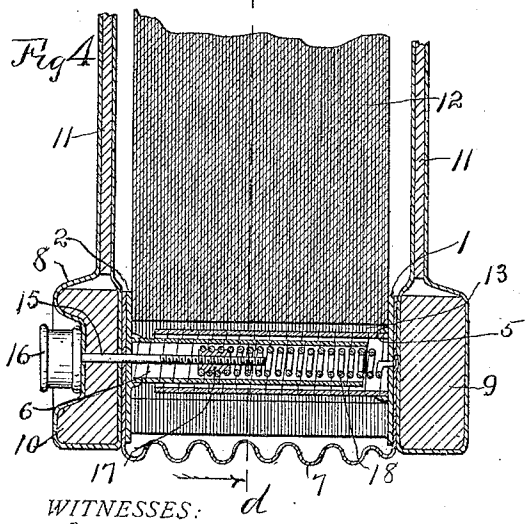

Fig 4

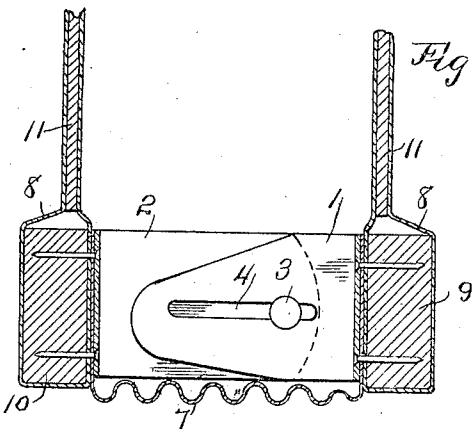

Fig 5

WITNESSES:

R. C. Hamilton.

E. B. House

INVENTOR.

Arthur L. Murphy, Sr.

BY

Warren D. House

His ATTORNEY.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR L. MURPHY, SR., OF INDEPENDENCE, MISSOURI.

LOOSE-LEAF BINDER.

960,674. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed July 10, 1909. Serial No. 506,961.

To all whom it may concern:

Be it known that I, ARTHUR L. MURPHY, Sr., a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

My invention relates to improvements in loose leaf binders.

The object of my invention is to provide a loose leaf binder in which the leaves may be swung to a widely open and substantially flat position, for permitting ready inspection of the leaves and to enable one to easily write upon the leaves.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings which illustrate the preferred form of my invention, Figure 1 is a plan view with the covers in the open position. Fig. 2 is a cross section on the dotted line *a*—*b* of Fig. 1. Fig. 3 is a sectional view on the dotted line *c*—*c* of Fig. 4. Fig. 4 is a sectional view on the dotted line *e*—*f* of Fig. 3. Fig. 5 is a sectional view on the dotted line *g*—*h* of Fig. 3.

Similar reference characters denote similar parts.

In the preferred form of my invention shown in the drawings, two U shaped members 1 and 2 are pivotally connected with each other by two pins 3 secured to the parallel arms respectively of the member 2 and extending through longitudinal slots 4 respectively in the parallel arms of the member 1.

Secured at one set of ends respectively to the member 1 intermediate its arms and extending toward the other member 2 are one or more laterally flexible leaf supporting pins comprising preferably resilient tubular pins consisting of coil springs 5, having superimposed coils into which respectively extend one or more similar pins 6 the ends of which are secured to the member 2 intermediate the arms of said member.

Secured to the members 1 and 2 is a flexible back 7 which is preferably clamped between said members and cover linings 8 by two bars 9 and 10. The cover linings 8 are secured to and serve as hinges for the cover boards 11.

12 denotes the loose leaves having each perforations 13 for receiving the leaf supporting pins 5 and 6. Each leaf 12 is provided with slots 14 which extend from the perforations 13 respectively to the adjacent edge of the leaf, for permitting the leaf to be slipped on or off the pins.

When the covers are swung to the open position shown in Figs. 1 and 2, the members 1 and 2 may be swung on the pins 3 so as to diverge from each other, as shown in Fig. 2, the flexible pins 5 and 6 yielding to permit such movement. With the members 1 and 2 so disposed, the leaves 12 may be opened more widely than would be the case if the pins 5 and 6 were not flexible and the members 1 and 2 could not swing relative to each other.

For normally forcing the members 1 and 2 toward each other to the position shown in Fig. 4, resilient means are provided. Preferably such forcing means consists in the following described mechanism:—Extending through the bar 10, cover lining 8, flexible back 7 and the member 2 are rotary rods 15, the outer ends of which are preferably provided with heads 16 by which the rods may be rotated. The inner ends of said rods are disposed longitudinally in the inner tubular pins 6 and have mounted upon the inner threaded end of each a nut 17. The nuts 17 have respectively secured to them the adjacent ends of two coil springs 18 the opposite ends of which are secured to the member 1. The tension of the springs 18 normally forces the members 1 and 2 toward each other. By adjusting the rotary rods 15 in the nuts 17 the tension of the springs 18 may be varied. By mounting the pins 3 in slots 4 the members 1 and 2 may be moved toward and from each other, as well as swung relative to each other, for the purpose of adjusting the binder for leaves of different number or thickness.

