

[54] STRAP SUPPORT

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[51] Int. Cl.: F16I 3/14
[58] Field of Search: 248/74 PB; 24/16 PB, 73 PB

[56] References Cited

UNITED STATES PATENTS

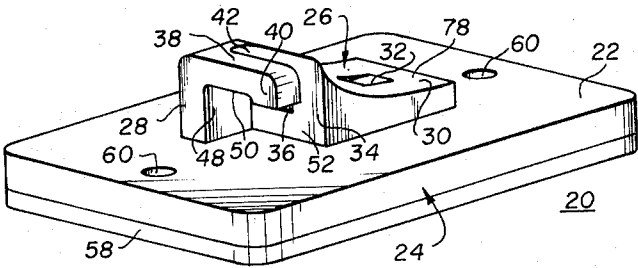
2,632,217	3/1953	Flora	24/16 PB
3,009,220	11/1961	Fein	248/74 PB X
3,454,249	7/1969	Geisinger	248/205 A
3,463,427	8/1969	Fisher	248/74 PB X
3,542,321	11/1970	Kahabka	248/20 A X

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[57] ABSTRACT

A strap support comprising a selectively recessed strap retaining member disposed on the upper surface of an appropriately contoured base member affixable to a mounting member. The inwardly directed surfaces of adjacent, upstanding, perpendicularly disposed portions of the retaining member in combination with an overhanging member partially define an open-ended strap head receiving cavity selectively aligned relative to an appropriately proportioned extending strap body receiving passage in one of the upstanding portions to provide both retaining and guide means for an extending strap body insertable therein. A plurality of upstanding recessed portions may be arranged in juxtaposed relationship to provide a multiple of spaced, opposing strap receiving passages. The base member may be provided with suitable mounting means such as an adhesive layer, fastener receiving openings, or the like.

