

Feb. 4, 1930.

W. S. PROUDFIT ET AL

1,745,911

LOOSE LEAF BINDER

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2 Sheets-Sheet 1

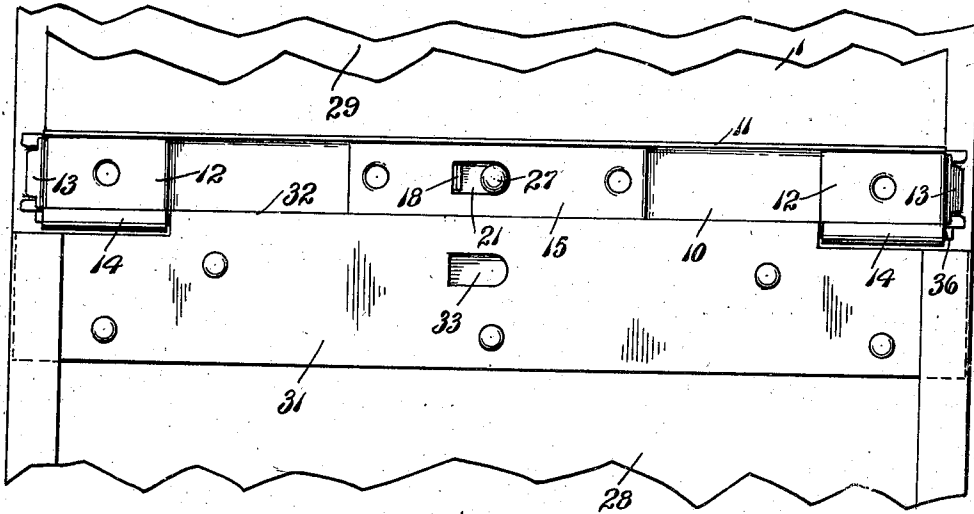


Fig. 1.

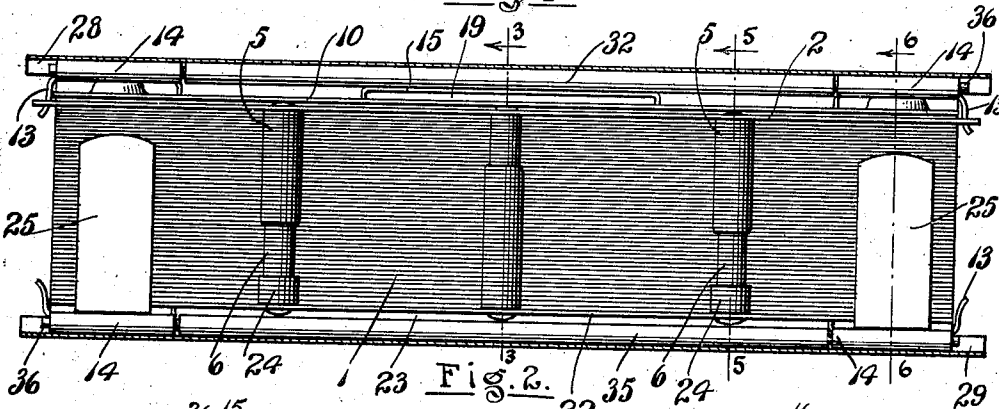


Fig. 2.

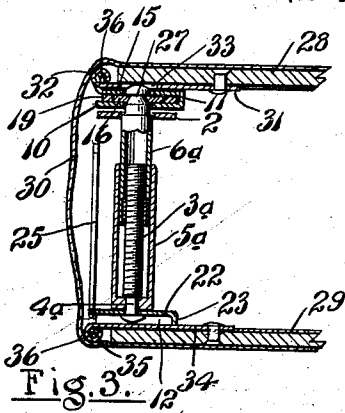


Fig. 3.

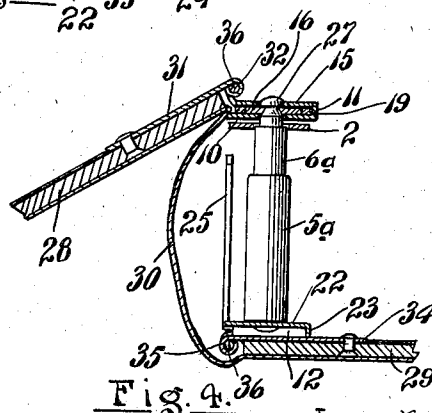


Fig. 4.

Inventors
William S. Proudfit
Edward F. Graf.

