United States Patent

Foley

[15] **3,706,503**

[45] **Dec. 19, 1972**

[54] **LEAF BINDING**

[72] Inventor: **James P. Foley,** Crest Road, Katonah, N.Y. 10536

[22] Filed: **June 30, 1969**

[21] Appl. No.: **837,405**

[52] **U.S. Cl.** **402/69,** 402/76, 402/77

[51] **Int. Cl.** **B42f 13/00,** B42f 13/12

[58] **Field of Search**.....402/19, 21, 22, 23, 60, 61, 402/65, 69, 75, 70, 77, 36; 281/40, 29; 35/60, 64, 72

[56] **References Cited**

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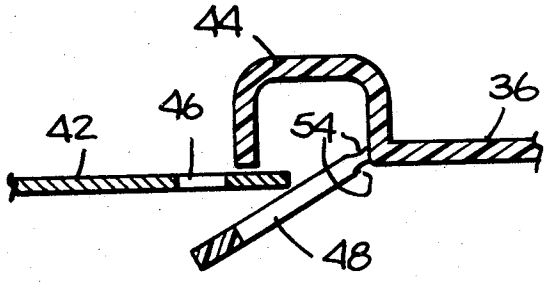
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Primary Examiner—Robert W. Michell
Assistant Examiner—L. Anten
Attorney—Lorimer P. Brooks

[57] **ABSTRACT**

Loop-type leaf binding arrangements wherein binding loops are struck from a base member and bent around and back down onto the base member and either permanently secured to the base member or releasable therefrom by virtue of a moveable base member portion which provides relative movement between one end of each binding loop and corresponding enlarged openings in the base member.

4 Claims, 14 Drawing Figures



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SHEET 1 OF 2

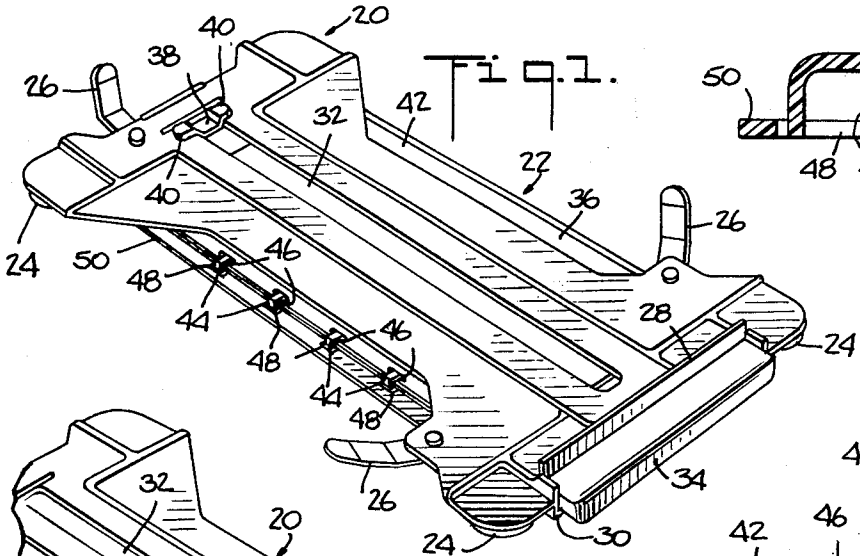


Fig. 1.

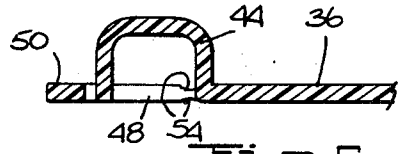


Fig. 6.

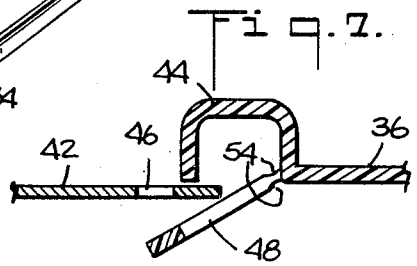


Fig. 7.

Fig. 2.

