May 19, 1931. J. J. KERNAN 1,806,466

BOOKBINDER

Filed Feb. 1, 1930

Fig. 1

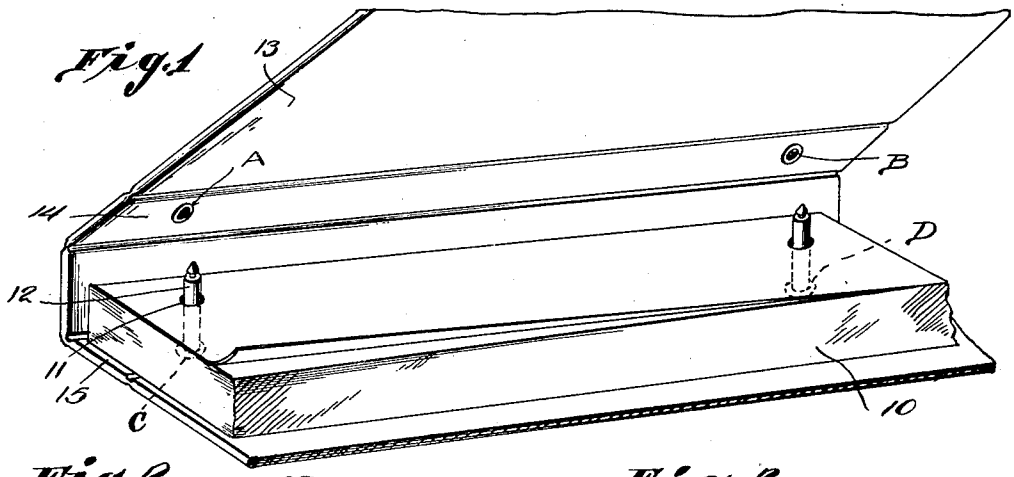


Fig. 2

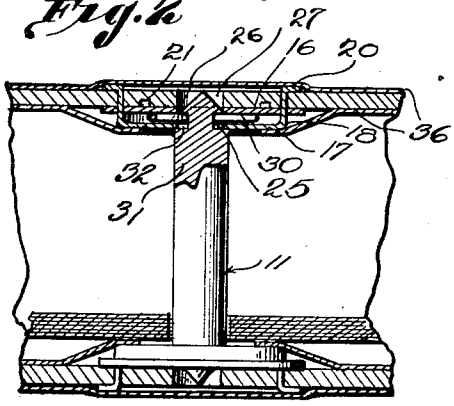


Fig. 3

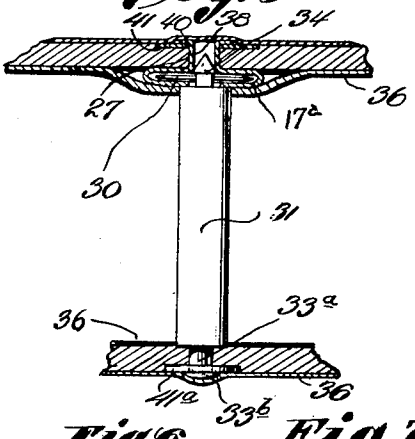


Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8

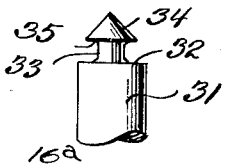


Fig. 9

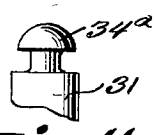


Fig. 10

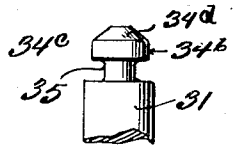
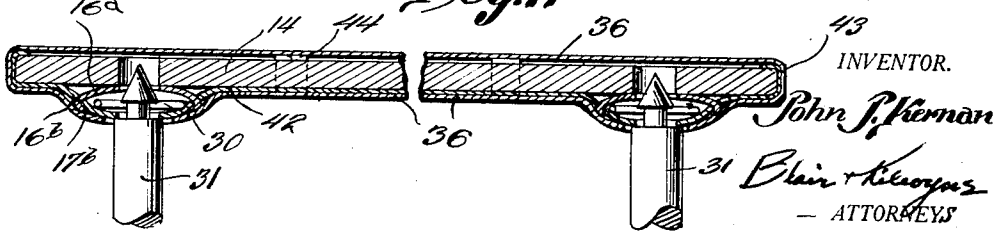


Fig. 11



INVENTOR.