16 Claims, 7 Drawing Figures



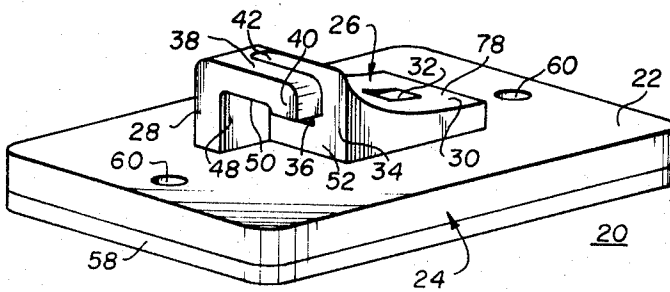


FIG. 1

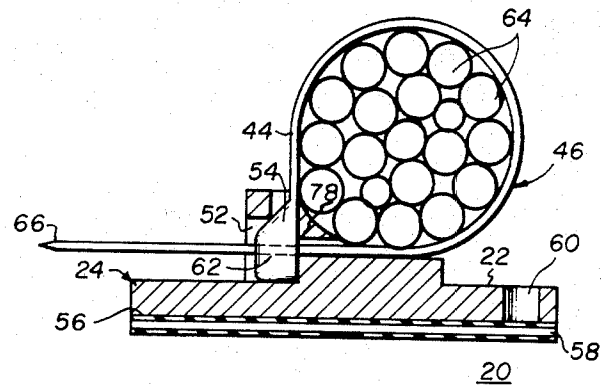


FIG. 2

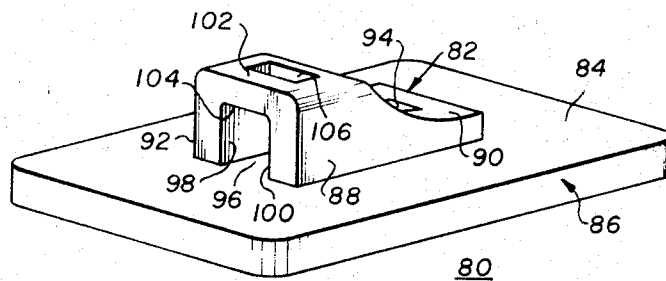


FIG. 3

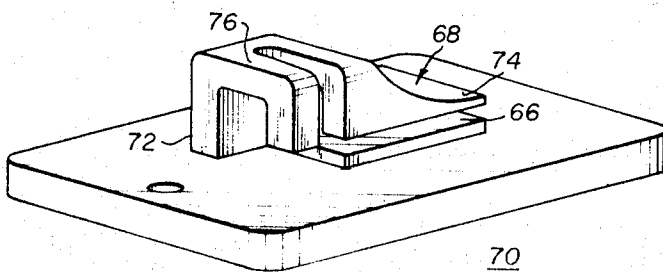


FIG. 4

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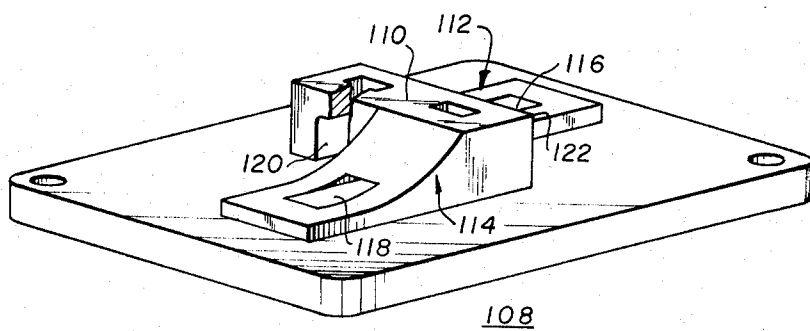


FIG. 5

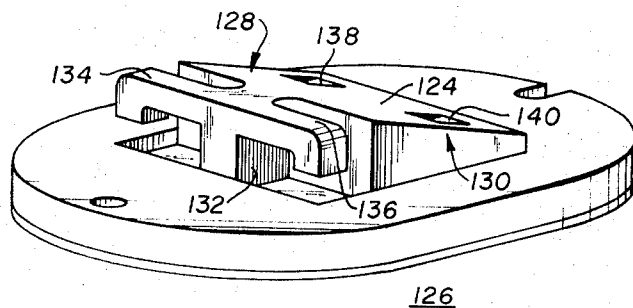


FIG. 6

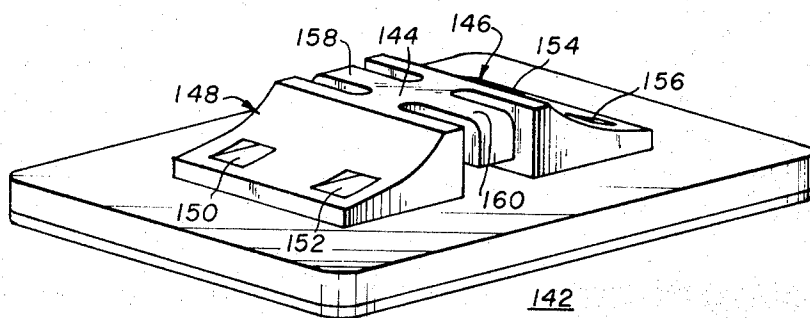


FIG. 7

STRAP SUPPORT

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention is directed to the field of supports and principally to a bundling strap and cable support.

2. Description of the Prior Art

Bundling strap supports, according to the prior art, generally comprised a substantially flat base member upon which was disposed a bridge-like structure arranged to provide merely a mounting aperture proportioned to permit the receipt therethrough of the elongated body portion of the bundling strap. Such prior art support devices, as illustrated, for example, in U.S. Pat. No. 3,454,249 for a Tiedown Plate, issued July 8, 1969 to G. H. Geisinger and assigned to the assignee of the instant invention, generally lacked provisions either for engaging and retaining the enlarged head portion of the strap or for guiding the tail end of the strap into the receiving aperture in the head portion thereof. Since such devices were commonly employed to tightly secure a bundle of insulated conductors or the like thereto, it was generally necessary to provide protective means intermediate the bundle and the protruding bridge structure to prevent damage to the conductors urged against said structure. Where such prior art devices do include a strap head retaining recess, as exemplified, for example, in U.S. Pat. No. 3,542,321 for a Tie, issued Nov. 24, 1970, to Richard D. Kahabka, the recess so provided is specifically adapted to accept but one size and style of strap head configuration, due to the nature of the engaging structure incorporated therewithin, the device thereby being severely restricted in its use and versatility.

