May 12, 1925. 1,537,675

H. S. HORN

LOOSE LEAF BINDER

Filed Jan. 12, 1923

Fig. 4.

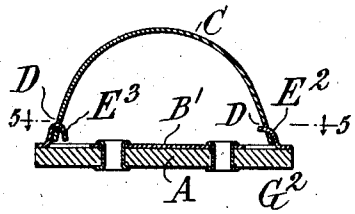


Fig. 1

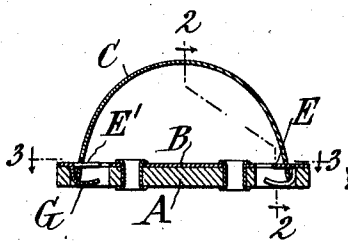


Fig. 2.

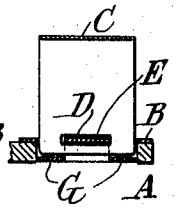


Fig. 5.

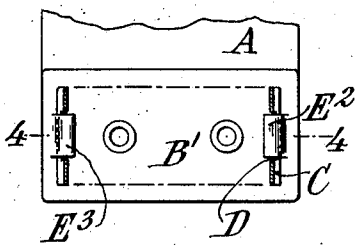


Fig. 3.

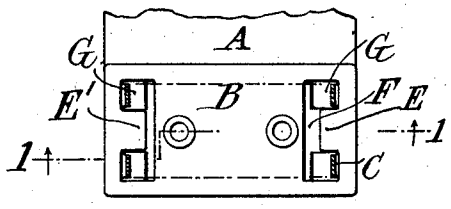


Fig. 6.

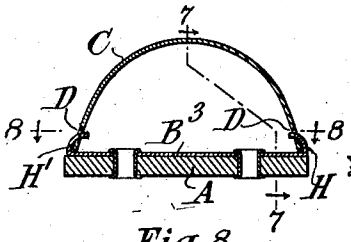


Fig. 7.

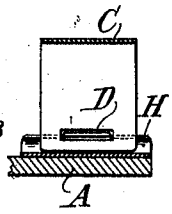


Fig. 8.

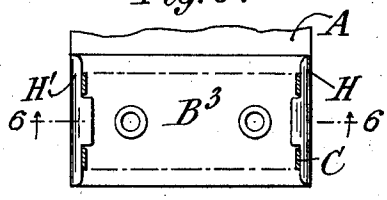
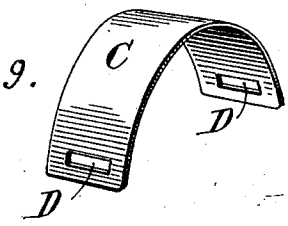


Fig. 9.



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UNITED STATES PATENT OFFICE.

HENRY STANLEY HORN, OF EAST ORANGE, NEW JERSEY.

LOOSE-LEAF BINDER.

Application filed January 12, 1923. Serial No. 612,195.

To all whom it may concern:

Be it known that I, HENRY STANLEY HORN, a citizen of the United States of America, residing in East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to loose leaf binders and aims to provide certain improvements therein.

While applicable to any type of binder in which perforated leaves are removably attached to the cover, it is particularly directed to binders of the semi-permanent type such as record books, ledgers, albums, and the like.

The invention relates to the type of binder in which there is a spring arch or plate provided, one end at least of which is detachable from the binder and is capable of swinging back so as to permit the introduction or removal of the leaves. In this type of binder it has been heretofore proposed to provide one or both ends of the spring plate with side notches which fit into the openings in a plate fixed to the side or back of the binder. In such construction, however, the notching of the end of the plate is detrimental since the notched end is apt to catch in the leaves during its passage through the openings in the latter and tear them. According to the present invention I provide a device of this type in which the ends of the spring plates are smooth and continuous, so that there is no possibility of injury to the leaves during insertion and removal. According to the invention I provide a spring plate which has an aperture or recess of appropriate form which is designed to engage a projection on the binder when the plate is sprung inwardly and released. In the preferred construction the plate is provided with an elongated opening, preferably rectangular in form, which engages a tongue formed upon the base plate. The invention has other features of improvement which will be hereinafter more fully described.

In the drawings which illustrate several forms of the invention:

Figure 1 is a vertical section of one form of the device taken on the line 1—1 in Fig. 3.

Fig. 2 is a section on the line 2—2 in Figure 1.

