

April 6, 1943.

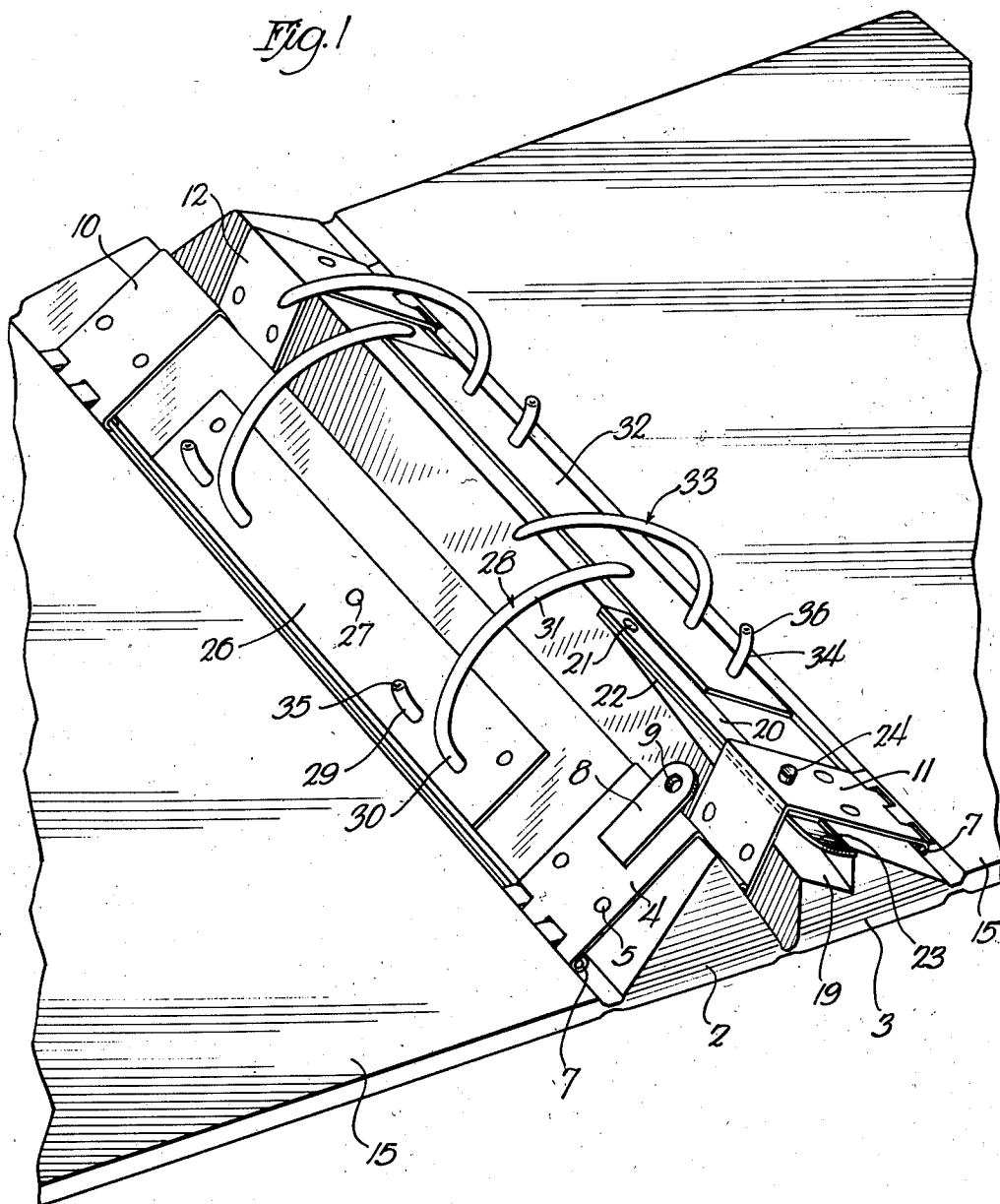
P. O. UNGER  
LOOSE LEAF BINDER

2,316,118

Filed Dec. 12, 1941

2 Sheets-Sheet 1

Fig. 1



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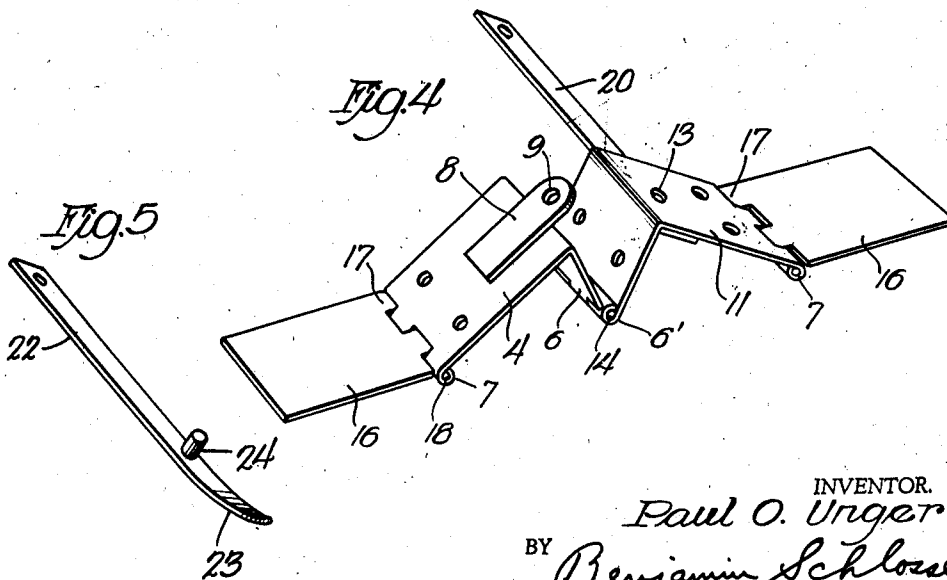
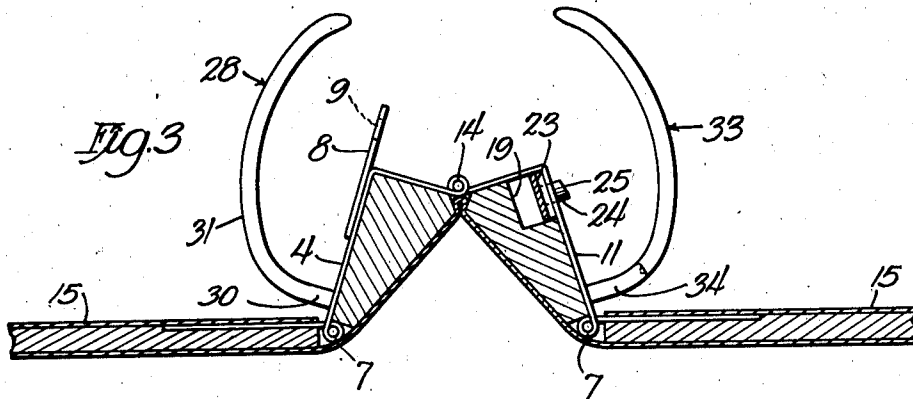
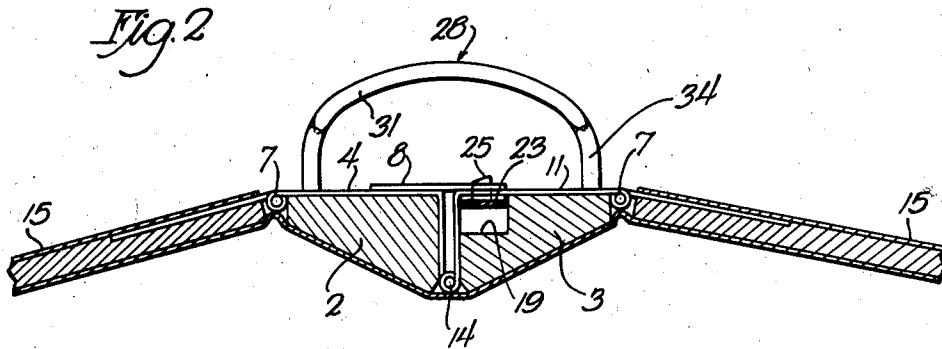
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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

2,316,118

## LOOSE-LEAF BINDER

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Application December 12, 1941, Serial No. 422,611

2 Claims. (Cl. 129-17)

This invention relates to a loose leaf binder of the type having a pair of hinged back sections provided with overlapping prongs arranged in staggered relationship.

It is an object of this invention to provide an inexpensive binder which will securely hold a plurality of punched sheets and, when opened, will cause the sheets to lie flat on either cover. It is a further object of this invention to provide simple and efficient means for latching the back sections in closed position. Other objects of this invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a fragmentary perspective view of my improved loose leaf binder in reference position;

Figure 2 is a fragmentary cross sectional view of the binder in closed position;

Figure 3 is a view similar to Figure 2, showing the binder in position for the insertion or removal of sheets;

Figure 4 is a detail perspective view of the hinge structure; and

Figure 5 is a detail perspective view of the latch.

In the drawings, the reference numerals 2 and 3 indicate in a pair of back sections of substantial triangular cross sections. These back sections are preferably formed of wood, but may be formed of any suitable material. An angular hinge plate 4 is secured to the back section 2 by means of rivets 5 or any similar securing means. The ends of the angular hinge plate 4 are curled to form hinge lugs 6 and 7. A flat bar 8 is welded to the upper surface of the angular hinge plate 4 and has one end projecting so as to overlie the back section 3 when the back sections are in closed position. The projecting portion of the flat bar 8 is provided with an aperture 9 for a purpose hereinafter disclosed. Another hinge plate 10, similar to the angular hinge plate 4 in all respects except that it is not provided with the flat bar 8, is secured to the back section 2.