SUMMARY OF THE INVENTION

The invention overcomes the difficulties and limitations noted above with respect to prior art devices by providing a selectively recessed, appropriately contoured bundling strap support which is more versatile, effective, efficient and convenient than such prior art devices. Disposed on the upper surface of a base member is a strap retaining portion defined, in one embodiment, by a pair of perpendicularly disposed upstanding portions, and an overhanging portion extending generally normally outwardly from a first of the upstanding portions in substantially spaced parallel planar relationship with the base member upper surface, the mutually perpendicular inner surfaces of said portions at least partially defining an appropriately proportioned side-entry head receiving cavity. A second cavity defined essentially by one surface of the overhanging portion and an adjacent, spaced, opposing surface of the second upright portion communicates with the head receiving cavity to provide an exit passage therefrom for the extending portion of a strap cooperable therewith. Extending through the second upright portion in generally spaced, parallel planar relationship with the base portion upper surface and communicating with the strap head receiving cavity is a further passage suitably contoured to provide either a bored or slotted recess, and proportioned to receive and guide the extending portion of a bundling strap insertable therewithin, wherein the terminating end of the bundling strap may be conveniently directed towards and into a receiving aperture in the head portion thereof, the embodiment incorporating the slotted recess configuration permitting the rapid removal of the bundled article therefrom while maintaining the bundling strap about said article. A third upstanding portion may be provided in spaced generally parallel opposing relationship with the first upstanding portion, thereby further enclosing the strap head receiving cavity where desirable or convenient. The above-defined structures may be further extended to provide a plurality of similar strap retaining members suitably oriented in substantially juxtaposed relationship adjacent the upper surface of the base member wherein more than one bundled article may be readily and conveniently supported thereby. Selective areas of the strap retaining member outer surface may be appropriately formed to provide a rela-

tively smooth transitional surface substantially contiguous with the curved contour of a cable bundle or similar item supported thereon. The base member may be readily provided with suitable mounting means to permit the coupling thereof to a mounting member. Such means may include one or more selectively proportioned fastener receiving openings, or, alternatively, a magnetic or adhesive layer or coating disposed adjacent the underside of the base member, or combination thereof. It is therefore an object of this invention to provide an improved strap support.

It is yet a further object of this invention to provide an improved strap support attachable to a mounting member.

It is still another object of this invention to provide an improved strap support having means for conveniently receiving, retaining, and selectively orienting appropriate portions of a bundling strap positionable therewithin.

It is a further object of this invention to provide a selectively recessed strap support matingly cooperable with a variety of commonly employed bundling straps.

It is another object of this invention to provide a selectively recessed strap support arranged to permit the secure coupling thereto of one or more bundled articles.

It is yet another object of this invention to provide an improved, mountable strap support arranged to permit the releasable coupling of a bundling strap and associated bundled article thereto.

Other objects and features of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode which has been contemplated for carrying it out.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a perspective view of a strap support constructed in accordance with the concepts of the invention.

FIG. 2 is a fragmentary side elevational view, in section, of the device of FIG. 1, illustrating the manner of use of a bundling strap therewith.

FIG. 3 is a perspective view of another embodiment of a strap support constructed in accordance with the concepts of the invention.

FIG. 4 is a perspective view of still another embodiment of a strap support constructed in accordance with the concepts of the invention.

FIG. 5 is a perspective view of still another embodiment of a strap support constructed in accordance with the concepts of the invention.

FIG. 6 is a perspective view of still a further embodiment of a strap support constructed in accordance with the concepts of the invention.

FIG. 7 is a perspective view of yet another embodiment of a strap support constructed in accordance with the concepts of the invention.

Similar elements are given similar reference characters in each of the respective drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to FIGS. 1 and 2, there is shown a strap support 20 constructed in accordance with the concepts of the invention. Suitably disposed on a first surface 22 of a preferably rigid base portion 24 of support 20 is a strap retaining portion 26. Positioned immediately adjacent a first upright portion 28 of retaining portion 26 and disposed in generally normal planar relationship therewith is a second upright portion 30 having a generally transverse guide passage 32 extending therethrough, one end of passage 32 communicating with the inner surface 34 of second upstanding portion 30 to define an opening 36. Extending laterally outwardly from the first upright portion 28, in generally spaced parallel planar relationship with the base portion 24, is an overhanging portion 38, the free end 40 of which preferably extends downwardly