By Frank E. Livermore, Jr.
Attorney.

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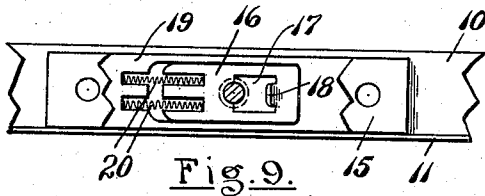
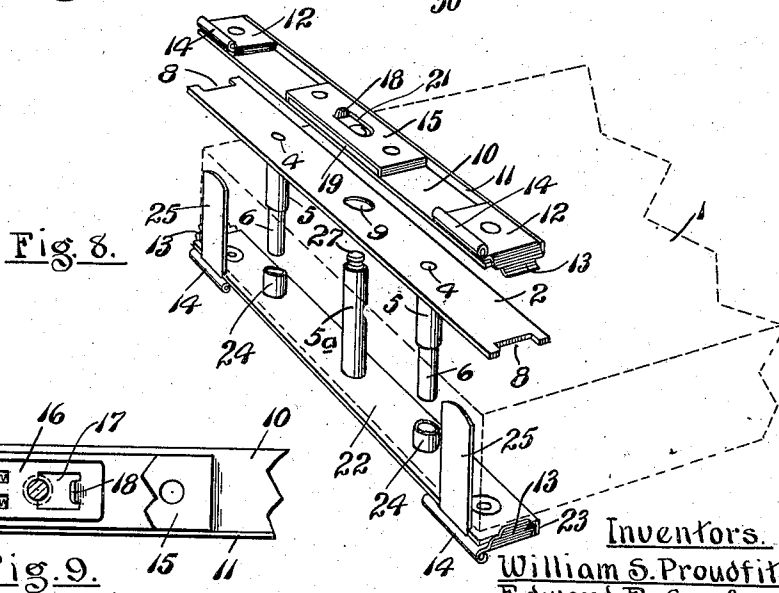
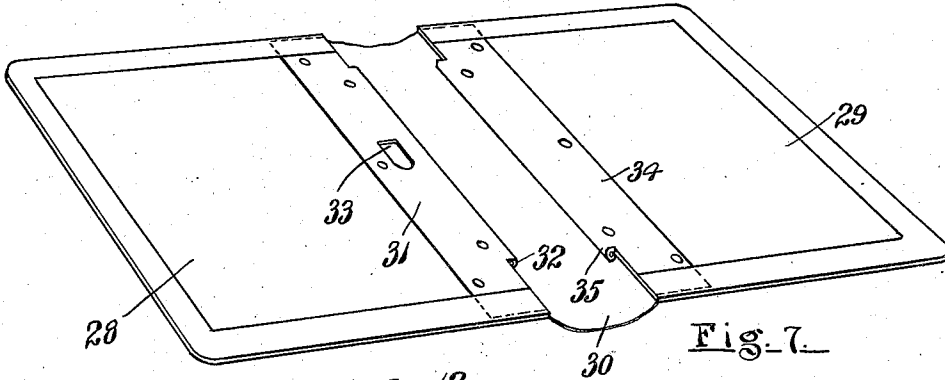
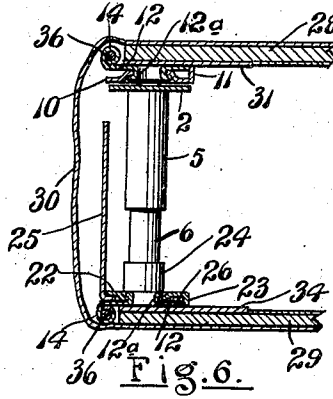
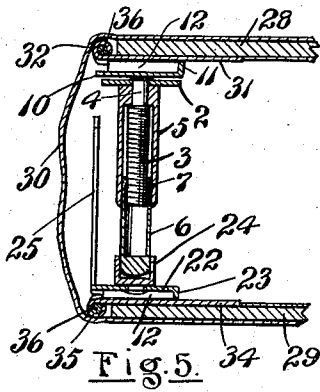
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LOOSE LEAF BINDER

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2 Sheets-Sheet 2



Inventors.
William S. Proudfit.
Edward F. Graf.
By Frank E. Liverance, Jr.
Attorney.

UNITED STATES PATENT OFFICE

WILLIAM S. PROUDFIT AND EDWARD F. GEAF, OF GRAND RAPIDS, MICHIGAN, AS-
SIGNORS TO PROUDFIT LOOSE LEAF CO., OF GRAND RAPIDS, MICHIGAN, A COR-
PORATION OF MICHIGAN

LOOSE-LEAF BINDER

Application filed February 15, 1926. Serial No. 88,186.