John J. Kernan

Blair & Kilcoyne

— ATTORNEYS

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UNITED STATES PATENT OFFICE

JOHN J. KERNAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO AMERICAN BANK STATIONERY COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND

BOOKBINDER

Application filed February 1, 1930. Serial No. 425,269.

This invention relates to improvements in book binders, and will be hereinafter described as a binder for check books, altho it will be understood that the invention is applicable to book binders of general use.

In the manufacture of check books, the cost of the binding thereof is generally borne by the check paper manufacturer or printer, so that an elimination of a mechanical operation or operations in the steps of binding the checks in book form represents a substantial economy to the check manufacturer. While check book bindings are generally of an inexpensive character since the constant handling of the check book by the user results in the cover being generally well worn when the book is exhausted of its checks, it is desirable that bindings of this character be of a permanent nature, whereby the checks may be maintained in assembled relation during the life of the check book, and also to permit the check stubs to be saved in book form by the check user for record purposes.

It is accordingly an object of the present invention to provide a binding for books, such as check books, which is relatively inexpensive and which further reduces to a minimum the mechanical operations of binding. A further object is to provide a permanent binding of a durable but inexpensive nature. A further object is to provide a book binding which results in a sightly and attractive appearance of the bound book. A further object is to provide a book binding in which the binding elements are engaged in a single operation in a cooperating and permanently locked relation.

Other objects will be in part obvious from the annexed drawings and in part indicated from the following analysis of this invention, in which reference is made to the accompanying drawings illustrating an embodiment of my idea.

In the drawings—

Fig. 1 illustrates in perspective a partially bound check book in accordance with my invention;

Fig. 2 is an enlarged broken-away section of the post and socket elements of the binding;

Fig. 3 is a section thru a modified form of binding socket and associated binding post;

Figs. 4, 5, 6 and 7 represent diagrammatically various types of locking elements to be contained in the socket member;

Figs. 8, 9 and 10 are illustrative of various shapes of locking heads disposed at the ends of the binding posts in accordance with my invention;

Fig. 11 is a section thru a binding strip forming a part of the book cover having associated therewith a modified form of binding socket.

Referring now to the drawings, the reference character 10 indicates generally a plurality of check sheets, each provided with openings 11 thru which extend posts 12 forming a part of the binding structure to be hereinafter described. It will be understood that the check sheets are threaded on the posts 12 and assembled in overlying relation, and are thereafter bound in the cover element generally designated by the reference 13. The ends of the posts 11 which ends are hereinafter termed lockings heads, may cooperate with socket elements A, B, C and D disposed on spaced parallel binding strips 14, 15 which preferably form a part of the book cover 13.

By reference to Fig. 2, wherein is shown one form of locking arrangement, each of the socket elements A, B, C, D, may comprise a plate 16 with which is associated a casing 17 including a marginal flange 18 seating against the plate 16 and provided with tongues 20 which extend through apertures in plate 16 and are adapted to be forced thru the body of the binding strips 14, 15 and clinched thereover, thus to secure the socket in fixed relation preferably on the relatively opposed surfaces of said binding strips. The marginal flange 18 of the casing 17 may also be provided with tongues 21 extending thru the plate 16 only and clinched over, thus to hold the said plate and casing 17 in fixed spaced relation.

The casing 17 is provided with a central aperture 25 which is preferably circular and in alignment with an aperture 26 in the plate 16 and also with an aperture 27 in the binding strip 14. Within the socket member and

disposed between the plate 16 and the casing 17, there is positioned a locking element such as a spring 30 to be hereinafter more fully described.