towards the base portion first surface 22 in hook-like fashion thereby forming a recessed area 50 intermediate an inner surface 48 of the first upright portion 28 and the overhanging portion free end 40. Intermediate overhanging portion 38 and the second upright portion inner surface 34 is a slot-like cavity 42 suitably proportioned to receive the extending portion 44 of a bundling strap such as 46 (see FIG. 2). The inner surface 48 of first upright portion 28, in combination with the adjacent, normally disposed inner surface 34 of second upright portion 30 and recess 50, at least partially defines a strap head receiving cavity 52 proportioned to freely accept and retain therewithin the enlarged head portion 54 of a bundling strap such as 46 in a manner more clearly shown in FIG. 2. Although illustrated as essentially flat planar surfaces, it should be understood that surfaces 48 and 34 may be appropriately modified, within the concepts of the invention, to define, for example, a generally contiguous curvilinear surface or other suitable shape contoured to conform generally to the various strap head configurations cooperable therewith. It should also be readily apparent that overhanging portion 38 may be angularly disposed generally oblique to the base portion first surface 22, if necessary or desirable, to facilitate varying modes of engagement with the enlarged head end 62 of strap 46. Underlying base portion 24 of support 20 and affixed to the second surface 56 thereof is an adhesive layer 58 providing a convenient means for desirably affixing the bundling strap support 20 to a mounting member (not shown). Recesses 60, extending laterally through the base portion 24, provide additional means for mounting the support 24 to a mounting member, said recesses being selectively proportioned to receive fastening means (not shown) such as threaded fasteners, rivets, eyelets or the like. Although support 20 is illustrated as employing therewith both fastener receiving means 60 and an adhesive backing 58, the inclusion of both means therewith is intended to be merely illustrative of the versatility thereof, either of said means being adequate to permit the effective coupling of support 20 to a mounting member. Additionally, the base portion 24 of support 20 may be suitably dimensioned to provide a readily deformable, relatively thin member where necessary or desirable for use adjacent an irregular or generally curved surface, the base portion 24 being conveniently conformable to the contour thereof, to further increase the versatility of support 20. It should also be apparent to those skilled in the art that various other attaching means such as a magnetic base (not shown) or the like may be effectively employed in conjunction with support 20 without departing from the spirit of the invention. By way of example, and to further illustrate the manner of use of support 20, reference is herein made specifically to FIG. 2 wherein the support 20 is shown employed in typical cooperable relationship with bundling strap 46. The enlarged head 62 of strap 46 may be conveniently and rapidly inserted within the strap head receiving cavity 52 from the open side thereof adjacent the free end 40 of overhanging portion 38, the elongated portion 44 of strap 46 extending initially upwardly towards the top of FIG. 2. The extending strap portion 44 may then be encirclingly disposed about a plurality of articles such as 64 to effect the bundling and retention thereof, the tail portion 66 of strap 46 being introduced into passage 32 and effectively guided towards and into an appropriate receiving aperture in the head portion 62 of strap 46 as a result of the unique, selective orientation of passage 32 with respect to cavity 52. Thus, articles 64, which may include a plurality of electrical conductors or the like, are efficiently retained in desirably secure engagement with support 20 which may previously have been affixed to a mounting member by the employment of either the adhesive layer 58 or mounting openings 60. Although the embodiment of the bundling strap support 20 shown in FIGS. 1 and 2 is arranged generally to prevent the removal of the bundled articles therefrom, recess 32 may be appropriately modified to define an open slot 66 as shown in FIG. 4 wherein the bundled articles 64 together with the bundling strap 46 may be readily removed from support 20

as a discrete unit, while economically retaining the original bundling strap 46 about the articles 64. The other elements of the strap retaining portion 68 of the bundling strap support 70 of FIG. 4, namely, the first and second upright portions 72, 74, respectively, and overhanging portion 76 are essentially duplicative of similar elements 28, 30 and 38 as shown in FIG. 1 and 2. The upper surface 78 of second upright portion 30 is convexedly contoured, substantially as shown, to provide a smooth transitional supporting surface closely conforming to the natural curvilinear configuration of the adjacently disposed bundled articles 64.

