United States Patent

[11] 3,628,877

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Continuation-in-part of application Ser. No. 857,184, Sept. 11, 1969, now abandoned, Continuation-in-part of application Ser. No. 724,391, Apr. 26, 1968, now abandoned. This application Mar. 17, 1971, Ser. No. 125,074

[54] **COMPRESSION MECHANISM AND POST BINDER INCORPORATING THE SAME**
1 Claim, 6 Drawing Figs.

[52] **U.S. Cl.** **402/17,** 402/4, 402/80, 402/73
[51] **Int. Cl.** **B42f 3/00**
[50] **Field of Search** 402/14–18, 8, 13, 4; 312/184; 40/359, 360

[56] **References Cited**

UNITED STATES PATENTS

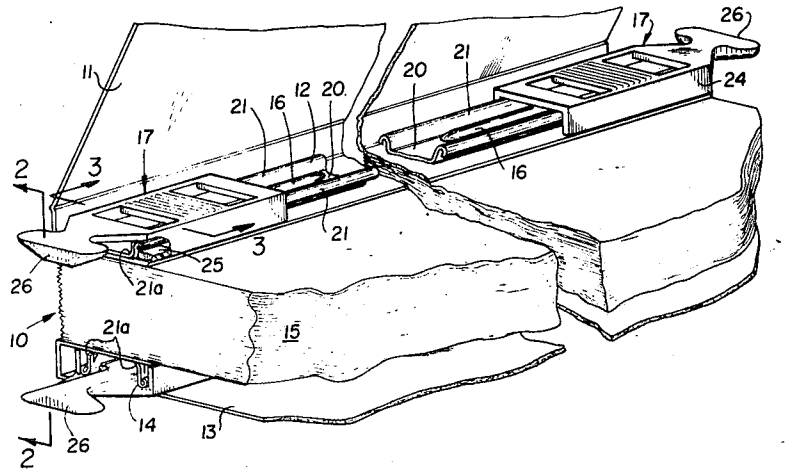
1,997,635	4/1935	Forth	402/17
2,524,688	10/1950	Wendt	402/17
3,080,562	3/1963	Potts et al.	402/17
3,263,689	8/1966	Lindgren et al.	402/17

FOREIGN PATENTS

490,456	2/1953	Canada	312/184
556,774	8/1932	Germany	312/184
680,215	8/1939	Germany	312/184
553,944	1/1957	Italy	402/14
112,585	12/1944	Sweden	312/184

Primary Examiner—Jerome Schnall
Attorney—Edgar N. Jay

ABSTRACT: The four retaining slides of a post binder having two parallel compression mechanisms are each provided with an outwardly extending hook so that the binder can be vertically suspended in a file drawer or the like between suitably spaced horizontal supports. When the binder is removed from the file drawer for use, the retaining slides can be readily shifted along the compression members to retracted positions within the binder. The position of the flexible posts and the length of the slides are such that the slides retain the posts in both their extended and retracted positions.