The posts 11, on which the sheets are assembled, comprise a body portion 31 which may be circular in cross section and preferably, altho not essentially, of a slightly greater diameter than that of the aperture 25 in the casing 17. The said portion 31 terminates in an abrupt shoulder 32, from which extends a portion 33 of reduced diameter terminating in a locking head 34 which is provided with a base or locking shoulder 35. The greatest diameter of the head 34 is preferably less than the diameter of the body portion 31 of the post and is such as to permit the head to pass thru aperture 25 of plate 17. As will be apparent from Fig. 2, when the socket is pushed down on the head which passes thru aperture 25 therein, the locking spring 30 is distorted or snapped over head 34, and thereafter encompasses portion 33 of reduced diameter, the head, by reason of its shoulder 35, being thereafter permanently locked within the socket member. When so locked, the shoulder 32 abuts against the casing 17 and thus serves to limit the degree of entrance of the head into the socket member. The axial length of the reduced portion 33 and of the head 34 is such, however, that the head is accommodated within the apertures 26 and 27 of the plate 16 and binding strip 14, respectively, the head terminating short of the outer side of the cover or binding strip. It is here important to note that the shoulder 32 engaging the plate 17 throughout its periphery serves to prevent any considerable tipping or oscillating of the post 11 about its gripped head, and disengagement of the head 34 from spring 30, as is usual in known forms of temporary snap fasteners, is thus positively prevented. Further, the interior depth of the socket, that is to say, the space between the inner surfaces of the plate 16 and casing 17 is not much greater than the thickness of spring 30, thus maintaining the spring against movement in the direction of the axis of post 11. As a consequence, the head 34 is rigidly and permanently locked within the socket upon completion of the locking action.

By reference to Figs. 4, 5, 6 and 7, the spring 30 may, as shown in Fig. 4, comprise a spring wire bent throughout an outer curve 30*a*, the end portions of which are internally bent and curved to provide the radial or curved locking portions 30*b*. In the spring construction of Fig. 5, the locking portions of the spring comprise the straight end portion 30*c* forming with the bent angularly disposed portions 30*d*, 30*e*, a triangular locking element having a three-sided bearing on the portion 33 of the post 11. In the spring construction of Fig. 6, the ends 30*f*, 30*g*, are bent reversely on the internally bent portion 30*h*, to thus provide a two bearing contact with maximum spring action on the portion 33 of the binding post. In Fig. 7, the ends 30*j*, 30*k* of the spring 30 extend along a straight line and in parallel relation with each other, thus to provide a two-point bearing on the portion 33 of the post 11.

In Figs. 8, 9 and10, various shapes of locking heads are diagrammatically illustrated, the head 34 of Fig. 8 conforming to a cone over which the spring 30 is snapped. In Fig. 9, the head 34*a* is generally semi-circular in cross section, whereas the head 34*b* of Fig. 9 comprises a cylindrical portion 34*c* terminating in a portion 34*d* in the nature of a truncated cone. Other shaped heads may be substituted as long as they are provided with locking shoulders or flat bases 35 extending perpendicularly to the axes of the posts to cooperate with the springs to lock the posts undetachably with the sockets.

In assembly, the sockets are preferably attached to the binding strips 14, 15 of the cover 13 (which may be shipped or stored flat), in the relation illustrated in Fig. 1, that is to say, the sockets A and C to be positioned in spaced overlying relation when the binding strips 14 and 15 are brought in their binding relation, and the sockets B and D similarly disposed. The posts 11 are then snapped into the sockets C and D and permanently locked therein. After the sheets 10 have been threaded on the posts so positioned, the binding strip 14 of the upper cover element is brought over the posts 11 and snapped on to the upper locking heads 34 thereof so as to be thereafter associated in fixed locked relation. The binding of the sheets 10 within the cover 13 is thus accomplished by merely engaging the socket elements with the locking heads of the posts and without the necessity of mechanically distorting any of the elements, and similarly without the necessity of expensive and time taking mechanical binding operations.