Referring now to FIG. 3, there is shown another embodiment of a bundling strap support 80 constructed in accordance with the concepts of the invention. The strap retaining portion 82 is disposed adjacent a first or upper surface 84 of a base portion 86 in a manner similar to that described above with respect to portion 26 of FIGS. 1 and 2. A third upstanding portion 88 is disposed adjacent the second upstanding portion 90 and in spaced generally parallel planar relationship with a first upstanding portion 92. A guide passage 94, extending through the second upstanding portion 90 and communicating with a selectively proportioned strap head receiving cavity 96 defined partially by the inner opposing surfaces 90, 100, of the bounding first and third upright portions 92, 88, respectively, is essentially similar to passage 32 of support 20 (FIGS. 1 and 2), being arranged to provide both guide and retaining means for the elongated portion of a bundling strap receivable therewithin. Interposed intermediate the first and third upright portions 92, 100, respectively, and coupled thereto is an overhanging portion 102 further enclosing cavity 96 and providing a substantially restrictive abutment for the strap head 62 positionable therewithin. Although depicted as a relatively flat simple surface, the underlying surface 104 of overhanging portion 102 may be appropriately shaped to provide close cooperable conformation with the adjacent contacting portion of strap head 62, where necessary or desirable. Intermediate overhanging portion 102 and second upright portion 90 is a recess 106 communicating with cavity 96 and selectively proportioned to permit the receipt therethrough of the elongated body portion 44 of strap 46, the head portion 62 thereof being effectively retained within cavity 96 in a manner similar to that shown in FIG. 2. The base portion 86 of support 80 may be provided with various means for attaching said support 80 to a mounting member as described above with respect to support 20 (FIGS. 1 and 2).

Turning now to FIGS. 5, 6 and 7, there are shown further embodiments of a strap support constructed in accordance with the concepts of the invention. In FIG. 5, strap support 108 comprises a generally central first upright portion 110 intermediate a pair of second upright portions 112, 114 extending in substantially juxtaposed, diametrically opposing relationship therefrom. A guide passage 116, 118 extends through each second upright portion 112, 114, respectively, essentially duplicative of similar passage 94 of support 80 as shown in FIG. 3, each of said passages 116, 118 communicating with an associated strap head receiving cavity 120, 122 in a manner similar to that described above with respect to the embodiment shown in FIG. 3. Thus, support 108 may be effectively employed to provide a versatile, positionally selective bundling strap support adaptable for use with either one or two separate cable bundles or the like providing substantially colateral support therefor. In FIG. 6 the strap retaining portion 124 of strap support 126 is essentially a modification of support 20 of FIGS. 1 and 2, comprising a pair of complementarily juxtaposed second upright members 120, 130 and a generally central first upright portion 132. The substantially colinear overhanging portions 134, 136 extending generally laterally outwardly from upright portion 132 are essentially similar to element 38 of FIG. 1. Guide passages 138, 140, each extending through its associated upstanding portion 112, 114, respectively, are substantially equivalent to similar element 32 of support 20 (FIG. 1), said passages providing both guide and retention means in a manner similar to that heretofore

