Nov. 14, 1961 I. RUBINSTEIN 3,008,470

LOOSE LEAF BINDERS

Filed Jan. 20, 1960 3 Sheets-Sheet 1

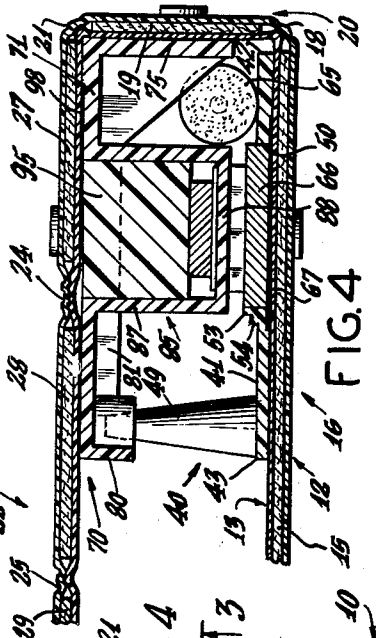


FIG. 4

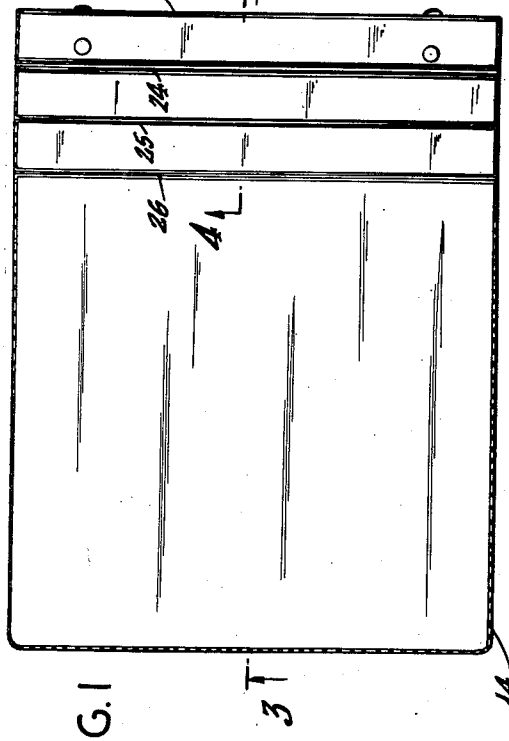


FIG. 1

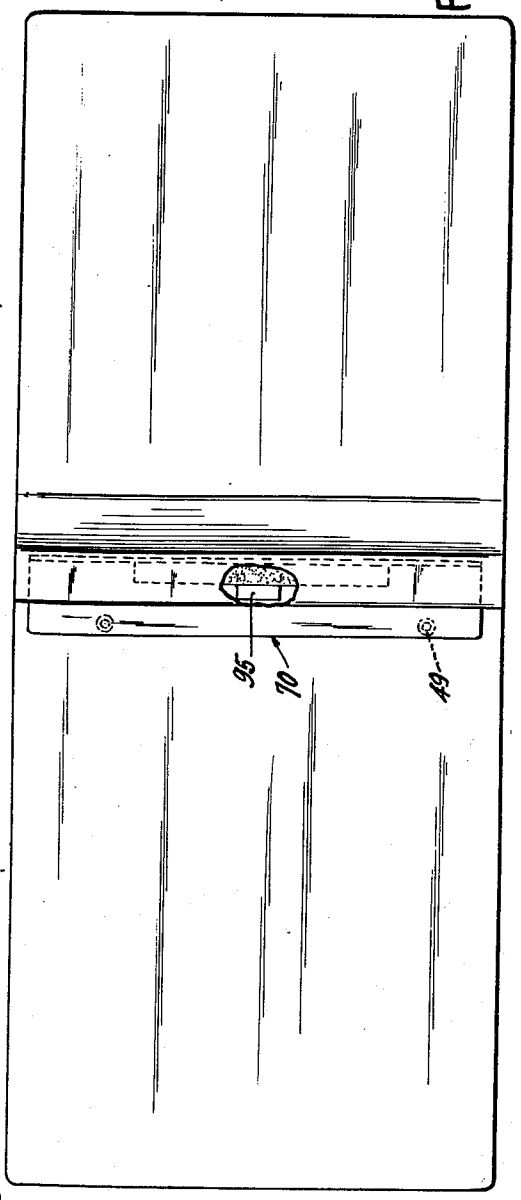


FIG. 2

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LOOSE LEAF BINDERS

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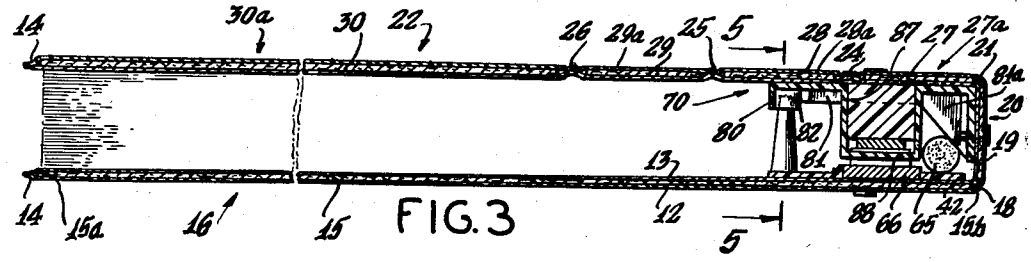