This invention relates to a loose leaf binder particularly adapted for binding together a large number of free and otherwise unconnected leaves to which additional leaves may at times be added or from which any number of the leaves may be removed at will. One of the objects and purposes of the present invention is to provide a loose leaf binder construction wherein the book of leaves, so-called, may be completely assembled and joined together on the posts which carry the same and the outer coverings or case within which the book is to be placed may be manufactured and assembled complete in itself, the attachment of the book to the case being made very simply and expeditiously. In this manner a large number of the cases may be made up separately, independently and distinctly from the remainder of the apparatus. The cases may be made up at one time and stored away and when an order is received for a number of the loose leaf binders from any particular concern the cases may be printed on their outer sides with the desired indicia; and the remainder of the apparatus to go with the case may be made separately and independently and not assembled with the cases until after it is assembled with the various leaves of the book which are joined and bound together by such apparatus and then connected with the case in the simple and expeditious manner previously noted.

A further object of the invention is to provide a construction of loose leaf binder which, when applied to a book of leaves, can be readily opened at any place and will remain open at such place. A still further object of the invention is to provide case covers hingedly connected to the book in such a manner that the covers may turn about axes located at opposite sides of the book and either cover may be thrown back from the book without there being any tendency for the cover to return to closed position.

Many other objects and purposes than those stated, and particularly the production of a loose leaf binder construction which may be readily and easily manufactured and assembled at a low cost, will be apparent as understanding of the invention is had from the

following description taken in connection with the accompanying drawings, in which,

Fig. 1 is a fragmentary plan view of a book of loose leaves equipped with the invention, the cover being thrown back. 55

Fig. 2 is an edge view of the book with the flexible connecting back strip disposed between the opposite covers removed.

Fig. 3 is a fragmentary vertical section taken substantially on the plane of line 3—3 of Fig. 2. 60

Fig. 4 is a view similar to Fig. 3 but showing the upper cover of the case turned back to open position.

Figs. 5 and 6 are fragmentary vertical sections taken substantially on the planes of lines 5—5 and 6—6 of Fig. 2. 65

Fig. 7 is a perspective view of the case for the book.

Fig. 8 is a perspective view showing the parts of the binder which are applied directly to the book before attachment of the book to the case separated and in unassembled condition, and 70

Fig. 9 is a fragmentary plan view with parts broken away and in section, showing the automatic releasing latching means for holding the book of leaves bound together.

Like reference characters refer to like parts in the different figures of the drawings. 80

In the book of leaves indicated at 1, each leaf at one edge is formed with three spaced apart openings therethrough for the reception of the guide and binding posts. When the leaves are assembled together the like openings in said leaves are in vertical alignment. A flat bar 2 is designed to be placed over the leaves from which posts extend through two of said openings, those nearest the ends of the leaves. These posts in construction comprise a threaded section 3 from which a reduced shank 4 extends through the bar 2, being riveted over at its end to make a permanent connection. A sleeve 5 is located over the threaded section 3 of the post having a closed end with an opening therein through which the shank 4 passes so that when the end of the shank is riveted to the bar 2 sleeve 5 is permanently secured in 100

place, as shown in Fig. 5. A telescoping sleeve 6, having a closed outer end, is equipped at its open inner end with a relatively short interiorly threaded collar 7 which screws on to the threaded post 3, it being evident in this manner that the projecting sleeve 6 may be adjusted on the post 3 so as to vary the over all length of the posts. This is for the purpose of adjusting the binder to various thicknesses of books as leaves are added or taken away therefrom. The bar 2 at each end is formed with a recess 8, as shown in Fig. 8, and at a point midway between its ends is provided with a circular opening 9, the purpose of which will later appear.

A plate 10 having the same width as the plate 2, and also of flat metal, is designed to be placed against the upper side of said plate 2. At its inner edge it is formed with an up-turned flange 11, the height of which in practice is between one-sixteenth and one-eighth of an inch. Upon each end of the bar 10 a hinge member 12 is secured, it having a down-turned lip 13 at its outer end and is also formed with a hinge pintle guide 14 at the rear edge thereof. In practice these hinge members 12 are secured to the bar 10 by striking from each member 12 a circular eye 12^a which is passed through an opening in the bar 10 and clinched thereover, which in combination with the abutment against flange 11 makes a very economical yet secure and permanent connection.