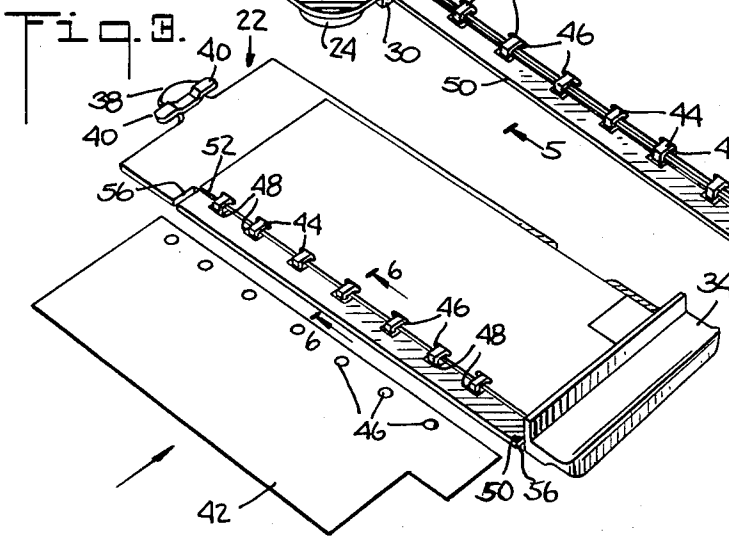


Fig. 3.

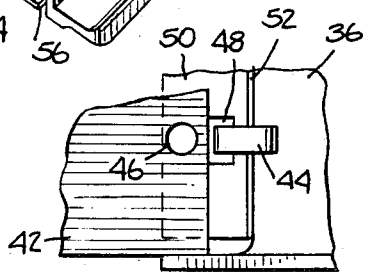


Fig. 4.

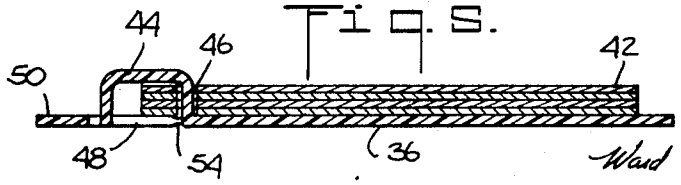


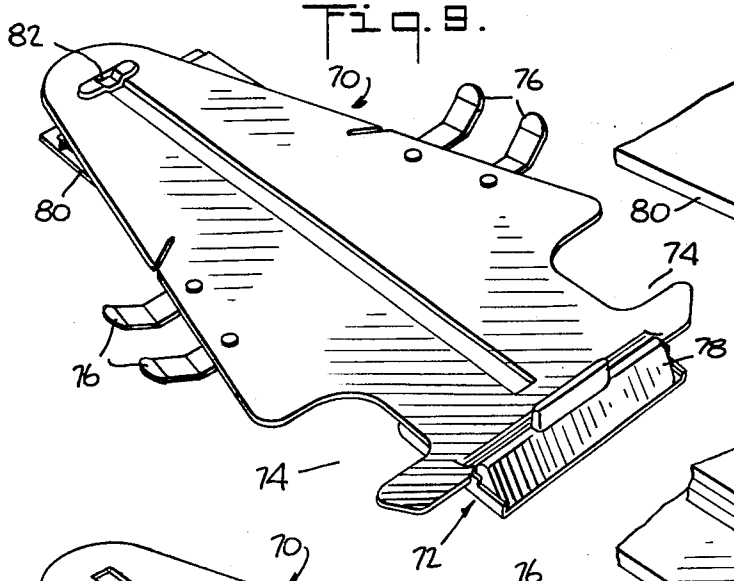
Fig. 5.

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Fig. 9.



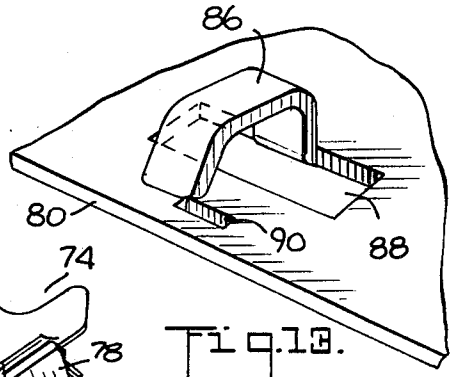


Fig. 13.

