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LOCKING DEVICE FOR LOOSE LEAF BOOKS

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INVENTOR

By

ATTORNEYS.
This invention relates to new and useful improvements in binders such as are used for securing together the perforated leaves of files, books and the like.

An object of the invention is to provide a binder of improved construction including a post and a securing button shiftable longitudinally of the post to remove it or adjust its position on the post and which button includes a part turnable relative to the post whereby to secure the post and button together against casual relative movement.

An additional object is to provide a file, book or the like including a pair of members and an improved binder for securing said members together, the binder including a post and a button or buttons for securing either or both of said members to the post.

Other objects and advantages will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein satisfactory embodiments of the invention are shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawing:

Fig. 1 is an elevational view showing a file or a loose-leaf book including binders constructed according to the present invention;

Fig. 2 is a view partly in section and partly in elevation and taken substantially along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken substantially along the line 3—3 of Fig. 1 and on an enlarged scale;

Fig. 4 is a plan view of Fig. 3 the file or book cover or back member being omitted;

Fig. 5 is a view somewhat similar to Fig. 4, the button shell element being omitted;

Fig. 6 is a sectional detail view on an enlarged scale showing a slightly modified construction; and

Fig. 7 is a detailed elevational view showing a slightly modified arrangement.

Referring in detail to the drawing and at first particularly to Figs. 1 through 5, at 10 and 11 are shown upper and lower bar members which may be used alone or to which may be attached upper and lower cover members or backs 12 and 13, and are composed of stiffener members 8 and 9 covered with suitable flexible material as cloth, which also acts as a means to connect the cover members with the bar members by flexible connecting portions 14. As the description proceeds it will become evident that the binder of the present invention is adapted for use in the formation of loose-leaf covered books or in connection with files or the like involving one or more cover members or backs.

The bars 10 and 11 are connected by posts 15 each of which may be in the form of a length of rod or of a length of tubing and at its lower end each post is received by a button 16 connected with the bar 11, and upwardly of their lower ends the posts are received in buttons 17 carried by the bar 10 and of the same structure as the button 16. While these buttons are of identical construction they have in Figs. 1 and 2 been given separate numbers for the purpose of clarity in the latter part of this description wherein the operation of the binders in the connections shown in Figs. 1 and 2 will be fully set forth.

As is more clearly shown in Figs. 3, 4 and 5, each button includes an open ended tubular rivet 18 having one of its ends turned against a bar as at 19, and which rivet is of a length to extend through the bar and about its upper end portion receive a disc 20 clamped against the upper side of the bar by turning over the end of the rivet as at 21. The arrangement is such that the rivet 18, disc 20 and bar are all secured together against relative turning movement.

The disc opening receiving the rivet is formed eccentric in the disc 20 and mounted on the disc and having bearing against its outer edge is a shell or cover member 22 having a flange 23 bearing against the outer
edge of the disc as clearly shown in Fig. 3. For the purpose of attaching this shell to the disc a ring 24 may be soldered or otherwise secured to the lower skirt portion of the
flange 23 and this ring may, at its inner side, bear against the under surface of the disc 20. Shell 22 has an eccentric opening 25 therethrough and through which the post 15 extends.

In Fig. 5 the opening in the disc 20 is indicated at 26 and a careful inspection of this figure clearly shows that such opening is eccentric with respect to the disc. The center line of the disc is indicated at 27 and the center line for the opening and for the rod 15 is designated 28. It will therefore be seen that both the rod and the disc opening are eccentric with respect to the disc. Fig. 4 shows the shell 22 in place over the disc and from this figure it is evident that the opening 25 of the shell is eccentric with respect to the shell. The center of this opening is indicated by the line 29 while the center of the shell itself and the center of the rod 15 is indicated at 30.

Since the disc 20 has an eccentric opening and the shell 22 also has an eccentric opening and has bearing on the edge of the disc it will be appreciated that the shell may be turned on the disc whereby to bring the openings into registry. When the disc and shell openings are aligned the rod may have one of its ends passed through the shell and into the rivet 18 either by manipulation of the rod or manipulation of the button. When this is accomplished, the shell may be given a slight turning movement relative to the rod and the disc 20 with the result that the opening 25 of the shell will be carried out of registry with the opening through the disc and rivet and the button will bind on the post.

This will be accomplished since one side of the shell opening 25 will bind against the post as at 31 and the post will be forced against the opposite side of the rivet as at 32. It will, therefore, be apparent that the button may be located at substantially any point along the length of the post and then wedged or bound to the post by a slight turning movement of the shell of the button. To release the button from the post it is but necessary to give the shell a slight turn in the opposite direction. If desired, the outer surface of the flange 23 of the shell may be grooved or indented or otherwise roughened as at 33 to provide a grip.