FIG. 3

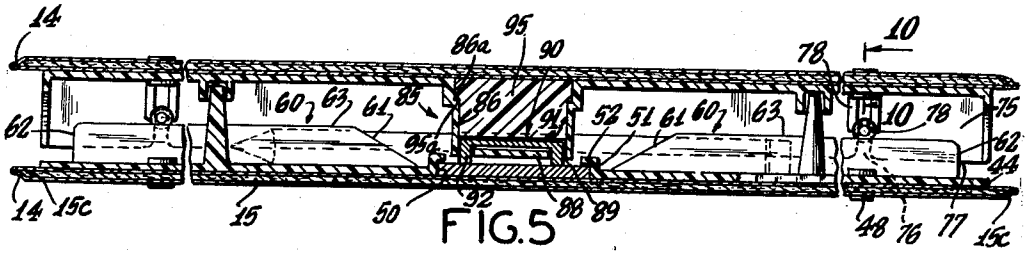


FIG. 5

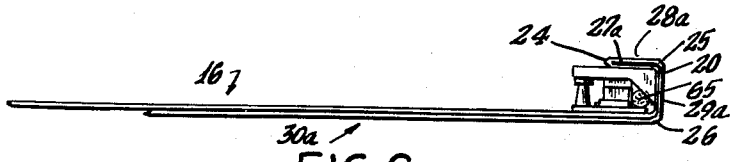


FIG. 6

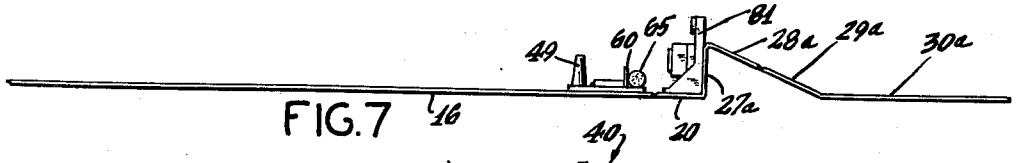


FIG. 7

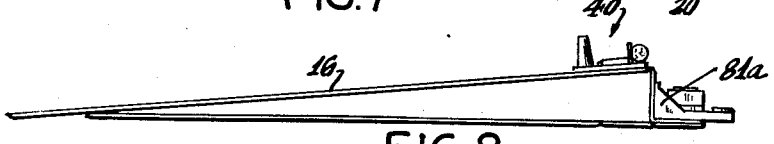


FIG. 8

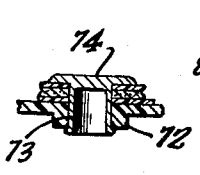


FIG. 10

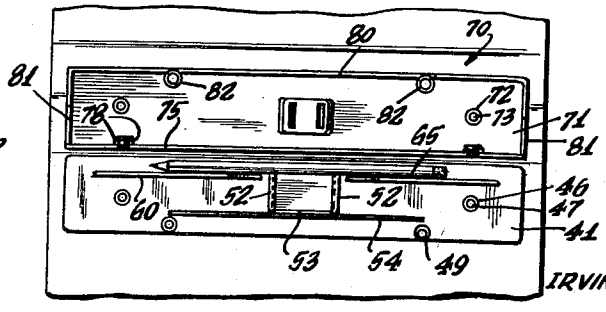


FIG. 9

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LOOSE LEAF BINDERS

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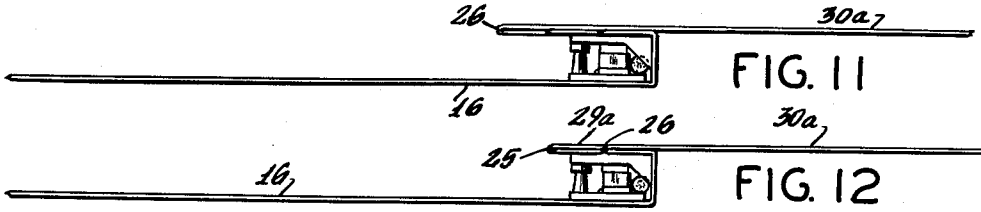