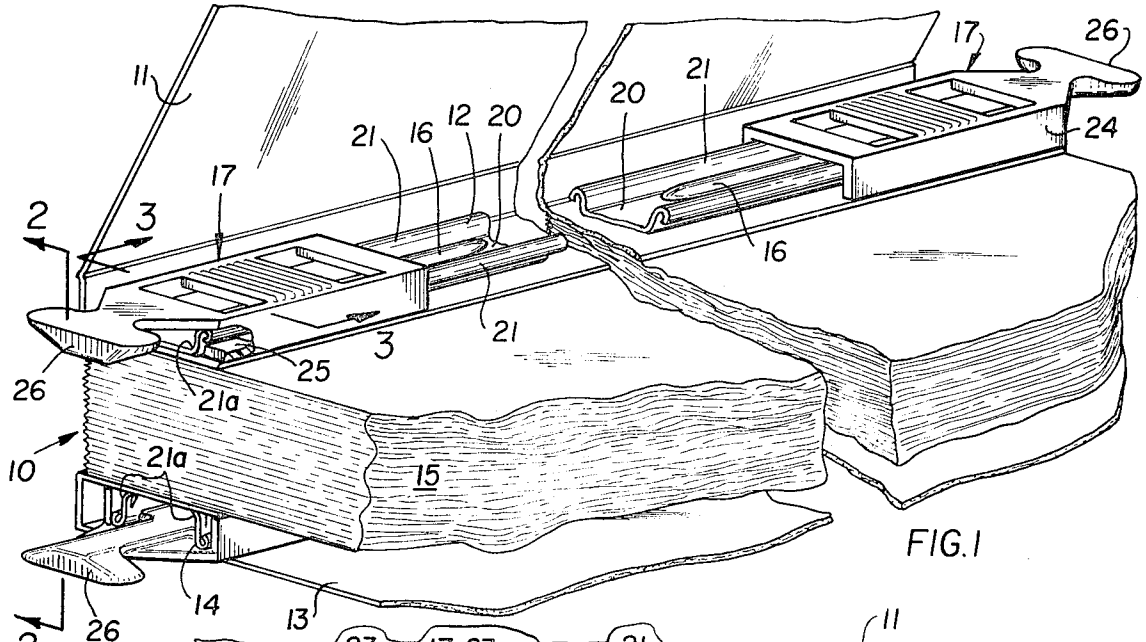


FIG.1

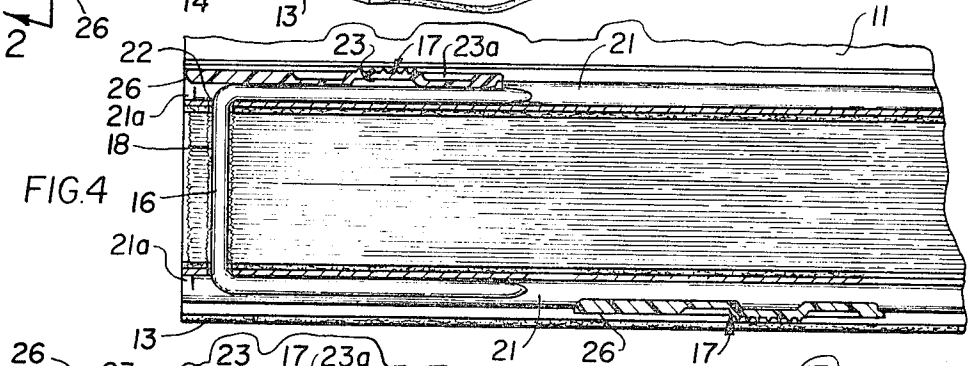


FIG.4

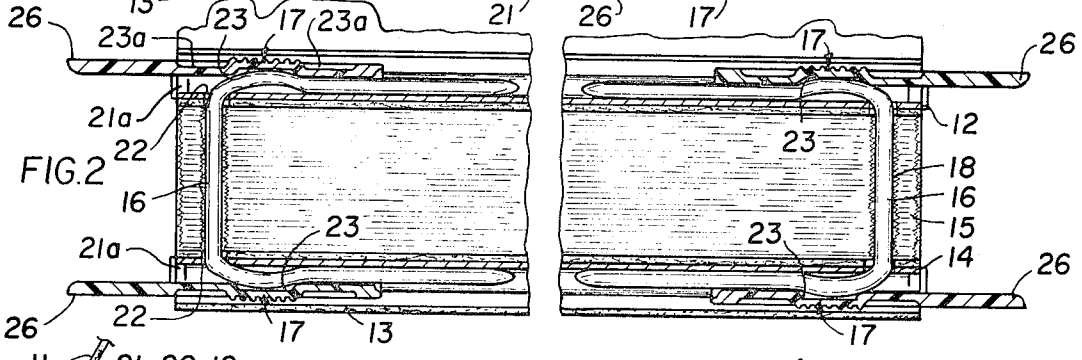


FIG.2

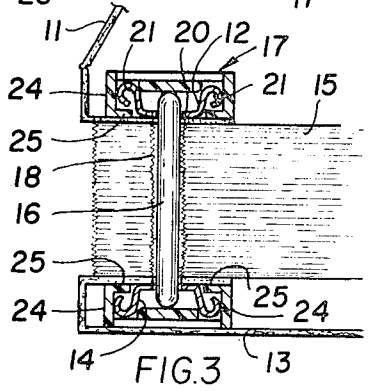


FIG.3

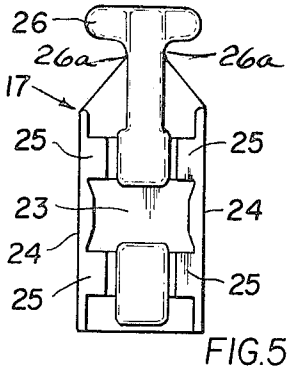


FIG.5

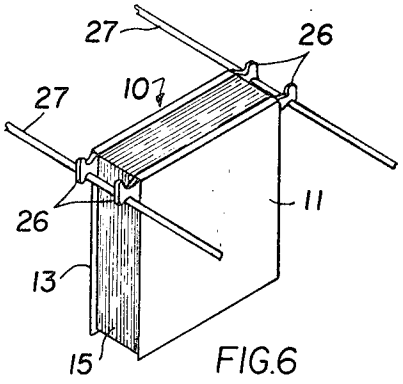


FIG.6

COMPRESSION MECHANISM AND POST BINDER INCORPORATING THE SAME

This application is a continuation-in-part of my application Ser. No. 857,184, filed Sept. 11, 1969, now abandoned which in turn is a continuation-in-part of my application Ser. No. 724,391, filed Apr. 26, 1968 and now abandoned.

This invention relates to flexible post binders and, more particularly, to an improved compression mechanism for such binders.

In the storage of business or technical papers, more and more use is being made of vertically suspended filing because the papers or sheets are usually not stiff enough to be self-supporting, and a binder or back which is stiff enough to support the papers without a suspension mechanism takes up so much space as to be uneconomical as well as inconvenient.

In order to combine the advantages of vertically suspended filing with those provided by the use of flexible post binders having compression mechanisms, it has hitherto been proposed as in British Pat. No. 742,310 (published Dec. 21, 1955), to add a pair of flat bars to the front and back of the binder for vertically suspending the binder by means of hooks at the ends of the bars. In said British Pat. No. 742,310, it is also proposed to add hooks to the ends of the compressor bar of the compression mechanism. In Italian Pat. No. 553,944, granted Jan. 4, 1957, the hooks are shown as pivotally or slidably mounted at the opposite ends of the compressor bar so as not to engage or interfere with the binder posts. In German Pat. No. 556,774 granted Aug. 26, 1932, a pair of suspension members engage one another by means of stops to limit their mutual displacement and each has an opening intermediate its ends through which the binder