

March 15, 1932.

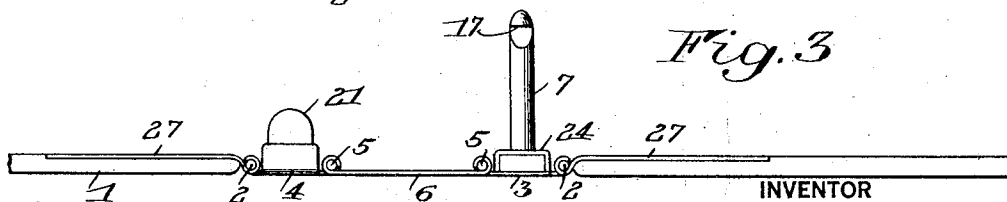
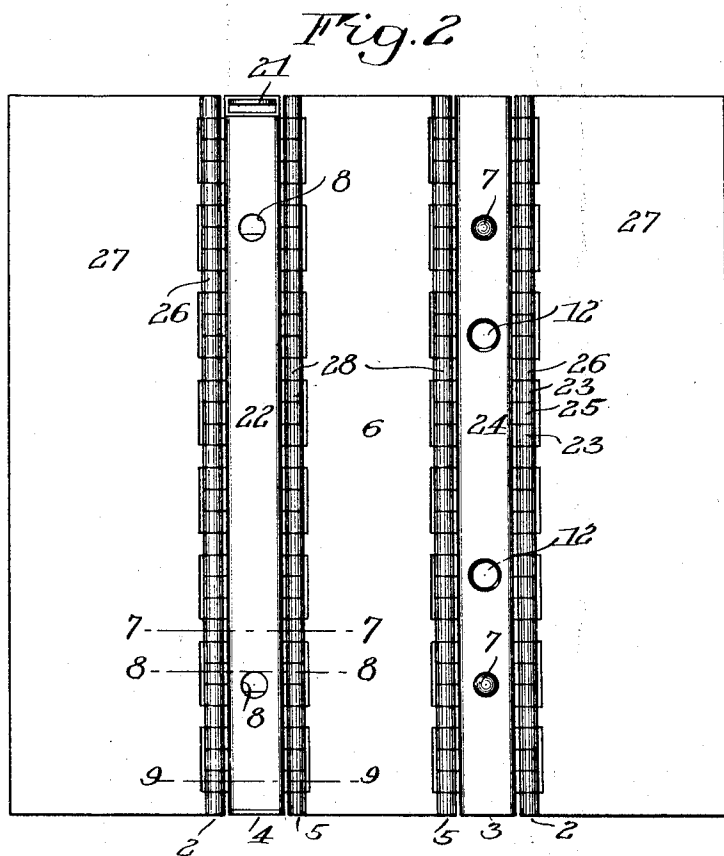
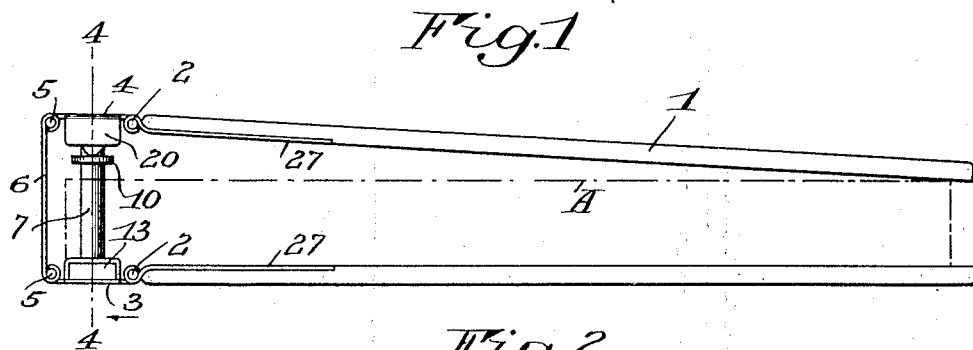
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1,849,243