FIG. 11

FIG. 12

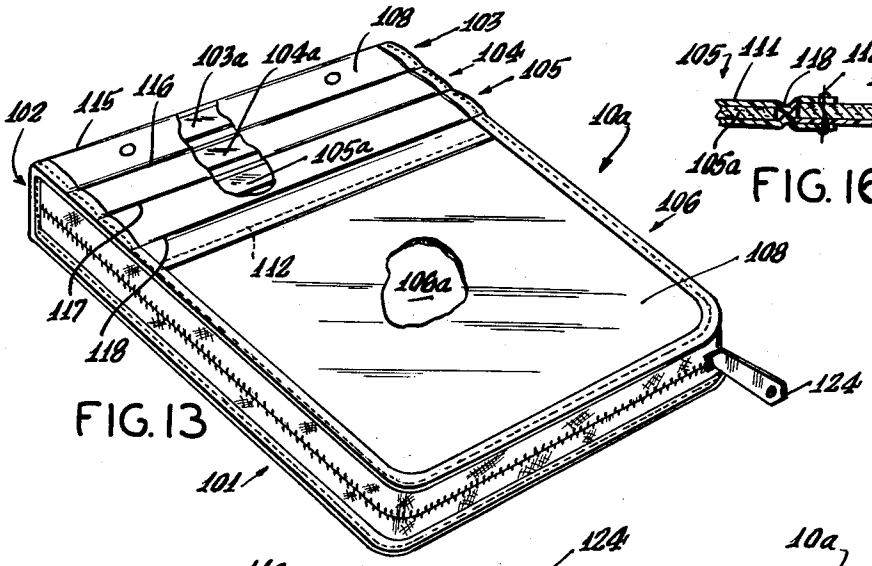


FIG. 13

FIG. 16

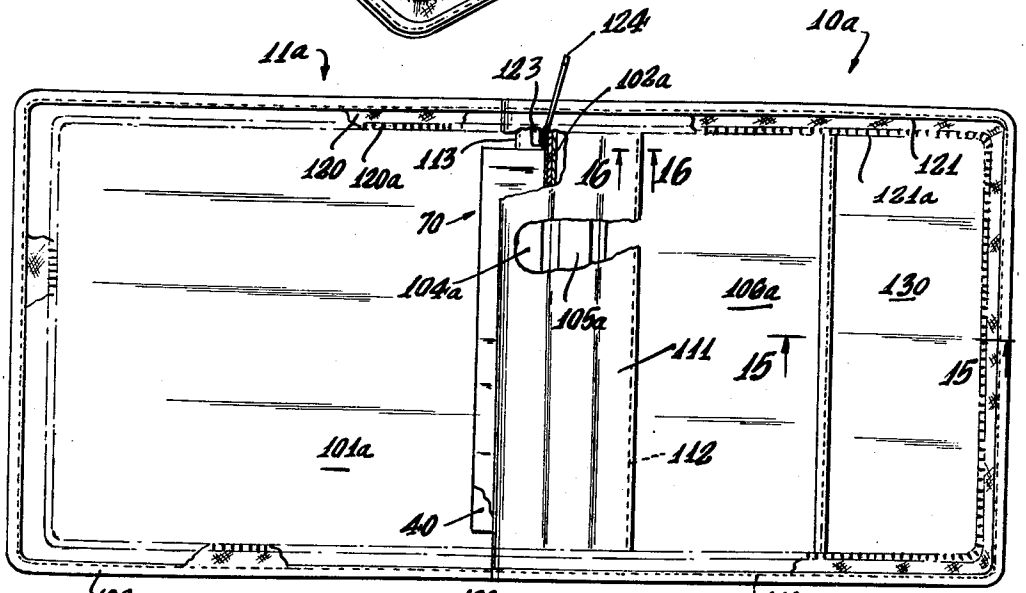


FIG. 14

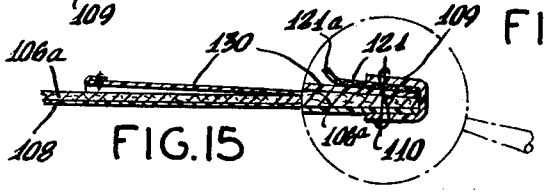


FIG. 15

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3,008,470

LOOSE LEAF BINDERS

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Filed Jan. 20, 1960, Ser. No. 3,531
10 Claims. (Cl. 129—23)

This invention relates to loose leaf binders. It is particularly directed to a loose leaf binder of the type provided with pins to be received in punched holes in a stack of loose sheets or leaves, and also provided with magnetic means to hold the sheets from coming off the pins.

An object of this invention is to provide a binder of the character described, comprising a folder having a bottom portion and a top portion connected thereto, a transverse base fixed to the rear of the bottom portion and formed with upstanding pins, and a transverse cap fixed to the underside of an adjacent end of the top portion, arranged to overlie the base, said base carrying an iron plate, and a permanent magnet being mounted at the underside of the cap in position to magnetically attract the iron plate on the base, to keep the cap in position contacting the upper ends of the pins to keep the sheets or leaves from coming up off the pins.

Another object of this invention is to provide a binder of the character described in which the cap has a top wall and a rear wall extending down therefrom, and means to fix said top and rear walls to portions of the folder disposed at right angles to each other.

Still another object of this invention is to provide a binder of the character described in which the cap has end flanges to retain pencils on the base and between the permanent magnet and said rear wall and between said flanges, to keep the pencils from coming out of the binder.

Yet another object of this invention is to provide in a binder of the character described, a folder having slider actuated fasteners to attach together the side and front edges of the folder, whereby the folder is enclosed all around.