posts extend. When the suspension members are fully retracted, the opening of each is aligned with an opening in the compressor bar through which a binder post extends. When the suspension members are shifted to their outer position for suspending the binder, the posts are bent over away from each other, the openings in the suspension members being shifted outwardly along the associated post.

I have found that by providing each of the four retaining slide members of the two compression mechanisms of a flexible post binder with an outwardly extending hook extending toward or beyond an end of its compressor bar, depending upon which of its positions each of the slide members occupies, a simple and relatively inexpensive arrangement is provided by which the slide members retain the flexible posts of the binder bent over toward each other and at the same time provide for vertically suspending the binder and its contents from a pair of parallel, horizontally spaced support members. Each of the slide members is movable along its compressor bar from an outermost position in which its hook extends beyond the compressor bar through a second position in which its hook is retracted within the end of the compressor bar to a third, inner position in which it is spaced beyond the end of the associated post to free the latter. In its two outer positions, the slide member overlies and maintains frictional engagement with its bent-over post.

It is therefore a principal object of my invention to provide an improved and simplified compression mechanism and flexible post binder incorporating the same, constructed so that the binder and its contents can be readily suspended vertically for storage.

A more specific object of mu invention is to provide such a compression mechanism and binder assembly which is relatively inexpensive and which does not require any more parts or occupy any more storage space in use than a conventional compression mechanism of the type which is not adapted for suspending a binder.

