Feb. 26, 1963 P. M. KLEIN ETAL 3,078,853

LOOSE-LEAF BINDERS

Filed Feb. 8, 1961

Fig. 1.

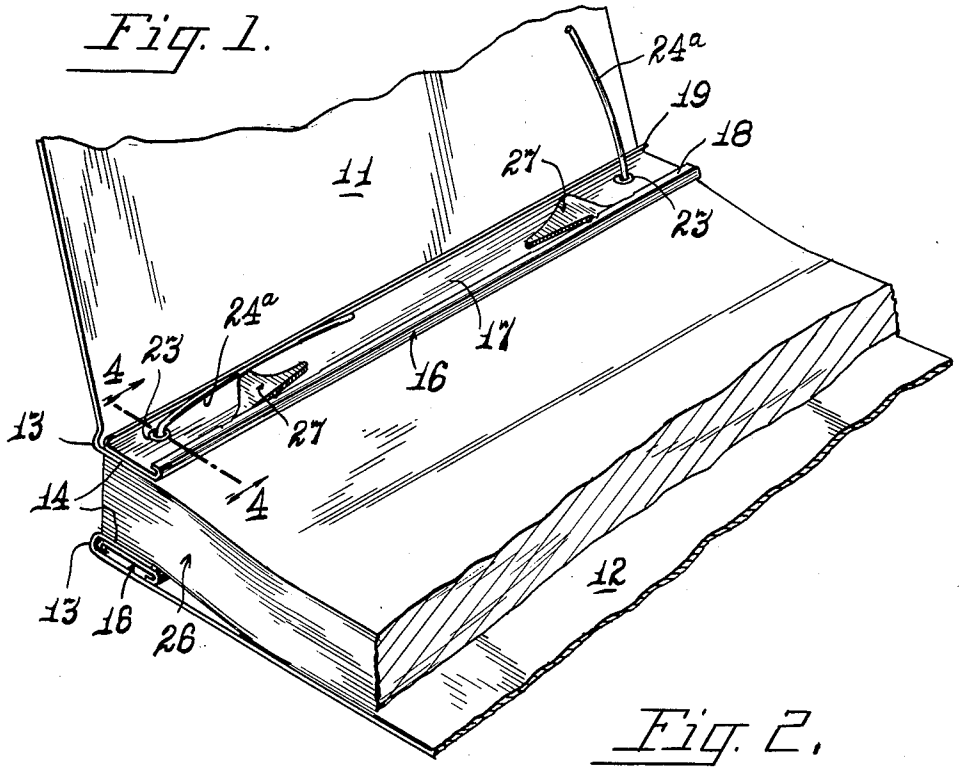


Fig. 2.

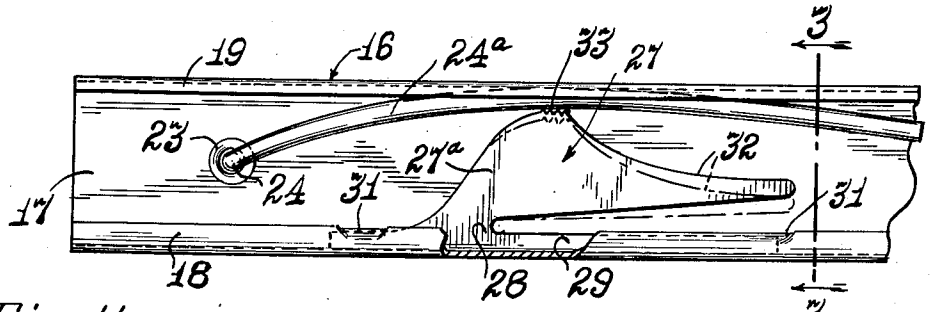


Fig. 4.

