

[54] **LOOSE LEAF BINDING MECHANISM**
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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 21,171, March 19, 1970, abandoned.
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[51] **Int. Cl.**.....**B42f 3/00, B42f 13/06**
[58] **Field of Search**.....**402/8, 9, 10, 11, 12, 13, 14, 402/15, 16, 17, 18, 2**

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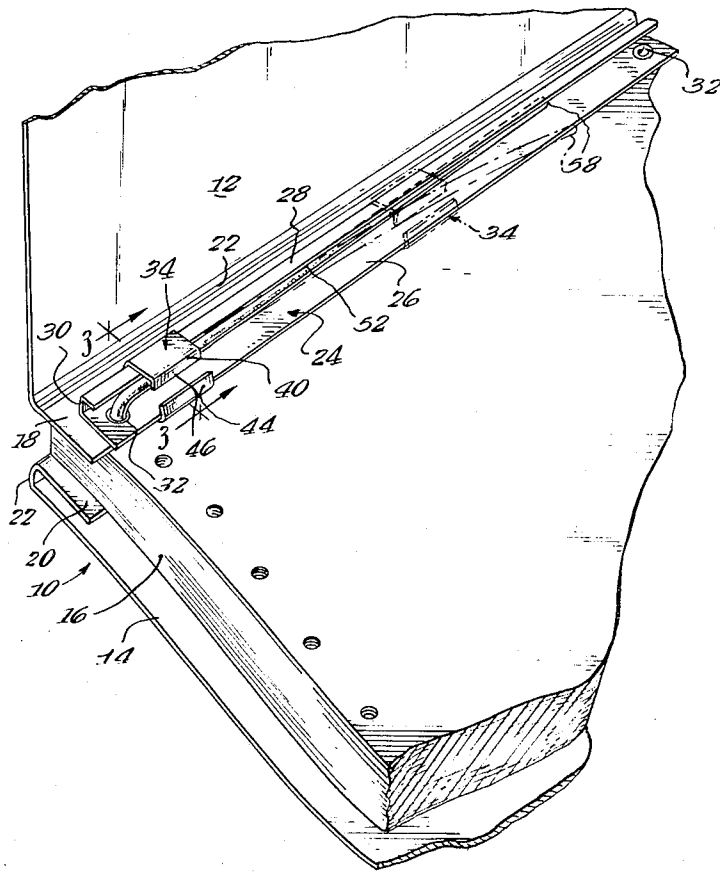
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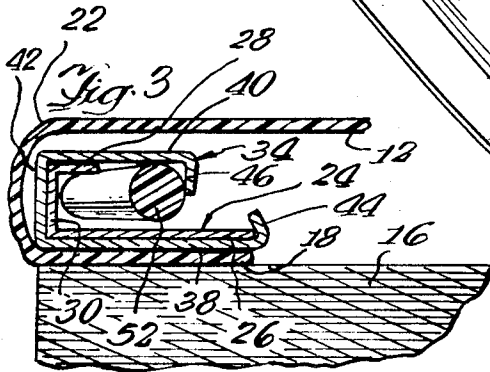
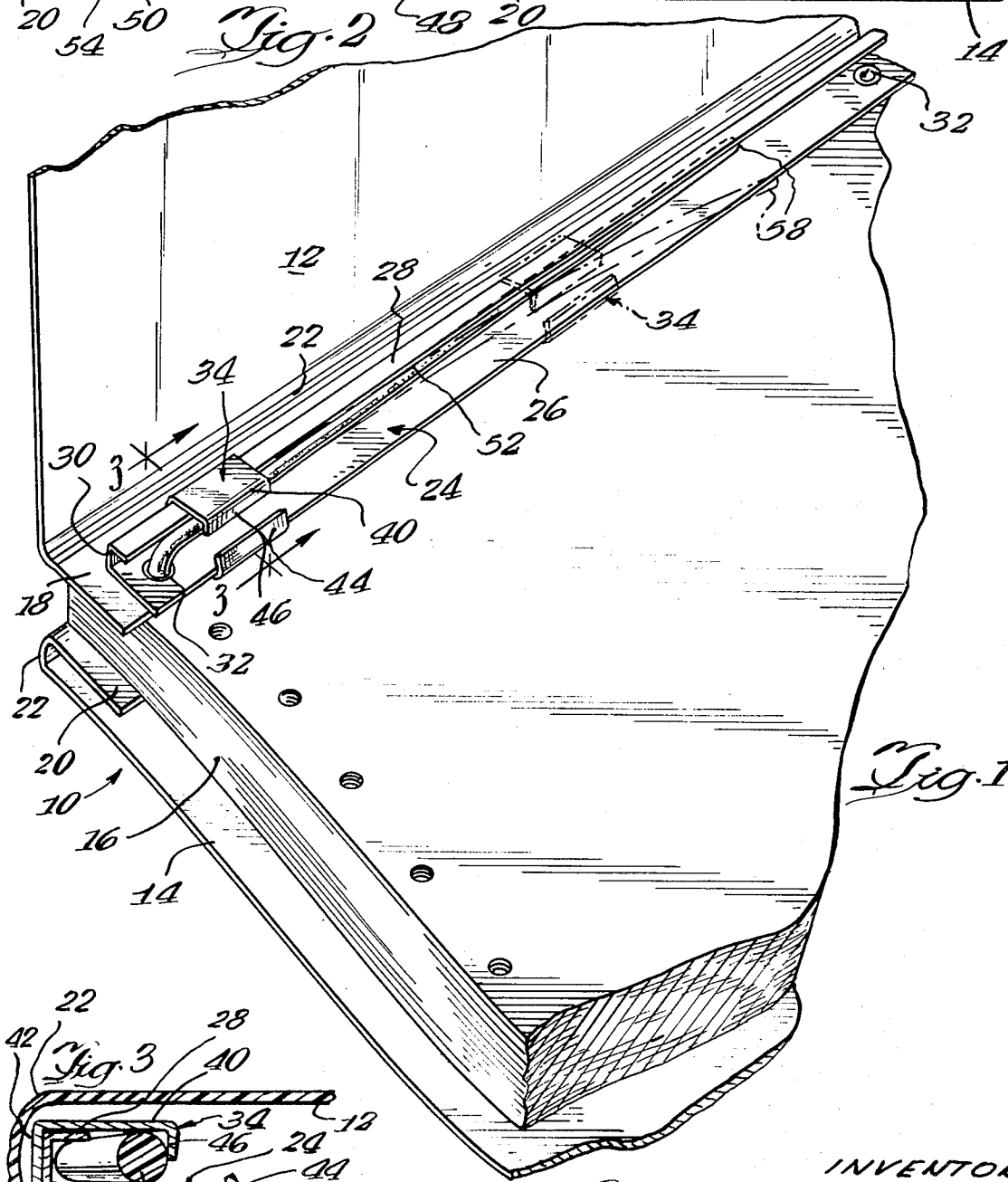
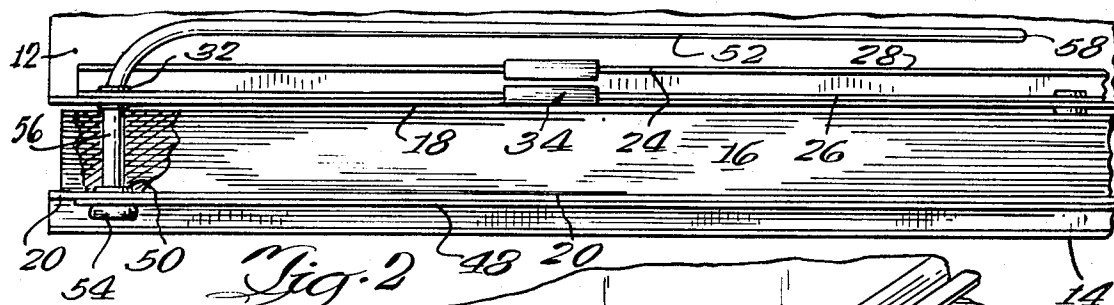
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[57] **ABSTRACT**