A plurality of hinge plates 11 and 12 is mounted on the back section 3 in transverse alignment with the hinge plates 4 and 10. The hinge plate 12 is similar to the hinge plate 10 except for the spacing of hinge lugs 6' which is complementary to the spacing of the hinge lugs 6 so that they may cooperate to form a hinge sleeve. The hinge plate 11 is a duplicate of hinge plate 12 except that it is provided with an aperture 13 adapted to register with the aperture 9 when the back sections are in closed position. Hinge pintles 14, substantially equal in length of

the hinge plates pass through the hinge lugs 6 and 6' to hinge the back sections together. If desired, a long hinge pintle might be substituted for the two short hinge pintles 14. Cover members 15 are each provided with a plurality of hinge plates 16, secured thereto in any suitable manner, and having hinge lugs 17 cooperating with the hinge lugs 7 to form hinge sleeves through which hinge pintles 18 are inserted to hinge the covers to the back section.

The back section 3 is provided with a longitudinally extending recess 19 in its top surface adjacent its inner edge. The recess 19 provides a space under the aperture 13 and is tapered, as shown in Figure 1, with its greatest thickness at the lower edge of the binder. A reinforcing bar 20 having one end riveted, as indicated at 21, to the top surface of the back section 3 extends over the recess 19 and has its other end welded or riveted to the under surface of the hinge plate 11. The reinforcing bar 20 is provided with an aperture (not shown) registering with the aperture 13.

The rivet 21 also secures one end of a latch or spring arm 22 which is positioned in the recess 19 under the reinforcing bar 20 and has its free end 23 projecting beyond the hinge plate 11. The end 23 is turned upwardly and is rounded to facilitate the manual depression of the spring arm 22 in the recess 19. The spring arm 22 is provided with a stud 24 which normally engages the aperture 13. The top surface of the stud 24 is beveled, as indicated at 25, with its lowermost edge facing the inner edge of the back section 3 so that when the binder is moved to closed position the projecting end of the flat bar 8 may easily ride over the top surface of the stud 24 until the aperture 4 engages the stud. When the end 23 of the spring arm 22 is depressed the weight of the cover members 15, in cooperation with the triangular shape of the back sections 2 and 3, causes the binder to move to the reference position illustrated in Figure 1. If it is desired to remove or to insert sheets in the binder the cover members 15 may be pushed inwardly to force the hinge 14 upwardly and the back sections 2 and 3 into the position illustrated in Figure 3 wherein the free ends of the prongs 28 and 33 do not overlap.

The prong carrying plate 26 is secured to the top surface of the back section 2 by means of rivets 27 or by any other suitable means. The prong carrying plate 26 has secured thereto a plurality of relatively long prongs 28 and a plu-

ality of relatively short prongs 29. The prongs 28 comprise a relatively short portion 30 which extends at substantially right angles to the prong carrying plate 26 and a relatively long portion 31 curved on an arc of a circle having its center coinciding with the hinge 14. It will be understood that the short and long portions 30 and 31 of the prongs 28 are integral and the point of juncture between these portions is curved so as to permit sheets impaled on the prongs to slide over the entire length of the prong without interruption.

The back section 3 is provided with a prong carrying plate 32 having relatively long prongs 33 and relatively short prongs 34 mounted thereon. The prongs 33 are arranged in staggered relationship to the prongs 28 and are transversely aligned with the short prongs 29. Similarly, the short prongs 34 are transversely aligned with the prongs 28. The prongs 33 are curved the same degree as the prongs 28 so that corresponding points in both prongs always lie in the same plane. The prongs 29 and 34 conform in curvature with the short portion 30 of the prong 28, and are provided with sockets 35 and 36 to engage the free ends of the prongs 33 and 28 respectively. The engagement of the short prongs with the free ends of the long prongs prevents the possibility of the outermost sheets of the binder failing to register properly with the free end of the relatively long prongs when they are moved from one side of the binder to the other.

Although I have described one embodiment of my invention in detail, it will be understood that the description thereof is illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact details of con-

struction described, except as limited by the appended claims.

I claim:

1. In a loose leaf binder, a pair of back sections of substantially triangular cross section joined together by a hinge, a plurality of prongs mounted on said back sections in staggered relationship, each of said prongs having a relatively short portion extending at substantially right angles from the back section on which it is mounted and a relatively long portion curved on an arc of a circle having its center coinciding with said hinge, the prongs on opposite back sections overlapping approximately to the point of juncture of said short portion and said circular portion when said binder is closed, and a plurality of stub prongs mounted on each back section in transverse alignment with the prongs on the other back section, said stub prongs having the same contour as the relatively short portions of said first mentioned prongs and adapted to engage the free ends of said first mentioned prongs when said binder is closed.

2. In a loose leaf binder, a pair of back sections of substantially triangular cross section joined together by a hinge, a plurality of relatively short prongs extending at substantially right angles from each back section in staggered relationship to the corresponding prongs on the other back section, and a plurality of relatively long prongs mounted on said back sections in transverse alignment with said short prongs, each of said long prongs having a short portion conforming in contour with said short prongs and a long portion curved on an arc of a circle having its center coinciding with said hinge, the free ends of said long prongs engaging the free ends of the aligned short prongs when said binder is closed.

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