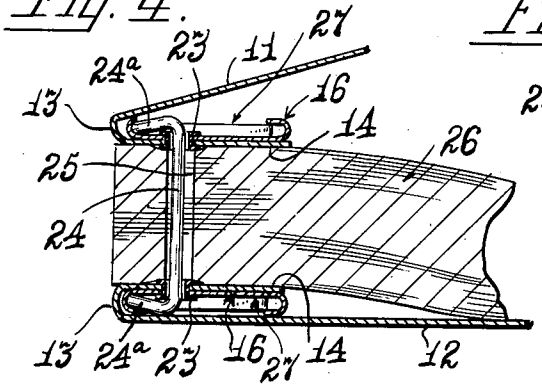
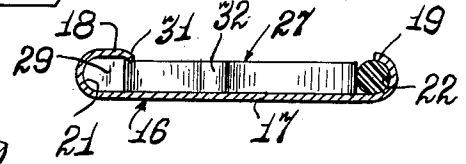


Fig. 3.



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LOOSE-LEAF BINDERS

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13 Claims. (Cl. 129—41)

The invention relates to improvements in loose leaf post binders and is more particularly concerned with novel means for detachably securing flexible binder posts to the covers of or flaps on a binder or folder of a type adapted to have a stack of loose leaf sheets bound firmly therebetween.

More specifically, the invention relates to improvements in fastener compressors and to loose leaf binders of a character embodying same. The exemplary loose leaf binder herein disclosed, for purposes of illustration, includes front and back covers which may be separated one from the other or hingedly joined in the manner of a bound book, and may be provided with binding flaps each having a novelly constructed fastener compressor secured thereto. The fastener compressor is essentially an elongated plate-like member of a length preferably coextensive with the flap to which it is attached and over which the end portions of flexible binder posts or prongs are bent inwardly towards each other after the posts have been threaded through aligned apertures in the stack of loose sheets to be bound. The inwardly bent end portions of the flexible posts are disposed closely adjacent to a longitudinal wall or channel on the plate-like member and they are frictionally retained thereagainst by lock elements that are resiliently yieldably mounted on the plate-like member and which are manually displaceable to effect release of the binder posts. The structure is such that the flexible posts are securely locked against displacement in any direction and any force applied in a direction to tend to pull the posts out of their locked condition serves to tighten the grip applied thereto.

It is therefore an object of the invention to provide a novelly constructed loose leaf post binder.

Another object is to provide novel means on a binder folder for retaining flexible binding posts in locked condition.

Another object is to provide novelly constructed wedge locks for a post binder.

Another object of the invention is to provide a novel fastener compressor member and novel means on said member to retain associated flexible binding posts in secured positions.

Another object is to provide a loose leaf binding device of the character described herein which is not expensive to manufacture, is easy to use, and is compact and very efficient in its use.

Other and more detailed advantages and objects of the invention will appear more fully as the description proceeds, reference being made to the accompanying drawings wherein a preferred form of the invention is shown. It should be understood however, that the drawings and description are illustrative only and should not be taken as limiting the invention except insofar as it is limited by the claims.

In the drawings:

FIG. 1 is a fragmentary perspective view of a loose leaf post binder showing a stack of sheets bound therein, and embodying the features of the invention.

FIG. 2 is a plan view of one end of the compressor member, showing a flexible binder post locked in place.

FIG. 3 is an enlarged sectional view of the compressor member, taken on line 3—3 of FIG. 2.

FIG. 4 is a transverse sectional view of the binder, taken on line 4—4 of FIG. 1.

Referring particularly to the accompanying drawings in which an exemplary form of a conventional type of loose leaf binder is illustrated, the binder is comprised of front and back covers 11 and 12 respectively, each preferably made of relatively stiff sheet material, such as pressboard, and each having hingedly connected along one edge, as at 13, a binding flap 14. When the binder is in use, the flaps 14 are folded inwardly to verlie the inside surface of their respective covers. A compressor member 16 is mounted firmly on the surface of each flap facing the related cover. This member is in the form of an elongated plate-like member of a length and width responding substantially to the length and width of the flap on which it is mounted. The plate-like member may be made of metal or of any other suitable material, such as plastic material, and it includes a base wall 17 and upwardly inwardly folded margins 18—19 spaced from said base wall to define inwardly facing opposed channels 21—22 respectively. Eyelets 23 provided one adjacent to each end of the plate-like member anchor the compressor member 16 firmly to the flap.