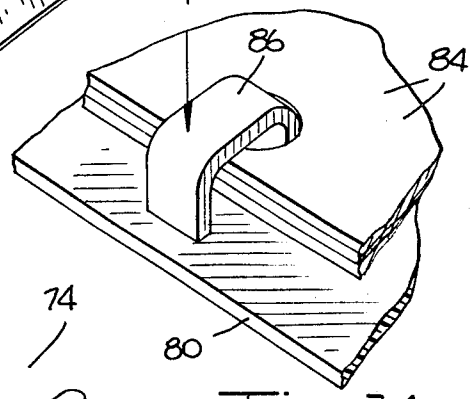


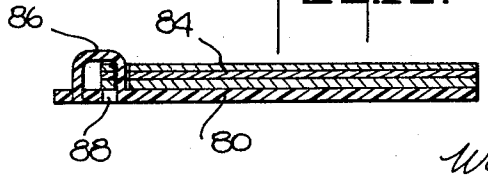
Fig. 14.

Fig. 10.

Fig. 11.

Fig. 8.

Fig. 12.



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LEAF BINDING

This invention relates to binding arrangements, and more particularly, it concerns novel plastic bindings for securing leaves or pages together in book-like fashion.

The invention in its broadest aspects is applicable to a wide range of uses; and, in fact, it may be employed wherever several leaves or pages are to be held together in a manner which will allow them to be turned as in a book, and will yet allow them to lay flat when opened. The invention is particularly suitable for use in connection with telephone indexes which slide under and between the legs of telephones; and for this reason the illustrative embodiments of the invention will be described in such an environment.

A need exists for a leaf binder which is economical to manufacture, which occupies minimal space, and which allows the bound sheets to be easily turned and to lie flat when opened. The need for compactness is especially important where the device is to fit in the restricted space under a telephone. On the other hand, the need for a binder which allows the opened leaves to lie flat makes it difficult to maintain compactness. Generally, the use of staples, book-type bindings or bindings which pinch together the edges of adjoining sheets do not allow the sheets to lie flat when opened. Spiral bindings have been employed, these consisting of an elongated coil of thin wire which passes through a series of holes along one edge of the bound sheets. These spiral bindings, however, are expensive and are difficult to assemble. Moreover, they tend to be bulky.

The present invention overcomes all of the above difficulties of the prior art. Thus, with the present invention, there is provided a leaf binding arrangement which is economical to manufacture and which, at the same time, is compact and allows opened leaves or sheets to lie flat. According to the present invention, there is provided a flat base member of plastic or similar material having upwardly protruding prong-like elements secured to and distributed along a line on the base member. These prong-like elements pass through associated holes along one edge of the leaves to be bound. The prong-like elements then bend around to form loops; and they pass down over the edge of the leaves to the base member. The prong-like elements or loops are preferably of the same plastic material as the base member and they may be integrally molded with it.

According to one aspect of the present invention, the edge of the base member is separately moveable along a line passing between the points of intersection of the loops with the base member. The loops are secured permanently to the base member on one side of the line; and they pass freely through base member openings on the other side of the line. The movement of the edge of the base member may be controlled by means of a hinged connection lying along the line. The hinged connection may be resilient to bias the edge to a position coplanar with the remainder of the base member. Additionally, the non-moveable portion of the base member may extend at least partially around the moveable portion and locking elements may be provided to secure the moveable portion in a position coplanar with the remaining or non-moveable portion. When the two portions of the base member are coplanar, the binding loops are attached to the base

member on one side of the line of movement and pass into base member openings on the other side of the line of movement. Thus, there is maintained a complete loop arrangement locking the sheets in place. On the other hand, when the moveable edge of the base member is moved, the loop ends come out of the base member openings so that sheets may be exchanged, added, or removed.

The present invention, in another aspect, involves novel arrangements whereby a flat plastic base member is molded with upstanding prongs distributed along a line toward one edge. The material for the prongs may be taken from adjacent regions of the base member extending along the line. This permits base member material to remain under the ends of the prongs when they are bent in a direction perpendicular to the line to form binding loops. The prongs are so bent after the leaves to be bound are set in place with the prongs passing through holes along one edge of the leaves.