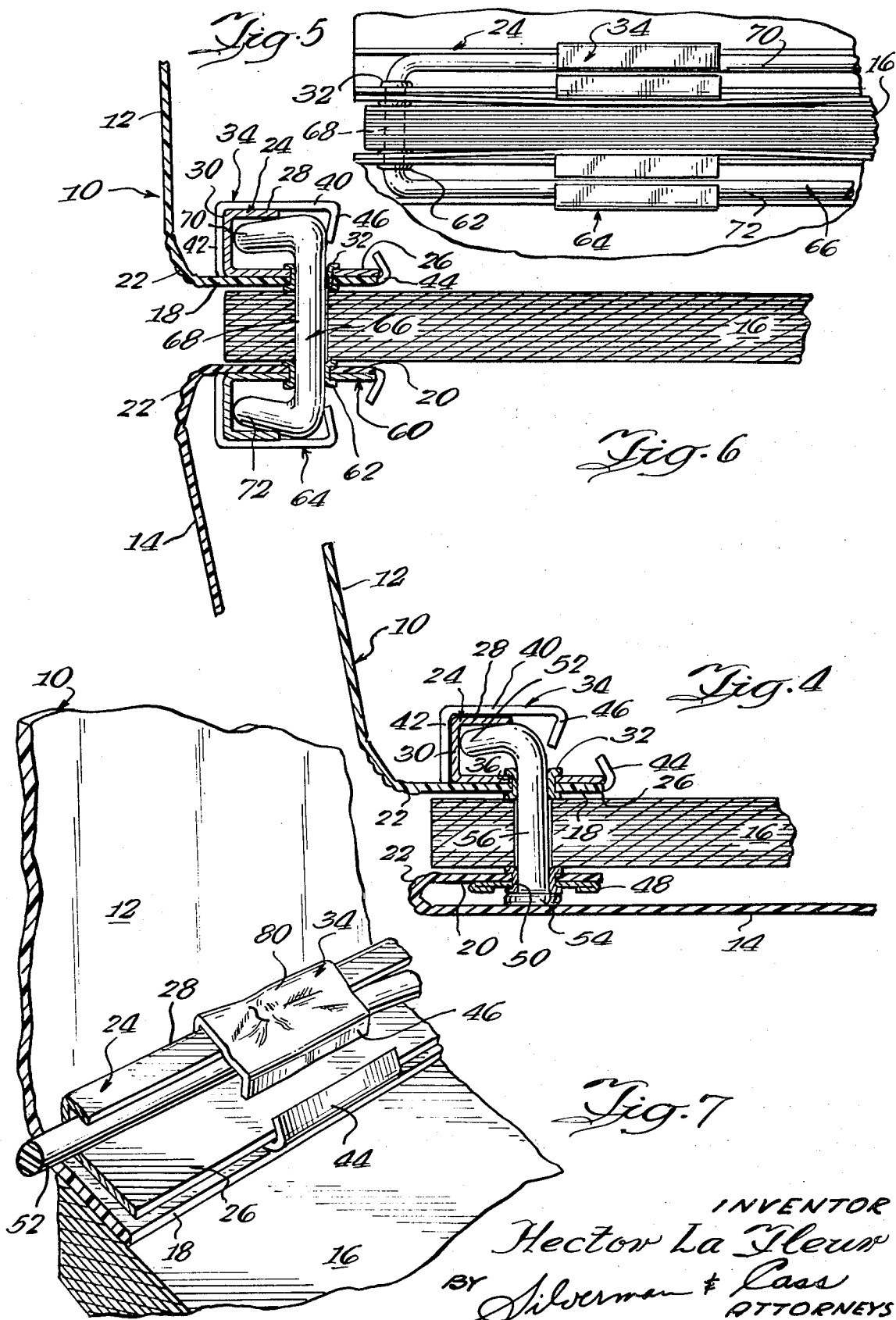
A loose leaf binder securing mechanism in which a rigid track is mounted to the exterior of one cover hinge strip with sliders positioned on the track prior to mounting. The sliders are movable along portions of the track between passageways in the track in registry with perforations in the hinge strip and the assembled sheeted material to be bound. Flexible binder posts are mounted to the binder opposite the said one cover hinge strip and pass through the perforations. Each slider has a hook member which is adapted to engage along a portion of the surface of the binder post associated therewith when the post is passed through its respective passageway and bent to lie along the length of the track. In one embodiment, the hook member of each slider is in disalignment with the passageways so that it is not possible to push a slider past its associated post where the post emerges from its passageway. When a slider is engaged upon its post and moved toward the associated passageway, the slider will wedge against and lock the post adjacent the point where it extends from the passageway. In an alternative embodiment, each slider has a slot adapted to engage a post in locked condition when the slider is pushed adjacent its passageway.