The eyelets 23 define passageways through the flaps and attached compressor members which are adapted to receive threaded loosely therethrough resiliently flexible binding posts or prongs 24. As shown in FIG. 4, these posts, which preferably are made of "nylon" plastic, are threaded through aligned apertures 25 in a stack of sheets 26 arranged between flaps 14, and said posts are of sufficient length to project beyond said eyelets in a manner to permit their projecting end portions 24*a* to be bent over inwardly toward each other and down against the respective compressor member 16.

Novel means in the form of lock elements 27 is provided on each compressor member for holding the bent over portions of the flexible binding posts firmly in place. As shown, one lock element 27 is arranged on the compressor member plate 17 longitudinally inwardly of each eyelet 23. As best shown in FIGS. 2 and 3, each lock element is comprised of a flat triangular shape body 27*a* of tough plastic material, such as "nylon," having integrally connected therewith and at one end thereof, as by neck 28, a tongue 29 that is seated in channel 21, and preferably is secured against displacement by flattening or otherwise offsetting the margin 18 of the engaged channel, as at 31, to wedgingly bind tongue 29 in place. The triangular shape body 27*a* includes a finger-engaging terminal portion 32 and a serrated edge 33 on the apex of body 27*a*. For a purpose to become apparent hereinafter, the lock element is arranged in the compressor member with its terminal portion 32 extending in a direction away from the related eyelet. The body 27*a* is of sufficient width as to normally locate the serrated edge 33 substantially within opposed channel 22.

When a bent over post end portion 24*a* is laid against compressor base wall 17, between channels 21—22, the triangular shape body 27*a* is manually displaced by finger engagement with finger-engaging portion 32 so as to permit the post end portion 24*a* to be inserted into the gap between the serrated apex 33 and channel 22. Upon release of the finger-engaging portion 32, the triangular shape body 27*a* tends to return to its initial extended position thus wedging the post end portion 24*a* firmly into channel 22 and against the walls thereof. The degree of firmness with which the flexible post is retained is dependent upon the inherent resiliency of the material comprising the connecting neck 28, which may be varied to suit specific requirements by the expedient of making the material more or less resistant to flexing or by increasing or decreasing the mass of material comprising neck 28.

It is evident that the prong end portions are securely locked in position against displacement in any direction and that the binder or folder covers and sheets therebetween are secured firmly; and that, the degree of securement is increased when the assembly is subjected to forces tending to separate same, because of the tendency of the triangular-shape body 27*a* to be rocked in the direction of the prong.

When a loose leaf sheet is to be removed, or a sheet is to be added to the stack of sheets, the lock elements 27 of either compressor assembly illustrated may be released momentarily to permit withdrawal of the related folder cover from the binder posts to expose the stack. Obviously, the compressor member 16 illustrated, can be utilized as a fastener compressor apart from a binder or folder and that file folders constructed other than as shown but with flexible or bendable binder posts may be used in association with such member.

From the foregoing description it is believed that the nature of the invention and the manner in which it is to be carried out will be readily apparent to those skilled in this art.

Having thus described the invention, what we claim and desire to secure by Letters Patent is:

1. A binder of the class described consisting of a pair of covers, a resiliently flexible prong-like member having one of its end portions connected to one of said covers, an elongated channel-shape member associated with the other of said covers and being disposed with its channel opening inwardly with respect to said covers, the other end portion of said prong-like member being laid to extend generally longitudinally along said channel, and a resiliently yieldable lock element mounted firmly in said channel-shape member and lying in the plane of and engageable with the said other end portion of the prong-like member for urging said engaged end portion in a lateral direction and into clamping engagement with a side wall of the channel-shape member.

2. A binder of the class described consisting of a pair of covers, a resiliently flexible prong-like member secured at one of its ends to one of said covers, an elongated plate-like member attached to the other of said covers, a longitudinally extending, upstanding shoulder adjacent to one edge of said plate-like member, said prong-like member having its other end portion laid over said plate-like member and substantially parallel to said shoulder, and a wedge-shape member on said plate-like member and lying in the plane of said prong-like member engageable with the said other end portion of the prong-like member to clamp same against said shoulder and lock it against displacement in any direction.