Various further and more specific objects, features and advantages of the invention will appear from the description given below, taken in connection with the accompanying drawings, illustrating by way of example preferred forms of the invention

In the drawings:

FIG. 1 is a perspective view of a telephone index device in which one form of the present invention is embodied;

FIG. 2 is a perspective view of the telephone index device of FIG. 1 illustrating the device in opened condition;

FIG. 3 is a perspective view of a slide forming a portion of the telephone index device of FIG. 1, such view also showing an index sheet positioned to be assembled on the slide;

FIG. 4 is an enlarged fragmentary plan view illustrating the relationship of the index sheet and a binding loop on the slide of the arrangement of FIG. 3 prior to assembly;

FIG. 5 is an enlarged section view taken along line 5—5 of FIG. 2;

FIG. 6 is an enlarged fragmentary section view taken along line 6—6 of FIG. 3;

FIG. 7 is a view similar to FIG. 6 illustrating adjustment of the device for assembly of an index sheet;

FIG. 8 is a further fragmentary perspective view illustrating a locking arrangement for maintaining binding loops closed during operation of the telephone index device;

FIG. 9 is a perspective view of a telephone index device in which a second form of the present invention is embodied;

FIG. 10 is a view similar to FIG. 9 and showing the telephone index device in opened condition;

FIG. 11 is a perspective view of a slide which forms a portion of the telephone index device of FIGS. 9 and 10, such view also showing a telephone index sheet in position to be assembled on the slide;

FIG. 12 is an enlarged section view taken along line 12—12 of FIG. 10;

FIG. 13 is an enlarged fragmentary perspective view illustrating the construction of a binding loop forming a portion of the slide shown in FIG. 11, in condition to receive a telephone index sheet; and

FIG. 14 is a fragmentary section view similar to FIG. 13 but showing the binding loop securing several telephone index sheets and affixed to the slide for maintaining the sheets permanently in place.

The telephone index device shown in FIG. 1 comprises a frame 20 and a slide 22. The frame 20 is of generally flat configuration and is dimensioned to fit underneath and between the legs of a table-type telephone. The frame 20, which may be molded of a plastic or polymeric material such as polystyrene, is of generally "bow tie" configuration. The specific size and shape, however, is unimportant to the present invention; and it may be varied to accommodate the particular type of telephone with which the device is to be used. Short circular sponge-like legs 24 are provided at each of the four corners of the frame 20 to support it a short distance up off the table or stand on which the telephone rests. There are additionally provided, a plurality of attachment tabs 26 which are pivotally secured to the frame 20 and which can extend up between the metal base and outer plastic cover of the telephone to which the device is to be attached for securing the device to the telephone. The manner in which these attachment tabs 26 operate to secure the index device to a telephone is described in U.S. Pat. No. 3,243,908 in the name of James P. Foley.

Along the front edge of the frame 20 there is provided an upper transverse member 28 and a lower transverse member 30 which extends parallel to and a short distance below the upper transverse member. The two transverse members 28 and 30 define a transverse front slot through which the slide 22 extends. There is also provided in the frame 20 a central longitudinal slot 32 which provides guidance and support for the rear of the slide 22.

The slide 22, which is best shown in FIGS. 2 and 3, comprises a front handle portion 34, a main base member 36 and a rear tongue-like holding portion 38. The tongue-like holding portion 38 extends from the rear of the base member 36 and protrudes upwardly through the central longitudinal slot 32 of the frame 20. A pair of wings 40 extend laterally from the holding portion 38 out over opposite edges of the longitudinal slot 32. The combination of the holding portion 38 with the wings 40 and the slot defined by the upper and lower transverse members 28 and 30, serves to provide support for the slide 22, allowing it to retract to its stored position as illustrated in FIG. 1 and to be extended to its opened position shown in FIG. 2.

As shown in FIGS. 2 and 3, the slide 22 carries on the base member 36 thereof, a stack of index sheets 42. These index sheets may contain frequently called names and telephone numbers. In this connection, some of the sheets may be preprinted with important telephone numbers, such as fire or police, while other sheets may be arranged to receive entries of new telephone numbers according to the individual needs or desires of the possessor of the telephone. As shown, the index sheets 42 rest on the base member 36 between the front handle portion 34 and the rear holding portion 38. The sheets 42 are arranged in a stack and are held to the base member 36 by means of plastic binding loops 44 which pass through sheet openings 46 along one edge of the sheets 42. The binding loops 44, which are of inverted U-shaped configuration, are permanently secured on one side to the base member 36 as shown in FIG. 4. The other side of the binding loops 44, as shown in FIG. 4, pass down through enlarged base member openings 48 in the base member 36. The binding loops 44 may be made of the same material as the base member 36 and, in fact, may be integrally molded with the base member, or with the entire slide 22. The slide 22, including the binding loops 44, is preferably unitarily molded of the same material as the frame 20. Thus, the slide 22, including the front handle portion 34, the base member 36, the holding portion 38 and the binding loops 44 may be formed of a plastic or polymeric material such as polystyrene. The index sheets 42 themselves may be of paper or thin plastic material.