1 Claim, 11 Drawing Figures

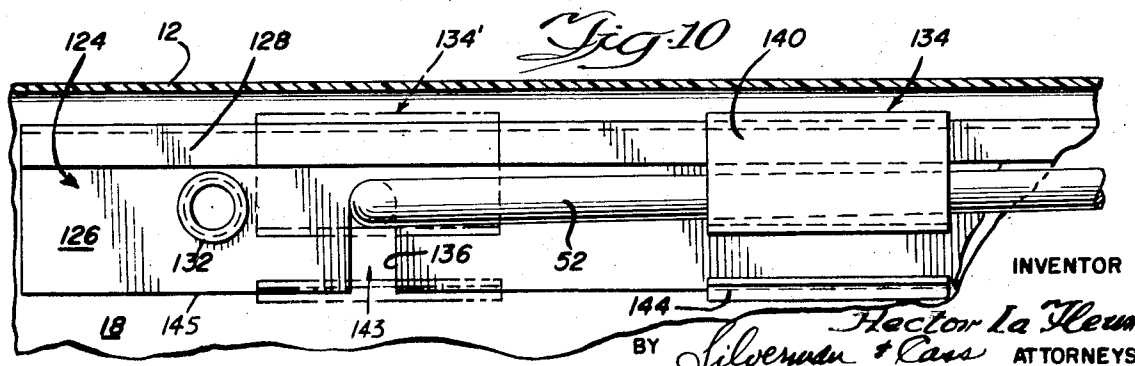
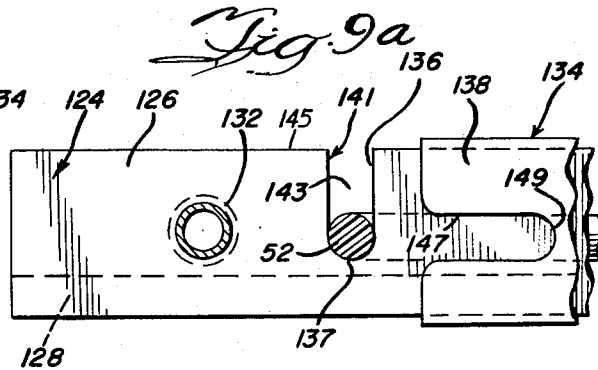
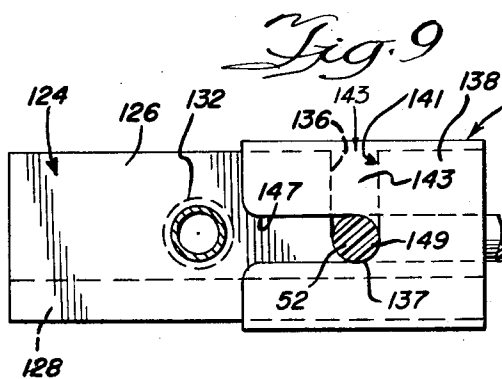
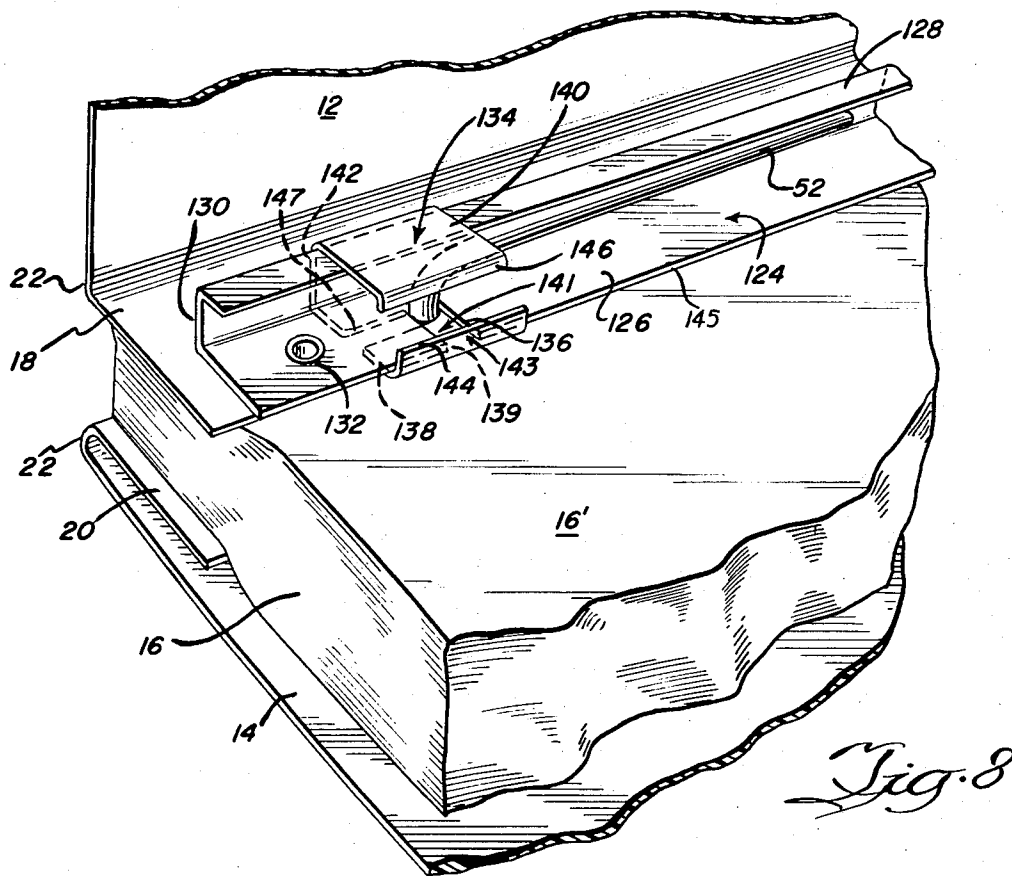




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LOOSE LEAF BINDING MECHANISM**CROSS REFERENCE TO RELATED APPLICATION**

This application is a continuation-in-part of an application of the same title, Ser. No. 21,171 filed Mar. 19, 1970, now abandoned.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

This invention relates generally to loose leaf binders and more particularly relates to a novel mechanism for securing such binders in locked condition.