A still further object of this invention is to provide a binder in which the bottom of the folder may be supported to present an inclined writing surface.

Still another object of this invention is to provide a strong and durable binder of the character described which shall be relatively inexpensive to manufacture, easy to manipulate and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown an illustrative embodiment of this invention,

FIG. 1 is a top plan view of a loose leaf binder embodying the invention, in closed position;

FIG. 2 is a top plan view thereof with the cover of the folder folded back about a hinge connection, but without prying open the magnetically closed cap fixed to the underside of the cover;

FIG. 3 is a cross-sectional view taken on line 3—3 of FIG. 1;

FIG. 4 is a partial, enlarged cross-sectional view taken on line 4—4 of FIG. 1;

FIG. 5 is a cross-sectional view taken on line 5—5 of FIG. 3;

FIG. 6 is a partial side view of the structure of FIG. 2, but with the cover folded under;

FIG. 7 is a view similar to FIG. 6, but showing the cap swung 90° back from the position of FIG. 6;

FIG. 8 is a view similar to FIG. 7 but showing the cap swung down 90° from the position of FIG. 7, and with the cover of the folder folded under;

FIG. 9 is a partial top plan view of the structure shown in FIG. 8;

FIG. 10 is a cross-sectional view taken on line 10—10 of FIG. 5;

FIG. 11 is a view similar of FIG. 6, but showing the cover of the folder folded about a different hinge than in FIG. 6;

FIG. 12 is a view similar to FIG. 11 but showing the cover of the folder, folded back on still another hinge;

FIG. 13 is a perspective view of a binder embodying a modified form of the invention;

FIG. 14 is a top plan view of the binder of FIG. 13 with the cover folded back partially;

FIG. 15 is a cross-sectional view taken on line 15—15 of FIG. 14, with a part blown up; and

FIG. 16 is a cross-sectional view taken on line 16—16 of FIG. 14.

Referring now in detail to the drawing, particularly to FIGS. 1 to 12 thereof, there is illustrated a loose leaf binder **10** embodying the invention.