In Figs. 1 and 2 a pair of the buttons are secured to each of the upper and lower bars 10 and 11, the buttons being arranged in spaced relation and being secured to the bars by turning over the ends of the rivets as at 19. With this accomplished the lower end of each of a pair of posts 15 are introduced into the lower buttons 16 extending substantially through them as clearly shown in Fig. 3. Next, the shells of the lower buttons are given a partial turn whereby to bind the posts in the buttons as has been explained above.

Paper sheets or other material 34 may then be passed over the posts and the upper bar 10 applied. Of course, when this bar 10 is applied the openings through the discs and shells of its buttons are in alignment and the buttons are passed over the upper portions of the posts and moved longitudinally along the posts to the desired positions thereon. This will usually be with the papers or other material 34 clamped against one another. When this is accomplished the shells of the upper buttons are each given a partial turn whereby the buttons will bind against the posts and the upper bar will be secured in its adjusted position.

With the construction described above it will be understood that there is no action tending to force the posts either from or toward one another and that each button individually grips or clamps its post and independently of the other post. When each of the upper and lower bars is provided with a button or with any desired number of buttons short post 15 may be used if there are but a relatively few sheets of paper to be bound. Thereafter, as the book or file becomes enlarged owing to the addition of new sheets the short posts originally used may be easily removed and longer posts substituted for them, a suitable supply of posts preferably being kept on hand. In this connection it is to be noted that the posts have no particular construction of their own being simply lengths of rod or tubing.

The button of Fig. 6 is substantially identical with the construction of button previously described the only difference residing in the fact that in Fig. 6 the lower portion of the flange 23 of the shell is turned inwardly against the lower surface of the disc 20, as at 35. This portion 35 serves to secure the shell on the disc for rotary movement with respect to the disc and therefore takes the place of the ring 24 of the figures first described. In use, the means of Fig. 6 functions in the manner already described in connection with the buttons of the other figures and has all the attendant advantages.

Referring now to Fig. 7, at 36 and 37 are shown the upper and lower bar members of a book, file or the like and these members are connected as by a post 38 shown as in the form of a length of tubing. One end of the post 38 is passed through one of the bars as for example the bar 37, and is then turned or riveted over as at 39 whereby the post is more or less permanently secured to the bar. The other bar, that is the bar 36, carries a button 16 constructed as above.
described through which is passed the free end portion of the post 38 and the shell of this button is adapted to be rotated whereby the button grips or binds against the post to secure the bar in the desired position along the post.

From the foregoing description it will be apparent that the upper bar 10 or 36 may be easily removed from or applied to the posts and that it may be easily and quickly secured in the desired adjusted position on the post. Further, particularly with respect to Figs. 1 and 2, it will be understood that should the posts 13 prove of insufficient length as or of such length to be inconvenient they may be easily removed and other longer or shorter posts substituted in their place.

Having thus set forth the nature of my invention, what I claim is:

1. In a binder, a post, a disc having an eccentric opening receiving the post, a shell rotatably mounted by and having bearing against the outer edge of the disc, said shell having an eccentric opening through which the post extends, said shell adapted to be rotated on said disc to carry the opening of the shell into registry with the opening in the disc whereby the post may be moved freely through said openings, and said shell adapted to be rotated on the disc to carry the opening of the shell out of registry with the opening in the disc to have one side of the opening in the shell bind against the post.

2. In a binder, a post, a button shiftable longitudinally of the post to remove it from and adjust it along the post, said button including a hollow rivet to secure the button to a bar member and through which the post passes, a disc about the rivet and having an eccentric opening through which the rivet passes, said disc stationary on said rivet, a shell rotatably mounted by and having bearing against the outer edge of said disc, said shell having an eccentric opening through which said post extends, said shell adapted to be rotated on said disc to carry the opening of the shell into registry with opening in the disc whereby the post may be moved freely through said openings, and said shell adapted to be rotated on the disc to carry the opening of the shell out of registry with the opening in the disc to have one side of the opening in the shell bind against the post.

3. In combination, a pair of bar members, a button secured to each of said members, a pair of said buttons including a disc having an eccentric opening therethrough, a hollow rivet extending through said opening and securing the disc to its respective member, a shell rotatably mounted by and having bearing against the outer edge of said disc, said shell having an eccentric opening therethrough and adapted on rotation of the shell to be brought into and out of registry with the openings in the disc and rivet, a post extending through the shell and disc of each of said buttons, and the shells of said buttons adapted to be rotated on said discs relative to the post to bindingly engage the post and secure the back members and posts together.

4. In combination, a pair of bar members, a post secured to one of said members and extending beyond one side thereof, a button secured to the other of said members, said button including a disc having an eccentric opening therethrough, a hollow rivet extending through said opening and the other of said members and securing the disc to the member, a shell rotatably mounted by said disc and having bearing against its outer edge, said shell having an eccentric opening to be brought into registry with the rivet and disc openings whereby the button may be passed over the post, and said shell being rotatable on the disc to bindingly engage the post and secure the said other of the back members in the desired adjusted position on the post.

In testimony whereof I affix my signature.

CARLTON R. STEVENS.