Midway between the ends of the bar 10 an automatic releasable latching device is located. This consists of an upper plate 15 of flat metal having its ends turned downwardly under which a latching bolt 16 is slidably mounted. The bolt 16 is formed with an opening 17 therein, of the shape shown in Fig. 9, and at one end of said opening a tongue 18 is struck and turned upwardly. The latching bolt is loosely received within an opening somewhat longer than itself made in a filler plate 19 located between the upper cover plate 15 and the plate 10, plates 15 and 19 being secured to the bar 10 at their ends by rivets or other suitable connections. The latching bolt 16 is normally moved in one direction by the light compression springs 20, and the tongue 18 previously described extends upwardly through an elongated opening 21 made in the upper plate 15 of the latch. The upper edge of the flange 11 and the upper face of the plate 15 are substantially flush with each other.

On the under side of the book of leaves a plate or bar 22 of flat metal formed at its front edge with a down-turned flange 23 is located, it being similar in construction to the plate or bar 10 with its flange 11 located at the upper side of the book, and sockets 24 to secure the lower ends of sleeves 6 are attached to the upper sides of the bar as shown.

Likewise hinge members 12 with up-turned lips 13 at their outer ends and with pintle receiving guides 14 at their rear edges are connected to the ends of bar 22 in the same manner that the corresponding hinges are connected at the ends of the bar 10. In making this connection, however, vertical guides 25, at their lower ends being provided with in-turned feet 26, are disposed between the hinge members 12 and the under sides of the bar 22 so that in securing the hinge members to said bar the vertical guides 25 are also permanently and rigidly secured in place.

Midway between the ends of the lower bar 22 a vertically extensible and adjustable post is mounted comprising a threaded section 3^a with a shank of reduced diameter at its lower end. A sleeve 5^a surrounds the shank 3^a, this sleeve being secured with the post to the bar 22 by heading over the outer end of the shank 4^a in exactly the same manner that the sleeve 5 with the threaded post section 3^a and shank 4 are connected to the bar 2. A telescoping sleeve 6^a with an interiorly threaded collar 7^a at its open end threads over the post 3^a and telescopes into the sleeve 5^a. This post 6^a is formed at its upper end with a head 27 having a rounded front surface and which is adapted to pass through the opening 9 in bar 2 and thence through an opening in the bar 10 where the latching bolt 16, having been forced back in opposition to springs 20 by the rounded head, returns to latching position and engages an annular groove in the head 27, thus releasably securing the parts together against opposite sides of the book. The release of bars 10 and 2 from the head 27 is easily accomplished by manually engaging the tongue 18 and moving it to one side to disengage the bolt 16 from the groove of said head.

In assembling the book of leaves with this binding structure, the lower plate 22 is laid horizontally flat and the book of leaves placed against it, the post attached to the plate 22 passing upwardly through the middle openings or holes located in alignment through the said leaves of the book. The edges of the leaves are held by the guides 25 and the lips 13 so that the leaves cannot turn around the axis of said post. The plate 2 may then be applied against the uppermost leaf of the book, the posts attached thereto passing downwardly through the holes through the leaves located outwardly and away from the middle openings previously mentioned. The posts may be adjusted for the thickness of the book so that the lower ends of the sleeves 6 are received within the sockets 24, as shown in Figs. 5 and 6, while the central post carried by the plate 22 is adjusted so that the head 27 passes through and a short distance above the plate 2. The plate 10 may then be placed against the plate 2, the down-turned

lips 13 being received in the notches 8 in the ends thereof, and the grooved head 27 on the sleeve 6^a passing upwardly through and engaging with the latch bolt 16. The book is thus bound securely together and the leaves cannot be added or detached without releasing the plates 10 and 2 and removing them from the book.

The outer case or covering for the book comprises two covers 28 and 29 connected at their adjacent edges by a flexible member 30 which is of a width sufficient that it may take in the greatest thickness of a book for which the apparatus is designed. At the inner edge portion of the covering 28 a sheet metal plate 31 is riveted or otherwise permanently secured, having an intermediate portion at its inner edge formed into an elongated pintle receiving guide 32. This plate is also formed with an opening 33 therein designed to come directly over the opening 21 in the upper plate 15 of the latch so as to afford space for the tongue 18 and the projecting head 27 of the central adjustable post. The opposite leaf 29 at its inner edge portion is equipped with a similar plate 34 formed at its inner edge with an elongated intermediate pintle guide 35.