Said binder **10** comprises a folder **11**. Said folder **11** comprises a bottom rectangular sheet **12** and a top rectangular sheet **13** superimposed thereon and registering therewith. Said sheets may be thermoplastic synthetic material, and said sheets may be fused together all around their border as at **14** by high frequency current, or by heat and pressure, in the well known manner. The corners of said sheets may be rounded, as shown in FIG. 2 of the drawing.

The bottom sheet **12** constitutes the outside sheet of the folder whereas the top sheet **13** constitutes the inside sheet of the folder. Between said sheets **12, 13**, at one end is a flat, rectangular stiffener insert **15** of fiberboard, cardboard or other suitable material substantially as wide as said sheets **12, 13** and less than half as long, and together with the portions of the sheets which contact it, constitutes the bottom **16** of the folder. The stiffener **15** has end edges **15***a*, **15***b* and side edges **15***c*. The end edge **15***a* is at one end of the bottom portion of the folder and the end edge **15***b* is at the other end of said bottom portion.

The bottom and top sheets **12, 13** are fused together transversely as at **18** just beyond the end edge **15***b* to form a hinge. Between said sheets **12, 13** is a narrow stiffener **19** of fiberboard, cardboard or other suitable material, located beyond fused joint or hinge **18**, to form the back section **20** of the folder. Said sheets are fused as at **21**, just beyond the stiffener **19** to form another hinge or joint for the folder.

The rest of the sheets **12, 13** together with certain stiffeners to be described constitute the top portion or cover **22** of the folder. Said top and bottom sheets are fused together along three transverse parallel lines **24, 25, 26**, equally spaced apart forming additional hinges or joints. Between said sheets, and between joints **21, 24** is a stiffener **27** forming a section **27***a*, between joints **24, 25** is a stiffener **28** forming a section **28***a*, and between joints **25, 26** is a stiffener **29** forming a section **29***a*. Between joint **26** and the outer end of the top portion or cover **22** and located between sheets **12, 13** is a wide stiffener **30** forming a section **30***a*. The stiffeners **15, 19, 27, 28, 29, 30** are of the same dimension from side to side. Stiffeners **27, 28, 29** are of square width and somewhat wider than stiffener **19**.

Attached to the rear or upper end of the bottom portion **16** of the folder is a base member **40** which may be made of molded rigid synthetic plastic. Base member **40** lies transversely of the folder and comprises a bottom wall **41** lying flat on the inner sheet **13**. Wall **41** has a

rear edge 42 disposed adjacent joint 18, a front edge 43 parallel thereto, and end edges 44 adjacent the side edges of the folder.

Extending up from the bottom wall 41 are spaced apart bosses 46, with through holes 47 receiving rivets 48 passing through holes in the stiffener 15 and sheets 12, 13. Bosses 46 are located about midway between edges 42, 43 of bottom wall 41, and inwardly of the outer edges 44 thereof.

Also extending up from bottom wall 41, are a pair of tapered pins 49, the upper ends of which are spaced below the top portion 22 of the folder, when the folder is in the closed position of FIGS. 3 and 4 of the drawing. Pins 49 are close to edge 43 of the bottom wall 41 and inward of the bosses 46.

Said bottom wall is formed with a rectangular opening 50, centrally located between end edges 44, and somewhat closer to the rear edge 42 than to the front edge 43 of the bottom wall. Opening 50 is longer from side to side than it is wide from front to rear.

Extending up from bottom wall 41 at the ends of opening 50 are parallel walls 51 from which extend inwardly, flange 52 parallel to the bottom wall. Also extending upwardly from the front edge of opening 50 is a shoulder 53 coextensive with the opening. A stiffening transverse rib 54 merges with shoulder 53 and extends therebeyond at opposite sides thereof.

There is also integrally formed with the bottom wall 41, a pair of aligned upstanding transverse walls 60 spaced and parallel to the rear edge 42 and substantially aligned with the rear edge of opening 50 and disposed at opposite sides thereof. Said walls 60 have inner, downwardly and inwardly inclined edges 61, outer end edges 62 disposed inwardly of outer edges 44, and top edges 63 disposed below the upper ends of pins 49. Between walls 60 and the rear edge 42 of bottom wall 41 is a bottom wall portion of a width to receive a pen or pencil 65.

Disposed within opening 50 is a rectangular plate 66 of iron or steel or any metal which will be attracted by a permanent magnet. Plate 66 lies beneath the flanges 52. A strip 67 of adhesive tape is adhered to the underside of bottom wall 41 so as to contact plate 66 and part of said wall to prevent the plate from moving down through the opening 50.