The sockets A, B, C and D, indicated in Fig. 1, are disposed on the opposed surfaces of the binding strips 14 and 15, and may be substantially obscured by the disposition of the paper or fabric coverings 36 forming a part of the cover, which are pasted or otherwise secured to the strip 14. The axial overall depth of the socket being relatively small and the locking heads being substantially housed in apertures 27 of the binding strips 14, there results a binding of attractive and compact appearance, with no noticeable distance between the outermost sheets and the inner faces of the cover.

By reference to Fig. 3, there is illustrated a modified form of socket element and attachment therefor with the binding strips 14, 15. In the embodiment shown, the strip 14 is provided with its aperture 27 thru which extends a tubular rivet 38 with its outer end

flange 40 clinched over a washer 41. The rivet at its other end is enlarged to form the casing member 17*a* constituting a socket element, and as a consequence, the casing 17*a* enclosing the spring 30 is rigidly associated with the binding strip 14. In this modified form of binder, the post 11 has one end only provided with the snap head, the other end being provided with a rivet end 33*a* turned over a locking washer 41*a* as at 33*b* for permanent attachment to one of the binding strips 14, 15. It will be understood that the post 11 and associated locking heads which are illustrated as solid, may be formed of sheet metal and pressed into tubular shape, thus to facilitate the formation of the rivet end 33*a* thereon.

In Fig. 11, there is shown a further modified form of socket element and its attachment with the binding strip, in which a sheet metal strip 42 adapted to underly the binding strip 14 throughout its length is provided with depressed portions forming a casing 17*b* of the socket element. A base plate 16*a* provided with clinching teeth or prongs 16*b* forms with the pressed out casing portion 17*b* an enclosure for the locking spring 30. It is understood that in the construction of Fig. 11, both of the casings 17*b* are formed in the single metal strip 42 and spaced in a manner similar to the arrangement of sockets A and B of Fig. 1. The said strip may be rigidly fixed on the binding strip 14 by end tongues 43 or side tongues 44, or both, as the circumstances may require.

It will be seen that the several objects of the invention are achieved and other advantageous results attained. As many changes could be made in carrying out the above invention, without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A permanent binding including a binding cover, a socket member having a chamber therein, means to operatively secure the socket to the cover, a locking element in the chamber, and a binding post having cooperating locking means extending into said chamber and engaging with said locking element, the depth of the chamber being such that the locking element is restrained against substantial movement in the direction of the axis of the post.

2. A permanent binding including a binding cover, a socket having a chamber therein, means to operatively secure the socket to the cover, a locking element in the chamber, a binding post having cooperating locking means extending into said chamber and engaging with said element, the depth of the chamber being such that the locking element is restrained against substantial movement in the direction of the axis of the post, and means on said post cooperating with the socket member and operative to prevent any considerable tipping of the post from its perpendicular relation to said cover.

3. A permanent binding including a binding cover, a socket having a chamber therein, means to operatively secure the socket to the cover, a locking element in the chamber, a binding post having cooperating locking means extending into said chamber and engaging with said element, the depth of the chamber being such that the locking element is restrained against substantial movement in the direction of the axis of the post, and a shoulder on the post operatively engaging the socket member upon such locking engagement, whereby to prevent any considerable tipping of the post from its perpendicular relation to said cover.

4. A permanent binding including a binding cover, a socket having a chamber therein, means to operatively secure the socket to the cover, a locking element in the chamber, a binding post having a head provided with locking means cooperating with said element and extending into said chamber, the depth of the chamber being such as to restrain the locking element against substantial movement in the direction of the axis of the post, and a shoulder on the post, the distance between the head and the shoulder being such that the shoulder engages the socket upon the head being locked, whereby to prevent any considerable tipping of the post from its perpendicular relation to said cover.