2. Description of the Prior Art

Loose leaf binders of the type in which the binder is assembled about the paper retained thereby assume a variety of constructions and configurations. These binders generally utilize a metal post or posts which are inserted through holes punched in the binder covers and paper to be bound, and then bent over on the outer surface of the hinge strip of the front cover member. In many such structures, the posts must be threaded through passageways for purposes of retaining the same in closed configuration and to prevent accidental loosening of the binding. In lieu of threading through passageways to retain the posts in secure assembly, it also is known to use clamps, hooks and other mechanisms, all for the most part being complex and difficult to maneuver. In many instances, once the binder is assembled, unlocking of the posts for purposes of inserting or removing sheets of bound paper is extremely difficult if not impossible without substantially altering and deforming the construction, thereby preventing the structure from being re-used.

SUMMARY OF THE INVENTION

The invention is characterized by a rigid track adapted to be mounted on the exterior of one cover hinge strip of a binder. The track has passageways in registry with perforations provided in the hinge strip and the assembled sheeted material to be bound. Flexible binder posts are mounted to the binder opposite the one cover hinge strip and pass through the perforations and passageways. Sliders corresponding in number to the posts are positioned on the track to be movable along portions thereof, each slider having a hook member adapted to engage along a portion of the surface of the post with it is associated when the post is passed through its respective passageway and bent to lie generally along the length of the track. In one form of the invention, the hook member of each slider is of a length less than the width of the track so that the hook does not extend completely over the passageways provided in the track. The track has an abutment surface along one edge thereof spaced from the passageways such a distance that when any slider is engaged upon its post and moved toward the passageway of the post, the slider will tend to press the bend of the post closer to said abutment surface than predetermined by the distance of the abutment surface from the passageway and thereby wedge the post into a substantially locked condition. The length of the hook member is such that it is not possible to push a slider past its associated post where it emerges from its passageway; thus insuring that the post will be wedged in place upon movement of the slider toward the passageway.

In an alternate form of the invention, each slider has a slot provided in a portion thereof which lies between the track and the hinge strip to which the track is mounted. The slot is positioned such that it will engage upon the post when the slider is moved adjacent its associated passageway to insure that the post will be securely retained by the slider when the latter is moved to locking position.

The primary object of the invention is to provide a loose leaf binder securing mechanism comprising a rigid track mounted to the hinge strip of a binder cover with sliders movable lengthwise along the track and elongate flexible binding posts extending through passageways in the track and adapted to be bent over and pressed down adjacent respective passageways to be hooked under a flange portion of a respective slider to hold the binder in locked condition.

Another object of the invention is to provide such a loose leaf binder securing mechanism in which disengagement of the flexible posts for purposes of removing or adding sheeted material to the binder is easily accomplished with a minimum of effort.

A further object of the invention is to provide such a loose leaf binder securing mechanism in which the flexible posts can be hooked and unhooked under the flange of the respective sliders without translating the sliders unnecessarily and without having to thread the tip of the post through a passageway.

A still further object of the invention is to provide such a loose leaf binder securing mechanism which may be permanently locked by deforming the sliders after the mechanism is in locked condition to prevent tampering with or altering of the contents of the binder.

Further objects of the invention are to provide such a loose leaf binder securing mechanism which is adaptable for universal use with any size binder, and which will permit the loading or unloading of the binder from either the front or rear thereof.

The foregoing and other advantages of the invention will become apparent from the ensuing disclosure in which the preferred embodiments of the invention are described in detail and illustrated in the accompanying drawings. It is contemplated that minor variations in structural features and arrangement of parts thereof may appear to the skilled artisan without departing from the scope or sacrificing any of the advantages of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary perspective view of a loose leaf binder with one form of securing mechanism of the invention illustrated assembled thereon, a binder post and slider being shown in dotted line prior to locked condition of the binder, and in solid line when locked condition of the binder is completed.

FIG. 2 is a fragmentary end plan view of the binder illustrated in FIG. 1, with a binder post shown prior to being hooked under the flange of the slide member.

FIG. 3 is a sectional view taken generally along the line 3—3 of FIG. 1 in the indicated direction.