The back section 20 of the folder is swingable about hinge 18. However, said back section 20 is held at right angles to top section 27a (between fused portions 21, 24) by a molded plastic transverse cap 70 fixed to said back and top sections.

Cap 70 is adapted in one position thereof (FIGS. 1–6) to overlie the base 40. Said cap 70 comprises a top wall 71 formed with bosses 72 spaced apart like bosses 46 and formed with through openings 73 receiving rivets 74 attaching said wall to the inner side or underside of section 27a.

Extending down from the rear of wall 71 is a wall 75 contacting the inner side of section 20. Wall 75 is formed with spaced notches 76 aligned with bosses 72 and extending to the lower edge 77 of said wall. Said wall 75 is also formed with spaced strengthening vertical ribs 78 at the inner side thereof and on opposite sides of notches 76. Rivets 79 passing through notches 76 and section 20, serve to fasten said wall 75 to said section, and hence to retain sections 20, 27a at right angles to one another.

Cap 70 is as wide and as long as base 40 and superimposed thereover, in the closed position of the binder.

Said cap has a flange 80 extending down from the front end of wall 71, and end flanges 81 extending down from the ends of said wall.

Merging with the flange 80 are spaced cylindrical cups 82 projecting down from wall 71 and adapted to receive the upper ends of pins 49 of the base, in the closed position of the binder.

End flange 81 has triangular extensions 81a merging with wall 75 to lie at the ends of the space bounded by wall 41, walls 60, and wall 75, when the binder is closed to keep the pencil 65 from falling out endwise, and to strengthen cap 70.

Integrally formed with the top wall 71 is a central rectangular cup 85 having side or end walls 86, front and rear walls 87 and a bottom wall 88. Said bottom wall has spaced end slots 89. In the cup is a permanent magnet 90 having a top wall 91 lying on top of bottom wall 88 of cup 85, and from which there extends downwardly a pair of end fingers or flanges 92 projecting through said end slots 89 to a joint below the bottom wall. Fingers or flanges 92 are loose in slots 89. Side or end walls 86 have inner shoulders 86a. Within cup 85 is a plug 95 which may also be made of synthetic plastic material. Plug 95 has under-shoulders 95a resting on shoulders 86a to keep the plug somewhat above top wall 91 of magnet 90. The plug may be held in cup 85 by adhesive, or by a strip 98 of adhesive tape covering part of the plug and part of the top of wall 71, as shown in the drawing. The end flanges or fingers 92 of the magnet 90 are adapted to attract plate 66 to keep cups 82 on the upper ends of pins 49 and to keep wall 71 parallel to wall 41.

Loose leaf sheets may be placed on top of bottom section or portion of the folder with the pins 49 going through the punched holes in the loose leaf sheets. The cap 70, covering the pins 49, keeps the sheets from coming up and off the pins.

The sections 30a, 29a, 28a may be folded back about hinge 24 as shown in FIG. 2, with section 28a overlying section 27a. The binder may be fully closed as in FIGS. 1 and 3. Also, the binder may be folded as shown in FIG. 6, with section 28a overlying section 27a, with section 29a overlying section 20, and with section 30a lying under section 16.

When the binder is closed, it may be pried open by swinging cap 70 up away from base 40 to break the magnetic attraction.

Thus the binder may be opened to the position of FIG. 7 with section 20 in alignment with section 16. In this position, loose leaves may be applied or removed.

In FIG. 8, the cap has been moved 90° from the position of FIG. 7, so that section 16 provides a widened platform for the loose leaves.

In FIG. 11 the section 30a is swung back about hinge 26. In FIG. 12 sections 30a and 29a are swung back about hinge 25.

In FIGS. 13–16 there is shown a binder 10a embodying a modified form of the invention.

The same comprises a folder 11a having sections 101, 102, 103, 104, 105, 106 corresponding to sections 16, 20, 27a, 28a, 29a, 30a, respectively of folder 11. Sections 101, 102, 103, 104, 105, 106 have stiffeners 101a, 102a, 103a, 104a, 105a and 106a, respectively. These stiffeners are interconnected by a bottom or outer sheet 108 attached to the stiffeners by a peripheral binding 109 stitched all around by a line of stitching 110. The upper or inner sides of stiffeners 102a, 103a, 104a, 105a and adjacent portions of stiffeners 101a and 106a are covered by an inner liner 111 stitched to the folder by said stitching 110 and by transverse lines of stitching 112, 113.