This cover or case is adapted to be connected to the book, bound together as previously described, by placing pintle guide 32 of the plate 31 between the two guides 14 of the hinge members 12 which are connected to the plate or bar 10 and then passing a pintle rod 36 through the aligned guides 14 and 32. In the same way the guide 35 is placed between the guides 14 of the members 12 attached to the lower plate or bar 22 and a similar pintle rod 36 passed through these guides which are located in alignment.

This construction of loose leaf binders is one having many features of value and merit. The parts of the same are of simple construction, all being readily formed by means of dies on a punch press and on an automatic screw machine in large quantity at low cost. The assembly of the book of leaves with the binding structure previous to its attachment to the case and the simple and particularly easy manner in which it is attached to the case after this assembly is also a feature of value. It makes it possible to construct the book binding structure in large quantities more than is necessary for any single order which may be received and the parts may be placed in storage until needed to supply an order. The cases may be made independently in the same manner and the assembly of the binding structure with the cases may be accomplished almost immediately.

After the case is applied to the book it is evident that the covers 28 or 29 may be turned about the axis of the pintle rods 36 and freely thrown to open position, as shown in Fig. 4, without in any manner disturbing the leaves.

When in this position it is easy to operate the tongue 18 to release the latch and remove the bars or plates 10 and 2 for adding leaves to the book, taking them therefrom, or re-arranging the leaves in different order. All of these features combining simplicity, durability, practical economy of manufacture and efficiency in operation, make the invention one of great practical merit. The appended claims define the invention which is to be considered as comprehensive of all forms of structure coming within their scope.

We claim:

1. In a device of the class described, two clamping bars adapted to be located at opposite sides and adjacent one edge of a book of leaves, extensible means for detachably connecting said bars together, two covers one at each side of the book and joined by a flexible back cover strip, and means on each of the covers detachably and hingedly connected one to each of said clamping bars.

2. In a device of the class described, two clamping bars adapted to be disposed at opposite sides and adjacent one edge of a book of leaves, extensible means attached to one of said clamping bars and adapted to extend through the book of leaves and adapted to detachably connect with the other of said clamping bars, means carried by said other of the clamping bars for detachably and releasably connecting with said means, two covers one located against each side of the book of leaves and joined by a flexible back strip, a plate permanently secured at the inner edge of each cover, and detachable means for hingedly connecting said plates at one edge to the edge of the adjacent clamping bar.

3. In a device of the class described, a lower clamping bar, a hinge member located at each end of the clamping bar underneath the same, a vertical guide attached to said clamping bar at each end, each of said guides at its lower end being formed with an in-turned portion disposed between the hinge member and the clamping bar, lips turned upwardly from each hinge member at the outer ends thereof, an extensible post secured to said clamping bar between its ends and extending upwardly therefrom, a bar provided with a recess in each end thereof adapted to lie against the upper side of the book of leaves, two extensible posts extending therefrom in a downward direction, one at each side of the first named post, a second clamping bar located against the second mentioned bar, hinge members attached one at each end and at the upper side of the last named clamping bar, said hinge members being formed with down-turned lips at their outer ends seating in recesses in the ends of the second mentioned bar, said second mentioned bar and the second clamping bar having openings for the passage of the upper

end of the first post, a latching device attached at the upper side of the second clamping bar through which the upper end of the first post passes, and means carried by said latching device for automatically engaging with the upper end of the first post and thereby securing the clamping bars together.

4. A construction containing the elements in combination defined in claim 3, combined with means for manually releasing said latching device to free the upper clamping bar and the second mentioned bar located against it from said book of leaves.

5. A construction containing the elements in combination defined in claim 3, combined with two covers located one at each side of the book of leaves, a plate permanently secured to each cover at an edge thereof, and detachable means for hingedly connecting said plates to the hinge members of the adjacent clamping bars.

6. In a device of the class described, two clamping bars adapted to be located at opposite sides and adjacent an edge of a book of leaves, an extensible binding post located near the center of one of said clamping bars and adapted to pass through openings in said leaves, means for detachably connecting one of said clamping bars to the end of said extensible binding post, a plate adapted to be interposed between said book of leaves and said detachably connected clamping bar, extensible guide posts attached to said plate and adapted to extend through openings in said leaves and interengaging means on said plate and the adjacent clamping bar for positioning the plate relative to said clamping bar.

In testimony whereof we affix our signatures.

WILLIAM S. PROUDFIT.
EDWARD F. GRAF.