Each of the binding loops 44 individually extends upwardly from the end thereof which is integral with the base member 36, and then each loop 44 bends over and back down in a plane which is perpendicular to a line passing through the assembly of binding loops.

The base member 36 includes a moveable portion 50, which is moveable along a line 52 extending along the base member 36 between the legs of the binding loops 44. As can be seen in FIGS. 5–7, the moveable portion 50 is hinged along the line of movement 52. In the present embodiment, the hinging is effected by providing longitudinal indentations 54 along the upper and lower surfaces of the base member 36. As indicated above and as can be seen in the drawings, one side of each binding loop 44 is permanently and integrally secured to the main or non-moveable portion of the base member 36. The opposite side of each of the binding loops 44 passes into associated enlarged base member openings 48 in the moveable portion 50 of the base member. Alternatively, the binding loops 44 could be permanently secured to the moveable portion 50 of the base member 36 and then pass through associated enlarged base member openings on the non-moveable or main portion of the base member 36. In either event, it is preferred that the line of movement or hinge line 52 be closer to the side of the binding loops 44 which is permanently attached to the base member 36.

In operation of the above-described device, the frame 20 with the slide 22 secured thereto as illustrated in FIGS. 1 and 2, is fitted to the underside of a table or desk-type telephone. Normally, the slide 22 is in its retracted position as shown in FIG. 1. However, when it is desired to refer to a telephone number or to insert new information or to exchange index sheets 42, the slide 22 is extended as shown in FIG. 2. In this position, the individual index sheet 42 may be turned about the binding loops 44 and laid flat to any desired page. Thus, the information on the sheet desired will remain available while both hands are left free to use the telephone.

Should it be desired to remove, insert, or exchange any of the index sheets 42, this may be accomplished by bending the moveable portion 50 of the base member 36 downwardly about the hinge line 52. This exposes the ends of the binding loops 44 which are held in fixed position by the integral attachment of their opposite legs to the non-moveable portion of the base member 36. With the free ends of the binding loops 44 being thus exposed, one or several of the index sheets may be fitted to them by inserting the exposed ends of the

loops 44 into the holes 46 of the sheets 42. To facilitate this operation, the sheets may be formed with the first hole 46 the same distance from the front edge of the sheet as the first binding loop 44 is from the handle portion 34 of the slide 22. With this arrangement, as can be seen in FIG. 4, the sheets 42 can be brought into proper alignment with the binding loops quickly and easily simply by abutting them against the front handle portion 34. Thereafter, the moveable portion 50 is released and the resilient hinging action provided by the indentations 54 will cause the moveable portion 50 to assume a position which is coplanar with the main portion of the base member 36 as illustrated in FIGS. 5 and 6. As can be seen in the drawings, when the moveable portion 50 is in this position, the non-attached ends of the binding loops 44 are inserted into the enlarged openings 48, thereby locking the sheets 42 to them, while allowing the sheets to turn freely and to lie flat at any page.

For certain situations it may be desirable to supplement the resilient hinge action provided by the longitudinal indentations 54. This may be accomplished by means of a locking arrangement which ensures that the moveable portion 50 will remain coplanar with the remaining portion of the base member 36 during normal usage and will not be inadvertently pivoted about the line 52 as the index sheets 42 are turned. This locking means is shown in FIG. 8. As shown in FIG. 8, the main portion of the base member 36 extends around so as partially to encircle the moveable portion 50. In order to allow movement of the portion 50, there are provided transverse slots 56 which extend from the outer edge of the base member 36 to the line of movement 52 at each end of the moveable portion 50. On opposite sides of each of the transverse slots 56, there are provided hook-like elements 58 which protrude upwardly, respectively, from the main, non-moveable portion and the moveable portion 50 of the base member 36. Each pair of these hook-like elements 58 are in alignment. An elongated locking member 60 is pivoted to the main portion of the base member 36 and may be swung around and snapped under each pair of hook-like elements 58 to hold the moveable portion 50 in place. When it is desired to change index sheets, the locking elements 60 may be snapped out of place thereby releasing the moveable portion 50 from the remainder of the base member 36 so that it can be bent down as illustrated in FIG. 7.