Further objects as well as advantages of my invention will be apparent from the following description of a preferred embodiment thereof and the accompanying drawing in which:

FIG. 1 is a perspective view, partially broken away for convenience, of a compression mechanism and binder assembly constructed in accordance with the present invention;

FIG. 2 is a longitudinal cross-sectional view of the compression mechanism and binder taken along the line 2—2 in FIG. 1;

FIG. 3 is a transverse cross-sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a fragmentary cross-sectional view corresponding to FIG. 2, but with one slide member shifted to its intermediate, fully retracted position and a second shifted to its inner position so as to free the end of the flexible post;

FIG. 5 is a bottom plan view of one of the retaining slide members; and

FIG. 6 is a perspective view on a reduced scale showing a binder suspended for storage.

Referring now to the drawing, in its preferred form flexible post binder 10 comprises a front cover 11, a front compressor bar 12, a back cover 13 and a back compressor bar 14, all of which are joined together to retain sheets 15 by means of a pair of flexible posts 16 retained by slide members 17 each of which carries an outwardly extending hook 26.

Covers 1 and 13 can be made of any suitable material, as for example paper or plastic, and have holes 18 formed therethrough along corresponding margins so that the holes in the front cover register with those in the back cover when the two are aligned one with the other. If desired, either or both of the covers can be omitted. However, the compressor bars preferably are riveted (not shown) or otherwise suitably connected to corresponding marginal portions of the front and back covers 11, 13.

The compressor bars 12, 14 may be of any suitable length and preferably are substantially of the same length as the margins of the sheets 15 along which they are engaged or compressed by the bars. The front and back compressor bars 12, 14, as shown, are formed from metal strip with a central web 20 joining a pair of parallel rails 21 which form slideways for slide members 17. Holes 22 are formed through the web 20 of each compressor bar at suitable intervals to receive rivets, when the latter are used, and also for registration with holes 18 in the covers 11 and 13 to receive the flexible posts 16.

The flexible posts 16 can be formed of any suitable material. As shown, they are preferably formed of a tough plastic such as nylon and are generally cylindrical for threading through the aligned holes in the covers, bars and sheets. As shown most clearly in FIG. 2, the central portion of posts 16 extends through the sheets, and the opposite end portions thereof are bent toward each other, as shown, substantially at right angles to extend along the webs 20 of the compressor bars after the latter have been pressed together. The bent-over portions of the posts are retained by the slide members 17.

The four slide members 17 are preferably made of a suitable plastic, such as nylon, by means of known injection molding techniques. Each slide member 17 comprises a web portion 23 from which a pair of opposed side members 24 extend substantially perpendicular to the web portion 23, and are spaced to slidably engage the compressor bar rails 21. As is most clearly shown in FIG. 3, the side members 24 are preferably spaced apart to receive between them the compressor bar rails 21. Retaining members 25 are formed integrally with the side members 24 and extend substantially perpendicularly therefrom and parallel to the web portion 23. The side members 24 and retaining members 25 engage the rails 21 for retaining the slide members 17 on the compressor bars. As shown most clearly in FIG. 2, portions 23A of the web 23 of the slide members 17 are depressed so that they extend within the channel formed by rails 21 along the web 20 of the compressor bars. This ensures positive frictional engagement of the slide members 17 with the bent-over flexible posts 16. The spaced depressed portions 23A of the web 23 also facilitate positioning the slide members 17 along their compressor bars. After the slide members 17 are positioned on their respective compressor bars 12 and 14, the extreme end portions of the rails 21 are deformed somewhat as at 21A to form stops which engage the outer pair of retaining members 25 and prevent accidental removal of a slide member from its bar. The rails can

thereafter be readily reshaped with a suitable tool when it is desired to remove one or more slide members.

The web portion 23 of each of the slide members 17 is extended beyond the side members 24 to provide a hook 26. As shown, each of the hooks 26 is a double hook, that is each is two sided and has notches 26a which open in opposite directions to provide bidirectional suspension means whereby each slide member 17 can be used adjacent either end of the compressor bar by simply inverting the slide.

The web portions 23 of the slide members 17 are long enough so that with the slide members 17 in their outer positions against stops 21A as shown in FIGS. 1, 2 and 6, the hooks 26 are extended for vertically suspending the binder 10 by means of parallel, horizontally spaced supports or rails 27 (FIG. 6 only), and the web portion 23 of each slide member 17 engages its associated flexible post 16 and maintains it bent over in its locking position. As most clearly shown in FIG. 2, when the slides 17 are in their outermost extended position, each of the posts 16, at the points where it is bent to extend along the rail web 20, projects sufficiently to extend a small amount into the recess formed between the two depressed portions 23A of the associated slides 17.