LOOSE LEAF BINDER

Filed Sept. 25, 1930

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

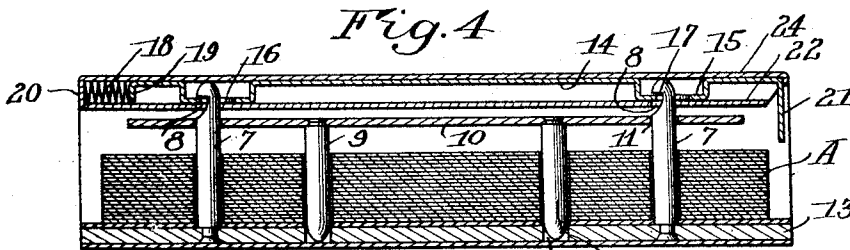
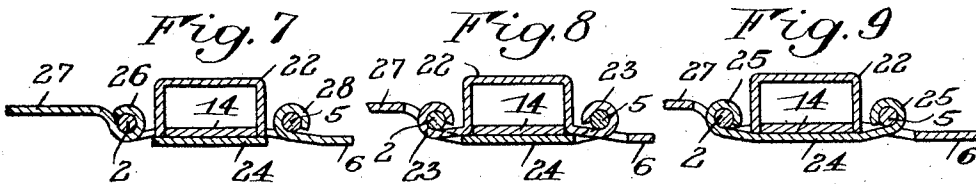
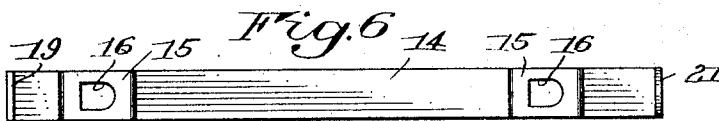
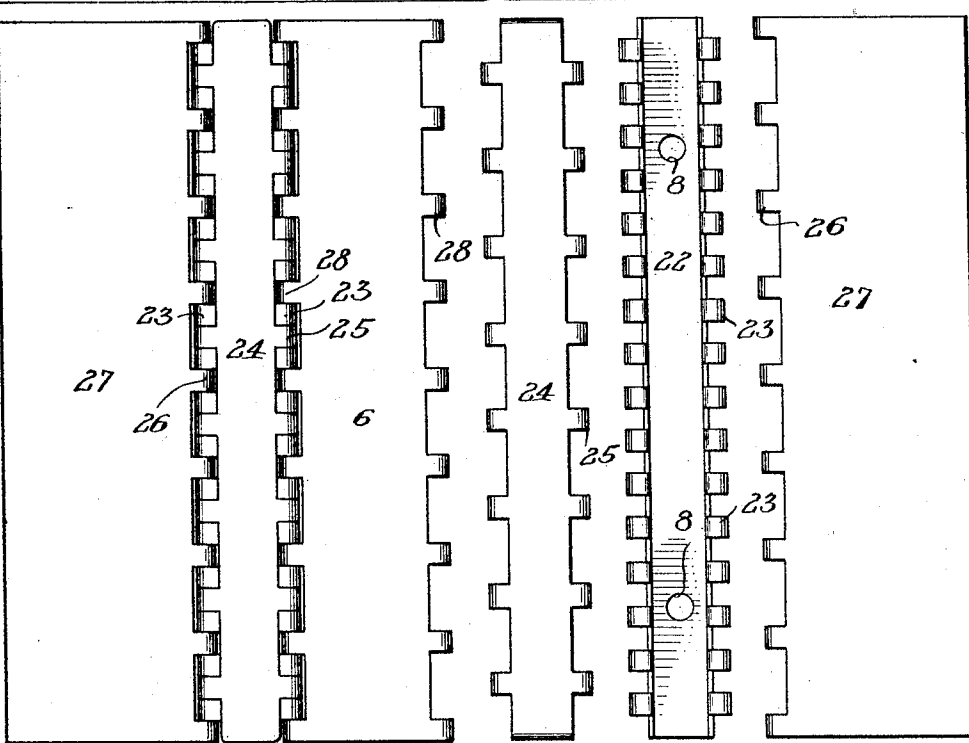


Fig. 5



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UNITED STATES PATENT OFFICE

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LOOSE LEAF BINDER

Application filed September 25, 1930. Serial No. 484,300.

My present invention relates to loose leaf binders and particularly to those of the type in which the perforated leaves of the book are impaled upon posts mounted on one book cover and having their ends locked with the other book cover when the binder is closed, and the invention has for its object to provide a simple, strong, and efficient all-metal construction for the back of the book or binder, which construction can be produced at low cost from sheet-metal parts that are easily assembled. A further object of the invention is to provide in connection therewith a simple, but strong and durable, means, easily operated, for locking the ends of the impaling posts carried by one cover to the other cover.

To these and other ends, the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is an edge view of a loose leaf book or binder taken endwise of the hinged connections thereof;

Fig. 2 is a plan view of the binder in open position with the transfer posts and leaves removed;

Fig. 3 is an end view of the same.

Fig. 4 is a section through the binder in the region of its locking devices taken on the line 4—4 of Fig. 1;

Fig. 5 is a collective rear or outer side view of the several hinge portions of the cover, those portions of one side being in disconnected and separated relation;

Fig. 6 is a plan view of the locking bolt;

Fig. 7 is a section on the line 7—7 of Fig. 2;

Fig. 8 is a section on the line 8—8 of Fig. 2; and

Fig. 9 is a section on the line 9—9 of Fig. 2.

Similar reference numerals throughout the several views indicate the same parts.