FIG. 4 is an enlarged, fragmentary side plan view of the binder illustrated in FIG. 1, with a binder post and slider shown when locked condition of the binder has been completed.

FIG. 5 is a fragmentary end plan view of a binder having an alternative embodiment of the invention illustrated assembled thereon.

FIG. 6 is an enlarged, fragmentary side plan view of the binder illustrated in FIG. 5.

FIG. 7 is a fragmentary perspective view of a binder with a slider of the invention illustrated in deformed condition to prevent sliding thereof.

FIG. 8 is a fragmentary perspective view similar to that of FIG. 1 with an alternate form of securing mechanism assembled on the binder, a binder post and slider being shown when locked condition of the binder has been completed.

FIG. 9 is a fragmentary bottom plan view of the track and slider assembly of FIG. 8, with the slider shown in locked position in association with its post.

FIG. 9a is a fragmentary bottom plan view similar to that of FIG. 9 with the slider shown in unlocked position in association with its post.

FIG. 10 is a fragmentary top plan view of the binder shown in FIG. 8, a binder post and slider being shown in solid line prior to locked condition of the binder, and in dotted line when locked condition of the binder is completed.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. 1 there is illustrated a loose leaf binder 10 of generally universal construction having a front cover 12 and a rear cover 14 with a stacked assembly of sheeted material or a plurality of loose paper sheets 16 sandwiched between the said covers 12, 14. Each cover 12, 14 has a hinge strip 18, 20 respectively formed along one edge thereof and connected to the main and larger portion of the cover by a weakened, folding portion 22 to permit the larger portion of the cover to be folded over the paper sheets 16. The particular construction of the binder 10 shown is for purposes of illustration only and it is intended that any loose leaf binder of standard construction can be used in connection with the invention hereinafter described.

The securing mechanism of the invention includes an elongate rigid track or rail 24 of substantially J-shape cross-sectional configuration and extending substantially the width of the front cover 12 of the binder 10. The track 24 has a long leg 26 juxtaposed the hinge strip 18 and a shorter leg 28 formed parallel to leg 26 and connected thereto by a normal joining member of abutment 30. The track 24 is secured to the hinge strip 18 by grommets 32 spaced adjacent each end of the rail 24. Securement of track 24 by means of grommets 32 is but one expedient which is contemplated. Track 24 can be secured by other structure such as staples or hooks as desired, or, the track may be provided with alternative means as described below to affect securement thereof to hinge strip 18.

Prior to securement of the track 24 to hinge strip 18, a metal slider 34 is mounted to the rail between the passageways 36 (FIG. 4) provided in the track for receipt of the grommets 32. Slider 34 is of generally G-shape cross-sectional configuration having a long leg 38 of substantially the same dimension as the leg 26 of rail 24. A short leg 40 of the slider 34 is formed parallel to the leg 38 and is joined to said leg 38 by member 42. Leg 40 of slider 34 is greater in transverse dimension

than leg 28 of track 24 so that there is a slight overlap of the track by the slider. Leg 40 of slider 34 is provided with a hook-like part or flange 46 for a purpose described below. Leg 38 is provided with a lip portion 44 to prevent slider 34 from leaving the track 24 as it is moved. Slider 34 is movable lengthwise of the track, sliding between the bottom of leg 26 and the surface of hinge strip 18. Because of the flexibility of at least the hinge strip 18, a space between the hinge strip and rail is provided to permit sliding of the slider 34.

As seen most clearly in FIGS. 2 and 4, a metal reinforcing strip 48 is secured by grommets 50 to the hinge strip 20 of rear cover 14. Reinforcing strip 48 is of the same length as track 24 and the position of grommets 50 is in registry with passageway 36 and grommets 32. The holes provided in sheeted material 16 also are in registry with the passageway 36 and grommet 50 so that a cylindrical opening is formed between the hinge strips 18, 20.

An elongate binder post or thong 52 having a flared-out, flat head portion 54 is provided to be threaded through grommet 50, the perforations of sheets 16, and thence through passageway 36. Post 52 is formed of a flexible resinous material such as nylon. The cross-sectional dimension of the portion 56 of post 52 proximate head portion 54 is slightly greater than the inside diameter of grommet 50 such that when the post is threaded through the grommet 50 and the head is engaged against the bottom of the reinforcing strip (FIG. 4), the post is wedged in place and will not slip out of the grommet 50 without the application of a force. Once in position with head 54 engaged against metal strip 48, post 52, being flexible, can be bent over and pressed down firmly adjacent the grommet 32 so that the tip 58 can be hooked under hook-like part 46 of slide 34.