Said liner 111 is made also of thermoplastic sheet material and is fused to sheet 108 along transverse lines 114, 115, 116, 117, 118 to form hinge joints.

Tapes 120, 121 carrying slider actuated fastener elements 120a, 121a are stitched to the binder by the border stitching 110. These elements 120a, 121a may be locked by a slider 123 pulled by handle 124 to enclose the binder fully all around.

A base 40 similar to the one shown in FIGS. 1–12 is fixed to the upper side of the rear end of section 101. A cap 70 similar to the one shown in FIGS. 1–12 is fixed to sections 102, 103 and operated in the same way. A pocket 130 may be stitched to overlie stiffener 106a.

It will be noted that when cup 85 comes down it pro-

jects somewhat rearwardly of walls **60** and locks the pencil **65** to wall **75** as shown in FIG. 4 of the drawing.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A loose leaf binder comprising a folder having a bottom section, a back section hinged thereto, a top rear section connected to the back section, a top front section hinged to the top rear section, a base attached to the rear end of the bottom section of the folder, a cap having a rear side and a top side, and attached at its rear side, to the back section and at its top side to the top rear section and holding said sections at right angles to one another, a metal plate on the base, a permanent magnet on the cap adapted to attract said plate, pins on the base, and means on the cap to engage the upper ends of the pins when the magnet attracts said plate.

2. A loose leaf binder comprising a folder having a bottom section, a back section hinged thereto, a rear top section connected to the back section and a front top section hinged to said rear top section, a first transverse member attached to the rear end of the bottom section, a second transverse member attached to the rear top section, a cup projecting from one of said transverse members, a permanent magnet in the cup and projecting therefrom, a plate of metal on the first transverse member adapted to be attracted to the magnet, pins on the first transverse member projecting upwardly therefrom and means on the second transverse member to cover the upper ends of said pins said second transverse member having a rear wall and means to fix said rear wall to said back section.

3. The combination of claim 2, said second transverse member having a top wall and end walls connecting said top wall with said rear wall of the cap.

4. The combination of claim 3, said base having upwardly extending, aligned spaced walls and said cup being adapted to come down between said upwardly extending walls and project rearwardly thereof.

5. A loose leaf binder comprising a folder having a bottom section, a back section, and a top section, a base on the rear of the bottom section, a cap at the rear of the top section overlying the base, said cap having a rear side fixed to the back section and a top side fixed to the top section and rigidly connecting the back section to the top section, pins on the base to be received in punched holes in loose leaves, said cap having means to overlie the upper ends of the pins, magnetic means to keep the cap in overlying position related to the base, and slider actuated means to lock the sides and front ends of the top and bottom sections.

6. The combination of claim 5, said slider actuated fastener means comprising tapes stitched to the sides and front ends of said top and bottom sections and carrying slider actuated elements.

7. A loose leaf binder comprising a folder, said folder having a bottom section, a back section, and a top section, a transverse base fixed to the rear end of the top of the bottom section, a transverse cap fixed to the underside of the rear of the top section, said base comprising a flat bottom wall, pins integrally formed with the bottom wall and extending upwardly therefrom, said bottom wall having front, rear and end edges, said bottom wall being formed with a rectangular opening centrally between the ends thereof, and with wall extending up from the ends of the opening and formed with inwardly projecting parallel flanges, a plate of metal in said opening, said flanges overlying the ends of said plate, said cap having a top wall and formed with a downwardly projecting cup having end walls, front and rear walls and a bottom wall, said bottom wall being formed with parallel slots, a permanent magnet in the cup having a top wall over the bottom wall of the cup, and downwardly projecting fingers passing down through said slots to overlie the plate on the base, and a plug in the cup and above the magnet.

8. The combination of claim 7, said cup having inner shoulders, and said plug having undershoulders contacting said shoulders.

9. The combination of claim 7, said cup being spaced from the rear edge of the bottom wall of the base when the magnet attracts the plate.

10. The combination of claim 7, said cap having a rear wall formed with notches and rivets passing through said notches and attaching said rear wall to said back section of the folder.

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