5. A permanent binding including a binding post provided with a head having a locking shoulder, a binding cover, a socket member disposed on the inner face of the cover and provided with means for attaching the socket to the cover, and means in the socket to engage the shoulder and lock permanently with the head upon insertion thereof into the socket.

6. A permanent binding including a binding post provided with a head having a locking shoulder, a binding cover, a socket member disposed on the inner face of the cover and provided with means for attaching the socket to the cover, and a locking element contained in the socket and adapted to engage the shoulder and lock permanently with the head upon insertion thereof into the socket.

7. A permanent binding including a binding post having a body portion terminating in a shoulder and a locking head at the end thereof having a locking shoulder, a binding cover, a socket member disposed on the inner face of the cover and having thereon means for attachment to the cover and provided with aligned apertures, means including said first-named shoulder to limit the projection entrance of the head thru said apertures, and

means in the socket engaging the locking shoulder, whereby to lock the post to the socket.

8. A permanent binding including a binding post having a head at its end provided with a locking shoulder, a cover including a binding strip, a socket member into which said head extends, the member being disposed on the inner face of the strip and having means for attaching the socket to the binding strip, means in the socket for engaging permanently with the locking shoulder, and means inclusive of said last-named means operative after such engagement to restrain the post from movement out its perpendicular relation to said strip.

9. A permanent binding including a binding post having a body portion terminating in a shoulder and a locking head extending therefrom and having a locking shoulder, a cover including a binding strip, a socket member disposed on the inner face of the strip, means for securing the socket to the strip, the opening in the socket member being of a diameter greater than that of the locking head and less than the diameter of the body portion of the post, and means in the casing to engage with the locking shoulder whereby to lock the head in the socket, the distance between the head and the body shoulder being such that said shoulder is held in engagement with a wall of the casing when the head is so locked whereby to prevent any considerable tipping of the post.

10. A permanent binding including a binding cover having an aperture therein, locking means disposed on the inner side of the cover and comprising an element having an opening in alignment with the aperture of the cover, means for securing the locking means to the cover, and a binding post having a head provided with cooperating locking means, the head extending into said aligned openings and aperture and terminating short of the outer side of the cover, both said locking means cooperating to lock permanently the post to the cover.

11. A permanent binding including a binding cover having an aperture therein, a socket member disposed on the inner side of the cover and comprising a casing having openings in opposed walls in alignment with the aperture of the cover, means for securing the casing to the cover, a binding post having a head provided with a locking shoulder, the head extending into said aligned openings and aperture and terminating short of the outer side of the cover, and means in the casing engaging the locking shoulder and operative to lock permanently with the locking head.

12. In a book having a cover including parallel binding strips having apertures therein, and a plurality of sheets between the cover and having apertures therein, binding posts extending between the binding strips and thru the apertures of the sheets, heads formed at the ends of the posts, the heads having locking shoulders, and socket members arranged on the facing sides of said binding strips and having means therein operative to engage with the locking shoulders whereby to lock permanently with the heads, the heads extending into the apertures of the binding strips and terminating short of the outer sides thereof.

13. In a book, spaced cover portions having sets of aligned openings therein, a plurality of sheets between the cover portions, binding posts extending thru apertures in the sheets and having heads, each having a locking shoulder, and means arranged on the opposed sides of the cover portions and about said openings and including locking means cooperating with said shoulders to lock permanently the posts to the cover portions, the posts extending into said cover openings and terminating short of the outer sides of the respective cover portions.

14. In a permanent binder, the combination of binding posts upon which bound sheets are assembled, a binding cover having spaced apertures therein, means for securing permanently one end of the posts to the cover, the other ends of the posts having shoulders, and means extending from the inner side of the cover disposed about each of said apertures adapted to engage said shoulders and hold permanently said other ends of the posts, said other ends extending into said apertures but terminating short of the outer face of the cover.

Signed at Baltimore, Maryland, this 17th day of January, 1930.

JOHN J. KERNAN.