As shown in dotted line in FIG. 1, at the time when post 52 is bent over adjacent passageway 36, slider 34 is spaced from the passageway 36 proximate the tip 58. When pressed down, post 52 is hooked and engages under the hook-like part 46 of slider 34 and thereby is prevented from slipping out of the slider. The slider 34 can be left in the dotted line position illustrated in FIG. 1 to enable full use of the binder 10 with the sheeted material 16 being quickly removed or replaced simply by reversing the steps described for threading and bending the post 52. If, however, a more secure closure for the binder 10 is desired, the slider 34 can be pushed close to the grommet 32, as shown in solid line in FIG. 1.

As seen most clearly in FIGS. 1 and 4, leg 40 slider 34 is of a transverse dimension which is less than the transverse dimension of long leg 26 of track 24. Leg 28 and its hook-like part 46 extend only partially over the passageway 36 provided in track 24, such that it is not possible to push the slider 34 past post 52 where the latter emerges from its passageway 36. The overall length and configuration of hook-like part 46 and leg 40 of slider 34 is such that when post 52 is engaged under part 46 and the slider 34 is pushed close to grommet 32, the hook-like part 46 wedges against post 52. As the slider 34 is moved to its closest position adjacent grommet 32, the post 52 is pressed toward said abutment 30 of track 24. In the solid-line position shown in FIG. 1, hook-like part 46 has its maximum wedging ef-

fect on post 52; the force of the part 46 against post 52 frictionally grips the post and holds the binder in locked condition. It is important to note that leg 28 extends only partially over passageway 36 and this thereby insures that post 52 will be wedged in place upon movement of slider 34 toward the passageway. Even in this latter, locked condition position, the binder securing mechanism is easily disengaged by reversing the steps described.

It should be noted that while only one slider 34 and one post 52 has been illustrated in connection with the binder shown, in most instances two of each of these elements will be used in commercial structures. A second binder post 52 will be threaded through the grommet 32 illustrated on the right-hand side of the hinge strip 18 shown in FIG. 1, and a second slider 34 will be provided on track 24 to be operable in conjunction with the second post. The second set of post and slider, however, will operate exactly as described in connection with post 52 and slider 34; it is therefore not deemed necessary to illustrate or describe the second set of identical elements.

The structure illustrated in FIGS. 1 through 4 is permissive only of loading and unloading the binder 10 adjacent the front cover 12. Should it be desired to remove or replace a sheet of material which lies adjacent the rear cover 14, all of the sheets 16 would first have to be removed. In FIGS. 5 and 6 there is illustrated a second embodiment of the invention which enables loading and unloading of the binder from either the front or rear covers. In the structure illustrated in FIG. 6, the reinforcing strip 48 has been replaced with a second track 60 of identical construction as that of track 24. Track 60 is mounted to hinge strip 20 by grommets 62 and a slider 64 is mounted to track 60 to be movable lengthwise thereof. Binder post 66 of substantially twice the elongate dimension of post 56 is provided with a joining portion 68 between two long portions 70, 72, replacing the head 54 of post 56. In use of the structure illustrated, post 66 is threaded through the perforations of the paper sheets 16 and positioned such that leg portions 70, 72 are operable both from the front and rear of the binder 10. The operation of each leg portion 70, 72 is identical to that described in connection with post 52.

FIGS. 8 through 10 illustrate an alternative form of slider and track assembly which eliminates the need to thread the post through a closed passageway and provides an extremely secure binder when locked condition thereof is maintained. Several advantages are achieved by this embodiment.

Often it is desirable to have a loose-leaf binder which does not require the threading of the binder posts through a closed passageway provided in the binder cover. In the case of the arrangements described in connection with the embodiments of FIGS. 1 through 6, upon assembly of the sheets 16 on back cover 14, the post 52 must be threaded through passageway 36 in track 24. This is a cumbersome operation, especially in the usual case where two posts must be so threaded. This problem is overcome and additional binder securing advantages are provided in the structure of FIGS. 8 through 10.

The binder upon which the structure of FIGS. 8 through 10 is mounted is identical to that of the prior

described binder. The securing mechanism, however, is modified by the provision of additional features on the track and slider. The J-shaped track 124 which extends the width of cover 12 has a long leg 126 juxtaposed hinge strip 18, and a shorter leg 128 formed parallel to leg 126 and connected thereto by joining member 130. Grommets 132 may be used to secure the track 124 to the hinge strip, but use of such grommets is not a necessity.

Slider 134 is mounted to track 124 with a long leg 138 positioned between track 124 and hinge strip 18. Leg 138 has a lip 144 to prevent slider 134 from leaving track 124 as the slider is moved. Short leg 140 with flange 146, and joining member 142 of slider 134 are similar in form and disposition to like portions of slider 34.