Fig. 3 is a plan of the base plate and section taken on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view of a modification taken on the line 4—4 in Fig. 5.

Fig. 5 is a sectional view taken on the line 5—5 in Fig. 4.

Fig. 6 is a section of another modification taken on the line 6—6 in Fig. 8.

Fig. 7 is a section taken on the line 7—7 in Fig. 6.

Fig. 8 is a sectional view on the line 8—8 in Fig. 6.

Fig. 9 is a perspective view of the preferred form of spring band.

Referring first to Figures 1 to 3, let A indicate a suitable cover and preferably the back part thereof upon which the spring band is to be mounted. I prefer to use in connection with the cover a single metal base such as B which is designed to engage both ends of the spring plate C, although this is of course not essential. The spring plate C (Fig. 9) may be of any desired width, being shown in the form of a wide spring band, and its ends are free from projections of any kind which might injure or mar the leaves. Preferably the ends are provided with transverse perforations or slots D which may be conveniently narrow and elongated, the slots being designed to engage tongues E, E′ formed from the metal of the base plate or plates. It will be observed that it is not necessary that this construction be availed of at more than one end of the spring band, the opposite end being connected in any way, either permanent or otherwise, which will permit it either to be removed or to spring back in order to permit insertion or removal of the leaves.

The tongues E, E′ are generally of the same cross-section as the opening or recesses D, and are adapted to be engaged by the band after the latter has been sprung inwardly to bring the opening in alignment with the tongue. When the tongues are formed upon a metal base such as is illustrated, the metal is cut away as indicated at F so as to permit the end of the spring plate to pass below the level of the tongue, and thus bring its opening into alignment therewith. In the construction shown in Figures 1 to 3, I provide on each side of the tongue E, an abutment G which is adapted to engage the lower edge of the end of the spring

plate, and thus support it against a rocking movement which might eventually bend or otherwise injure the tongue. This construction also holds the spring plate in more fixed and stable position. The abutments G, as shown in Figures 1, 2, and 3, comprise metal which is depressed below the general level of the base, which may be done either by cutting the metal to form lugs and bending the lugs, or by forming the metal in pockets.

If desired, the plate at one end is provided with a tongue E′ which is longer than that of the opposite end, leaving just sufficient room to enable the spring band to be inserted into place as best illustrated in Fig. 3. This will permit the removal of the corresponding end of the band if this is desired, but will prevent any possibility of its accidental removal when the band is disengaged from the opposite tongue, and, hence, is under no spring stress to keep it in engagement with the remaining tongue.

In the construction thus described, the band is free from all objectionable features; it is easily and quickly engaged and disengaged; and adequately and firmly holds the leaves, even in the case of a heavy book, without any considerable play with relation to the base.

In Figs. 4 and 5 the tongues E^2, E^3 are struck upwardly from the base plate B′. This construction is not as advantageous as that just described. In this case, however, the portions of the base immediately under the ends of the spring base constitute abutments for preventing tilting, as indicated at G^2. In this construction also one of the tongues E^3 may be turned to form a hinge joint if desired, thereby making permanent connection with the spring plate.

In the construction shown in Figs. 6 to 8, the tongues instead of being directly struck up from the body of the base are struck up from flanges H, H′.

The modifications illustrated in Figures 1 to 3, 6 and 7 are preferred for most purposes since they provide a construction in which the top of the base is smooth, having no upward projections. This lends itself to simplicity of construction of the binder. The base may be united to the back or side of the binder in any suitable way, as, for instance, by the eyelets shown.

While I have shown and described the preferred embodiments of my invention, it will be understood that I do not wish to be limited thereto, since various changes may be made therein without departing from the spirit of the invention.

What I claim is:

1. A loose leaf binder having a spring plate having means for attachment at one end to the binder, a perforation in its other end, a tongue carried by the binder for entering said perforation, and an abutment below the tongue and below the end of the spring plate against which said end contacts, said abutment comprising depressed portions formed of the same piece of metal as forms the tongue.

2. A loose leaf binder comprising a base plate substantially smooth at its top, having tongues at opposite ends extending inward into a slot leading to said tongues, and an arch-shaped spring plate having perforations at its ends adapted to engage said tongues, the metal of said base plate being depressed on each side of said tongues to form abutments against which the ends of the spring plate may abut when the spring plate is in place.

In witness whereof, I have hereunto signed my name.

HENRY STANLEY HORN.