FIGS. 9–14 illustrate another version of the invention wherein the telephone index sheets may be permanently bound to the slide. As shown in FIGS. 9 and 10, there is provided a flat frame 70 which is configured to fit underneath a telephone. A slide 72 is constructed to be held under the frame 20 in a manner which permits it to slide in and out in drawer-like fashion in a manner similar to that described above in connection with the embodiment of FIGS. 1–8. The frame 70 of FIGS. 9 and 10 is provided with cutouts 74 which fit around the front legs of a telephone. There is also provided a plurality of attachment tabs 76 which function in the same manner as the attachment tabs 26 of the preceding embodiment to hold the frame member securely to a telephone.

The slide 72 of the embodiments of FIGS. 9–14 includes a front handle portion 78, a flat central base member 80 and a rear holding portion 82. These members are configured to operate in the same manner as their counterparts in the embodiment of FIGS. 1–8 to permit the slide 72 to move in and out in drawer-like fashion. There is additionally provided on the base member 80 a plurality of telephone index sheets 84 and these index sheets are bound in place by means of a plurality of binding loops 86. The binding loops 86 are distributed along a line parallel to and close to one edge of the base member 80. As illustrated in FIG. 12, the binding loops 86, which are of inverted U-shaped configuration, are securely attached and, in fact, are actually integral with the base member 10 at each of their ends.

The binding loops 86 may be molded integrally with the base member 80. However, the material forming the binding loops 86 is not taken from the direction in which they extend over the base member. Rather, as can be seen in FIG. 13, there are formed laterally extending slots 88 from which the material forming the loops 86 is struck. This provides the loops with sufficient material so that they will extend fully across the slots 88 to solid base material on the opposite side. Indentations 90 are provided on the opposite side of each of the slots 88; and as can be seen in the drawings, as the device is initially molded only the ends of the loops 86 across from the indentations 90 are secured to the base member 80. The opposite ends are bent over but are displaced a short distance from the indentations 90. This permits the index sheets to be fitted to the loops. Thereafter, the loops are pressed down so that their free ends enter the indentations 90. The free ends are then welded or glued in place. The pressing and welding operations can be provided in a single operation on a suitably designed machine. Ultrasonic or thermal welding may be employed, depending on the materials used.

It will be appreciated that both of the above-described embodiments provide an inexpensive leaf binding which utilizes the same material as the supporting base. The bindings provided by these arrangements allow the individual leaves to be held securely, yet sufficiently loosely to be turned with ease and to lie flat when turned. Moreover, the binding arrangements described occupy minimal space and are especially suitable for use in confined regions such as underneath all telephones.

What is claimed is:

1. A leaf binding arrangement of integral unitary construction comprising a flat base member of rigid, resilient material, said member being sheet-like and being thin relative to its length and width, said member also having a substantially plane lower surface and having a substantially plane upper surface for receiving and supporting a plurality of stacked sheets thereon with the lowermost sheet lying face-to-face against said upper surface, a plurality of prong-like, spaced binding loops of inverted U-shaped configuration with one leg thereof integral with said base member and extending upwardly from said upper surface and the other leg thereof extending downwardly and having a free end, the binding loops being positionally arranged with their corresponding legs distributed in spaced relation in two parallel rows on said base member adjacent, but spaced from, an edge of said base member thereby leaving a

rigid portion of said base member between the row nearest said edge and said edge, and extending along said edge for the length of said rows, said base member having a plurality of spaced openings extending therethrough, one below each said other legs of each loop and spaced inwardly from said edge for receiving said other leg, said other leg of each loop extending downwardly into its associated opening, and said base member having indented portions of reduced cross-section extending along a line parallel to and intermediate said two parallel rows but nearer to the one thereof in which said one legs are distributed, whereby said rigid portion of said base member may be bent downwardly as a unit about said line to permit insertion of said sheets beneath the free ends of said other legs and the indented portions form resilient hinge portions which return said portion of the base member to its unbent position when it is released.

2. A leaf binding arrangement according to claim 1 wherein locking means are provided to secure said rigid portion with its upper surface in substantially coplanar position with respect to the upper surface of the remainder of said base member.

3. A leaf binding arrangement according to claim 2 wherein said locking means comprises hook-like elements one positioned on said rigid portion and one on another portion of said base member with their hook openings facing in the same direction and rod means extending through said hook-like elements.

4. A leaf binding arrangement as in claim 1 wherein said base member is molded from a plastic material and each of said openings extends from said one leg to the free end of said other leg.

* * * * *