Track 124 is provided with U-shaped passageways 136, one of which is shown, rather than the circular passageways 36 of track 24. A passageway 139 of like configuration to that of passageway 136 is formed in hinge strip 18. The base part 137 of passageway 136 forms a semi-circle which lies in registry with the perforations in the assembled sheeted material 16 and the like base part (not shown) of passageway 139 in hinge strip 18. Thus, there is a restrictive opening 141 provided in the assembled track 124 and hinge strip 18 with a mouth 143 on edge 145 of track 124.

Long leg 138 of each slider 134 is provided with a U-shaped slot 147. Slot 147 is disposed transverse to passageway 136 and has a semi-circular closed part or throat 149 which cooperates with base part 137 of passageway 136 to form a generally circular opening when the two base parts are positioned one above the other.

The operation of slider 134 is in most respects the same as that of slider 34. After sheets 16 have been assembled on rear cover 14 with posts 52 threaded through the perforations, front cover 12, which carries track 124, is positioned adjacent the uppermost sheet 16' with the mouth 143 of passageways 136 adjacent post 52. The cover and track assembly is next moved so that base part 137 abuts post 52, as seen in FIG. 9a. Post 52 next is bent over and hooked under leg 140 of slider 134, as shown in solid line in FIG. 10. Slider 134 next is moved toward passageway 136 with slot 147 engaging post 52 until throat 149 also abuts post 52. Once this latter position is effected, post 52 firmly is locked in place between passageway 136 and slot 147 in the condition illustrated in FIGS. 8 and 9, and in dotted line in FIG. 10, with the slider indicated as 134'.

Should it be desired permanently to lock the slider and/or sliders 64, 34, 134 to prevent tampering with the binder after it has been loaded and permit no more sheets 16 to be added thereto, the slider may be crimped or otherwise deformed as illustrated by the crimped surface 80 of slider 34 in FIG. 7.

While in the preferred embodiments of the invention illustrated and described above the tracks 24, 60 and 124 are secured to hinge strips 18, 20 by grommets 32, 132, it is to be understood that permanent securement of the tracks to the hinge strips is not absolutely necessary. The structure of the invention is such that upon threading of posts 52, 66 through passageways 36 and moving sliders 34, 64, 134 to their closest position adjacent passageways 36, the entire assembly of tracks

24, 60, posts 52, 66, and sliders 34, 64 is secure and will not disengage without movement of sliders 34, 64 away from passageways 36. Thus, tracks 24, 64 will be firmly retained against their respective hinge strips, and attaching structure such as grommets 32 is unnecessary. 5
The aesthetic value and marketing desirability of a binder in which the tracks are pre-assembled to the cover hinge strips, however, make such structure preferred.

What it is desired to secure by Letters Patent is: 10

1. In a loose leaf binder having at least one cover member with an integral hinge strip connected thereto and a plurality of flexible binder posts mounted to the binder opposite to the said one cover member, the posts passing through suitable registered perforations in sheeted material to be bound and the hinge strip, and being secured at any desired location along the lengths of the respective binder posts to accommodate different expanded thicknesses of said stacked assembly of sheeted material, the improvement comprising 15
means to secure said binder posts, said last-mentioned means comprising: 20

- a. a rigid elongated generally J-shaped track mounted on the exterior of said hinge strip and having a short upper leg and a parallel longer 25
lower leg with passageways in the lower leg registered with said perforations in the hinge strip so that the binder posts will pass through said passageways when the binder is assembled, and a 30
vertical wall portion joining the ends of the two

legs, said passageways spaced from said vertical wall,

- b. sliders adapted for movement along portions of said track to a position where the sliders are engaged against and locked with respect to said posts, there being one slider for each binder post, 5
c. each slider being of G-shape and having a vertical leg adapted to ride against said vertical wall portion and having a top leg adapted to ride on the track upper leg, said top leg having a depending flange spaced from said vertical wall portion a distance slightly less than the distance from said vertical wall of said passageways and adapted to engage along a portion of the surface of the post with which it is associated when said post is disposed within its respective passageway and bent to lie generally along the length of the track between the upper and lower legs thereof, a lower leg portion parallel to said top leg and underlying the lower leg of said track, and an upstanding flange on the end of the slider lower leg adapted to slide against the edge of said track lower leg, 10
d. the track and each slider cooperating to retain said posts in said locked position such that when any slider flange is engaged upon its post and moved toward its closest position adjacent the passageway for said post, the slider will press the post toward said vertical wall and thereby wedge the post against the depending flange on the slider. 15

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