3. The binder described in claim 2, in which the wedge-shape member is movably secured to the plate-like member.

4. The binder described in claim 2, in which the wedge-shape member has a flexible connection with the plate-like member and is resiliently urged into engagement with the prong-like member.

5. A binder of the class described consisting of a pair of covers, a resiliently flexible prong-like member having one of its end portions removable connected to one of said covers, a compressor member attached to the other of said covers and in which the other end portion of said prong-like member is laid to extend longitudinally thereof, an upstanding shoulder on one longitudinal edge of said compressor member, and a wedge-shape member on said compressor member and lying in the plane of said other end portion of the prong-like member, said wedge shaped member being engageable with the said other end portion of the prong-like member to urge said portion laterally and lock it between said wedge-shape member and the shoulder.

6. A binding device comprising a fastener for detachably binding a plurality of loose sheets in a stack, said fastener including spaced prongs threaded through apertures in said sheets, an elongated plate adapted to be seated over said sheets, said spaced prongs being bent downwardly against the top face of and longitudinally with respect to said plate and towards one another, an upstanding wall on at least one longitudinal edge of said plate, and resilient means connected to said plate and lying in the plane of and engageable with the bent over prongs to urge said prongs laterally into firm engagement with said wall and lock them against displacement in any direction.

7. The binding device described in claim 6, in which the resilient means includes a wedge-shape member.

8. The binding device described in claim 6, in which said resilient means includes a mounting portion secured firmly to the plate.

9. The binding device described in claim 6, in which the resilient means is comprised of a mounting portion secured firmly to the plate and a prong engaging portion integrally connected to said mounting portion.

10. The binding device described in claim 9, in which said lock means is comprised of tough resiliently flexible plastic material.

11. In a binding device comprising a fastener for detachably binding a plurality of loose sheets in a stack, said fastener including a longitudinally extending compressor plate adapted to be seated on said sheets and spaced bendable prongs threaded through apertures in said sheets and said compressor member and lying against and extending longitudinally of said member and also extending towards one another, said compressor plate having an upstanding wall on at least one longitudinal edge of said plate, and wedge means resiliently mounted on said plate and lying in the plane of and movable normally laterally into engagement with the bent over prongs to urge said prongs into firm engagement with said wall and lock them against displacement in any direction.

12. In a loose-leaf binder for binding a plurality of loose sheets in a stack, a fastener compressor including spaced bendable prongs threaded through apertures in said sheets, an elongated plate superposed on said sheets and having apertures through which said prongs are similarly threaded, said prongs extending towards one another and longitudinally with respect to said plate and being bent down against its top surface, an upstanding shoulder adjacent to one longitudinal edge of said plate, a clamp element on said plate, resiliently flexible means connecting said element with the plate and effective to retain the clamp element normally in engagement with the shoulder, and finger engaging means on said clamp element for moving said element away from the shoulder a distance sufficient to admit the bent over portion of a prong into the space between said shoulder and clamp, said clamp element and shoulder cooperating upon release of the finger engaging means to lock said prong to said shoulder and against displacement in any direction.

13. In a loose-leaf binder for binding a plurality of loose sheets in a stack, a fastener compressor including

spaced bendable prongs threaded through apertures in said sheets, an elongated plate superposed on said sheets and having apertures through which said prongs are similarly threaded, said prongs extending towards one another and longitudinally with respect to said plate and being bent down against its top surface, a longitudinally extending upstanding shoulder on said plate, a clamp element, resiliently flexible means mounting said element on the plate and effective to urge the clamp element laterally against said shoulder, and finger engaging means on said clamp element for moving the clamp element away from the shoulder a distance which is

sufficient to admit a prong into the space between the shoulder and clamp element, and serrations on the working portion of said clamp element, said serrations and shoulder cooperating to lock the prong to the shoulder and against displacement in any direction.

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