Referring first to Figs. 1, 2, 3, and 4, the major elements of the binder, when it is completely assembled, comprise covers 1 hinged on pintles 2 to intermediate portions 3 and 4 which in turn are hinged on pintles 5 to a back plate 6 so that the binder may be laid

out in the flat condition of Figs. 2 and 3 to receive the perforated leaves or sheets. To first describe generally the construction and mode of operation, the connecting portion 3 has anchored therein a pair of impaling posts 7 upon which the leaves or sheets A are impaled, as shown in Fig. 4 (dotted lines, Fig. 1). The upper or free ends of these posts are received in apertures or sockets 8 in the connecting portion 4 when the binder covers are closed down upon the sheets to form the book and are locked therein in the manner hereinafter described. As shown in Fig. 4, the leaves A have four perforations, the outer or end ones of which cooperate with the posts 7. The intermediate ones receive relatively inverted posts 9 on a removable transfer plate 10 having perforations 11 permitting it to fit down over the posts 7. These inverted transfer posts 9 take into sockets 12 in the connecting element 3, as shown, and by means of this transfer plate all or any selected number of the sheets A may be removed from or applied to the posts 7 collectively without disarrangement in a well-known manner, but this transfer element forms no part of my present invention.

The connecting elements 3 and 4 are tubular, are preferably rectangular in cross-section, and are made up of sheet-metal parts in a manner hereinafter described. The element 3 is filled by a metallic core 13 in which the posts 7 are riveted, as shown in Fig. 4. The other connecting element 4 is hollow and contains the sliding latch plate 14, shown in Figs. 4 and 6. The body of this plate lies flat against what may be termed the top of tubular connecting element 4, in Fig. 4, or the bottom inner surface thereof, in Figs. 2 and 3. It is provided, however, with offset portions 15 having apertures 16 therein that slide into and out of alinement with the socket holes 8 for the posts 7, hereinbefore referred to. The ends of the impaling posts 7 have cut-away portions forming locking shoulders 17 and as they enter the sockets 8, these shoulders project within the openings 16 of the latch member 14 and are engaged and held by the latter under the influence of a spring 18 interposed between a flange 19

on the end of the latch plate and the closed end wall 20 of the connecting member 4. At the opposite end an angular extension 21 of the latch plate provides an operating member, pressure on which by the operator compresses the spring 18 and releases the ends of the impaling posts 7 so the binder may be opened and flattened out for the application or removal of the sheets A, as in Figs. 2 and 3.

It will be seen from the particular construction of the latch bar 14 with its body portion sliding against one wall of the tubular connecting element 4 and its offset post-engaging portions 15 riding against the opposite wall that there is no opportunity for it to become distorted or sprung by the force exerted by the locking shoulders 17 of the impaling posts even though the latch be made of relatively light sheet-metal.

The remaining features of the invention have to do with the formation of the connecting elements 3 and 4 from sheet-metal and the formation of the hinges or joints which join them together and to the adjacent parts. In a general way, these connecting elements are formed alike except that, as before stated, the element 3 carrying the posts is made solid by the filler 13, while the other one is tubular to accommodate the sliding latch. Each comprises an upper or inner channel member 22 with the lower edges of its side walls formed with laterally extending knuckles 23 and a lower cover plate 24 also provided with laterally extending knuckles 25. When 24 is placed on 22 to close it, the knuckles 25 (Figs. 5 and 7 to 8) are interspersed with knuckles 23. There being fewer of the knuckles 25, this leaves other spaces between certain of the knuckles 23 for the similar reception of knuckles 26 on a cover connecting plate 27 at one side and the similar knuckles 28 on one edge of the back piece 6. This is made plain by a comparison of sections 7, 8, and 9, taken on Fig. 2. The endwise insertion of the pintles 2 and 5 finishes the assembly. It will thus be seen that a fully hinged all-metal back is produced with the use of stampings only, the parts of which can be rapidly assembled by unskilled labor.

I claim as my invention:

1. In a loose leaf binder, the combination with cover members, a back plate, and connecting members hinged at opposite sides to both, one of the connecting members being hollow and provided with apertures on its inner side and the other connecting member being provided with impaling posts, said posts being provided with locking shoulders, of a sliding latch member in the hollow connecting member comprising a sheet-metal bar movable in contact with one inner wall thereof and having relatively short offset portions moving in contact with the opposite

wall and adapted to interlock with the locking shoulders of the posts.

2. In a loose leaf binder, the combination with cover members, a back plate, and connecting members hinged at opposite sides to both, one of the connecting members being hollow and provided with apertures on its inner side and the other connecting member being provided with impaling posts, said posts being provided with locking shoulders, of a sliding latch member in the hollow connecting member comprising a sheet-metal bar movable in contact with one inner wall thereof and having offset portions moving in contact with the opposite wall and perforated to interlock with the locking shoulders of the posts, and a compression spring interposed between one end of the latch bar and the adjacent end of the connecting member, the other end of the latch bar being provided with a projecting operating portion, by means of which the operator may compress the spring and release the latch from the posts.

3. In a loose leaf binder, the combination with a cover plate, and a back plate, of a connecting member formed of a channel piece having laterally projecting knuckles, and a cover plate therefor having laterally projecting knuckles interspersed with those of the channel piece, the cover plate and the back plate each also having laterally projecting knuckles interspersed with those of the channel piece to form a double hinge, there being a pintle in each set of knuckles serving as the pivots of the parts and also functioning to hold all of the aforesaid parts assembled.

ERIC C. MOORE.