Modifications of my invention, within the scope of the appended claims, may be made, without departing from its spirit.

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

1. In a loose leaf binder, the combination with two members pivoted to each other, of two leaf supporting flexible pins respec-

tively secured to said members, one pin comprising a coil spring, and the other pin extending into said spring.

2. In a loose leaf binder, the combination with two members pivoted to each other and bodily movable toward and from each other, of two leaf supporting flexible pins respectively secured to said members, one pin comprising a coil spring and the other pin extending into said spring.

3. In a loose leaf binder, the combination with two members bodily movable toward and from each other, of two resilient leaf supporting pins secured respectively to said members, one pin being tubular and the other pin being disposed in the tubular pin.

4. In a loose leaf binder, the combination with two members bodily movable toward and from each other, of two resilient leaf supporting pins secured respectively to said members, one pin being a coil spring having superimposed coils, and the other pin being disposed in said coil spring.

5. In a loose leaf binder, the combination with two members bodily movable toward and from each other, of two leaf supporting pins secured respectively to said members and comprising two coil springs disposed one within the other.

6. In a loose leaf binder the combination with two members pivotally connected together, of two resilient, leaf supporting pins secured one to each member, one of said pins being tubular and the other pin being disposed in the tubular pin.

7. In a loose leaf binder, the combination with two members pivotally connected together, of two leaf supporting pins secured one to each member and comprising two coil springs, one of which is disposed in the other.

8. In a loose leaf binder, the combination with two members pivotally connected together, and movable toward and from each other, of a laterally flexible, leaf supporting pin secured to one of said members and extending toward the other member, holding means on said other member engaging said pin, and adjustable resilient means for normally forcing said two members toward each other.

9. In a loose leaf binder, the combination with two members pivoted together, and bodily movable toward and from each other, of a tubular resilient pin secured to one member, and a resilient pin secured to the other member and disposed in the tubular pin.

10. In a loose leaf binder, the combination with two members pivoted together and movable toward and from each other, of a tubular resilient pin secured to one member, a resilient pin secured to the other member and disposed in the tubular pin, and yielding means for normally forcing said two members toward each other.

11. In a loose leaf binder, the combination with two members pivoted together and movable toward and from each other, of a tubular resilient pin secured to one member, a resilient pin secured to the other member and disposed in the tubular pin, and adjustable resilient means for normally forcing said two members toward each other.

12. In a loose leaf binder, the combination with two members pivoted to each other and movable toward and from each other, of two leaf supporting pins comprising two coil springs, one disposed in the other, the pins being secured respectively to said two members, and yielding means for normally forcing said two members toward each other.

13. In a loose leaf binder, the combination with two members pivoted together and movable toward and from each other, of two leaf supporting pins secured respectively to said members and comprising two coil springs, one extending into the other, and adjustable, resilient means for normally forcing said two members toward each other.

14. In a loose leaf binder, the combination with two members pivoted together and movable toward and from each other, of two leaf supporting resilient pins secured respectively to said members, one pin being tubular and the other pin being located in the tubular pin, a screw threaded rod rotatively mounted in one of said members, a nut mounted on said rod, and a coil spring secured at one end to said nut and at its opposite end secured to the member opposite to the one in which said rod is mounted.

15. In a loose leaf binder, in combination with two members pivoted together and movable toward and from each other, of two leaf supporting pins secured respectively to said members and comprising two coil springs, one extending into the other, a rod rotatively mounted in one of said members and having a screw threaded portion located in the inner pin, a coil spring secured to the other of said members and extending into the inner pin, and a nut mounted on the threaded portion of said rod and secured to the last named coil spring.

16. In a loose leaf binder, the combination with two members movable toward and from each other, of a tubular pin secured to one member, a pin secured to the opposite member and extending into the tubular pin, and adjustable resilient means for normally forcing the two members toward each other.

17. In a loose leaf binder, the combination with two members movable toward and from each other, of two tubular pins secured respectively to said members and extending one into the other, a screw threaded rod rotatively mounted in one of said members

and extending into the inner tubular pin, a coil spring connected at one end to the other member and extending into the inner tubular pin, and a nut secured to said coil spring and mounted on the threaded portion of said rod.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

ARTHUR L. MURPHY, Sr.

Witnesses:
E. B. House,
C. C. Dearborn.