When the slide members 17 are shifted to their intermediate retracted positions so as to bring the hooks 26 entirely within the central channel of the compressor bar, as shown by the upper slide member 17 in FIG. 4, the slide members still overlie the bent-over end portions of the flexible posts 16. When a binder is withdrawn from its vertical storage position, the slide members 17 are readily shifted to their intermediate retracted positions thereby preventing the hooks of one binder from becoming entangled with the hooks of other binders or other papers, or from marring the surface of a desk or the like.

While the compressor bars 12 and 14 have been described as being formed of metal and slide members 17 as formed of plastic, obviously other suitable materials can be used as desired. For example, the compressor bars can be formed of plastic, and the slide members can be formed of metal; and the different materials can be used in any desired combination.

The slide members have been shown as engirdling the rails of the compressor bars as is preferred. However, it is to be understood that the rails of the compressor bars instead of being turned outward as shown herein can also be turned inward to form two parallel channels to receive the opposite, appropriately shaped marginal portions of the slide members.

To open either side of the binder 10, the slides 17 mounted on either the front compressor bar 12 or the back compressor bar 14, as desired, are slid inwardly to a third or inner position beyond their intermediate positions, as illustrated by the lower slide member 17 in FIG. 4, in which each is entirely clear of the bent-over end portion of its associated flexible post 16, so that the latter can be straightened and the compressor bar can be freed. When the binder has been reassembled, slides 17 are positioned either in their intermediate position as illustrated in FIG. 4 or in their outer position as in FIGS. 1 and 2. In both of those positions the slides frictionally engage the bent-over portions of the posts 16 to lock the compressor bars against the sheets 15 held between them. It should also be noted that the double hooks 26 facilitate supporting an open binder for use on the rails from which it is suspended for storage. For this purpose, a stored binder is rotated 180° as it is removed from storage and then replaced on its supporting rails. The hooks which in the stored position face upwards now face downwards and engage the rails, thus keeping the binder from slipping or falling off.

Various modifications can be made in the device shown and described herein without departing from the scope of the present invention. The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

I claim:

1. A flexible post binder for receiving and retaining sheets therein and suspending the same from horizontally spaced supports, comprising a pair of elongated compressor bars, said compressor bars each having a pair of longitudinally extending rails formed along the opposite sides thereof and forming a longitudinally extending channel, said compressor bars each having at least two holes formed therethrough one adjacent each of the opposite ends thereof and spaced a predetermined distance therefrom with the holes formed in one of said compressor bars aligned with the holes formed in the other, a pair of flexible posts, one of said posts extending in each of the aligned pair of holes adjacent the opposite ends of said compressor bars, the free end portions of each of said flexible posts being bent over and extending inwardly in said channel toward the free end portions of the other, two pairs of slide members with a pair slidably engaging each of said compressor bars, each of said slide members having opposite side portions thereof slidably engaging the rails of the associated compressor bar and having a web portion connecting the rail-engaging side portions thereof, said web portions each having a depressed portion extending in the channel of the associated compressor bar for frictionally engaging an end portion of one of said flexible posts on the side thereof away from said compressor bar, the web portion of each of said slide members on the side thereof away from the other slide member paired therewith extending beyond the rail-engaging side portions thereof and forming a hook member, said compressor bars each having stops formed therein adjacent the opposite ends thereof to limit outward movement of the slide members mounted thereon, said hook members are two sided and formed by notches open in two opposite directions transverse to the longitudinal axis of the associated compressor bar, whereby each slide member has an operatively positioned hook member for use in vertically suspending a binder independent of whether it is positioned adjacent one end or the other end of said compressor bar, said slide members each being movable inwardly along its associated compressor bar from a first position against one of said stops in which its hook member extends beyond said compressor bar through a second position in which its hook member is retracted within the end of said channel to a third position on said compressor bar spaced beyond the flexible post associated therewith, and the length of said slide members relative to said predetermined distance being such that each of said slide members in its said first and second positions overlies and maintains frictional engagement with the end portion of the flexible post associated therewith.

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