described with respect to support 20. By way of example only, support 126 may be advantageously employed to provide discrete support for a pair of generally parallel cable bundles or the like, wherein a first bundling strap encircling one of said pair of cable bundles may be appropriately introduced into the upper left portion of strap retaining portion 124, and a second bundling strap encircling the other of said pair of cable bundles introduced into the lower right portion thereof. It will be apparent to those skilled in the art that other suitable bundling arrangements may be readily effected in combination with support 126 without departing from the spirit of the invention and within the concepts disclosed herein. In FIG. 7 there is shown a bundling strap support 142 similar to support 126 of FIG. 6 but advantageously extending the concept thereof to provide increased versatility thereby. Strap receiving portion 144 may be readily visualized as comprising essentially two portions such as 124 (FIG. 6) disposed in coupled, opposing adjacent relationship, each of the upright portions 146, 148 of support 142 being substantially similar to strap retaining portion 124 of support 126. The guide passages 150, 152 extending through portion 148, and guide passages 154, 156 extending through portion 146, together with overhanging portions 158, 160 intermediate upright portions 146, 148 are substantially similar both structurally and functionally to elements 138, 140, 134 and 136, respectively, of support 126 as shown in FIG. 6. It should be readily apparent to those skilled in the art that each of the structural combinations exemplified in FIGS. 1, 3 and 4 may be readily employed to effectively alter the configurations illustrated in FIGS. 5, 6 and 7 without departing from the spirit of the invention. For example, guide passages 150, 152, 154 and 156 of support 142 (FIG. 7) and passages 138, 140 of support 126 (FIG. 6) may be suitably modified, where desired, to define a slotted passage as shown at 66 in FIG. 4. Similarly, the various strap head receiving cavities as illustrated in FIGS. 1, 3 and 4 may be readily interchanged within the embodiments illustrated and the concepts disclosed herein.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A strap support comprising: a base portion having a first surface and a second surface; and a strap retaining portion disposed on said base portion first surface; said strap retaining portion having a first upright portion, a second upright portion adjacent said first upright portion and disposed in generally perpendicular planar relationship therewith, and an overhanging portion depending outwardly from said first upright portion and spaced above said base portion first surface a first predetermined distance, said overhanging portion being disposed generally adjacent said second upright portion and spaced therefrom a second predetermined distance, the adjacent inner surfaces of said first upright portion and said second upright portion in combination with the downwardly directed surface of said overhanging portion at least partially defining a first cavity proportioned to receive the enlarged end of a strap, said spacing between said overhanging portion and said second upright portion at least partially defining a second cavity proportioned to receive the extending portion of a strap; said second upright portion having a passage therethrough selectively proportioned to provide guide means for orienting the extending portion of a strap in general alignment with a receiving aperture in the enlarged end of a strap positionable within said first cavity.

2. A support as defined in claim 1 further comprising attaching means disposed adjacent said second surface of said base portion.

3. A support as defined in claim 2 wherein said attaching means is an adhesive layer affixed to said second surface of

said base portion.

4. A support as defined in claim 1 wherein said second upright portion passage is axially disposed generally parallel to said base portion first surface.

5. A support as defined in claim 1 further comprising a third upright portion adjacent said second upright portion and disposed in generally spaced parallel planar relationship with said first upright portion, said overhanging portion extending between said first and said third upright portions.

6. A support as defined in claim 5 further comprising attaching means disposed adjacent said base portion second surface.

7. A support as defined in claim 6 wherein said attaching means is an adhesive layer affixed to said base portion second surface.

8. A support as defined in claim 5 wherein said second upright portion passage is axially disposed generally parallel to said base portion first surface.

9. A support as defined in claim 1 wherein said second upright portion further comprises a slot extending from an outer surface thereof towards and communicating with said passage extending therethrough, thereby providing a side entry to said passage.

10. A support as defined in claim 9 further comprising attaching means disposed adjacent said base portion second surface.

11. A support as defined in claim 10 wherein said attaching means is an adhesive layer affixed to said base portion second surface.

12. A support as defined in claim 1 wherein the end of said overhanging portion remote from said first upright portion extends at least partially downwardly towards said base portion first surface.

13. A strap support comprising: a base portion having a first surface and a second surface; and a strap retaining portion disposed on said base portion first surface; said strap retaining portion having a first upright portion, a pair of second upright portions adjacent said first upright portion and disposed in generally perpendicular planar relationship therewith, and a pair of overhanging portions depending outwardly from said first upright portion and spaced above said base portion first surface a first predetermined distance, each of said overhanging portions being disposed generally adjacent an associated one of said second upright portions and spaced therefrom a second predetermined distance, the adjacent inner surfaces of said first upright portion and an associated one of said second upright portions in combination with the downwardly directed surface of an associated one of said overhanging portions at least partially defining a first cavity proportioned to receive the enlarged end of a strap, said spacing between said overhanging portion and an associated one of said second upright portions at least partially defining a second cavity proportioned to receive the extending portion of a strap, each of said second upright portions having a passage therethrough selectively proportioned to provide guide means for orienting the extending portion of a strap in general alignment with a receiving aperture in the enlarged end of a strap positionable within said first cavity.

14. A support as defined in claim 13 further comprising attaching means disposed adjacent said second surface of said base portion.

15. A support as defined in claim 14 wherein said attaching means is an adhesive layer affixed to said second surface of said base portion.

16. A support as defined in claim 13 wherein said second upright portion passage is axially disposed generally parallel to said base portion first surface.

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