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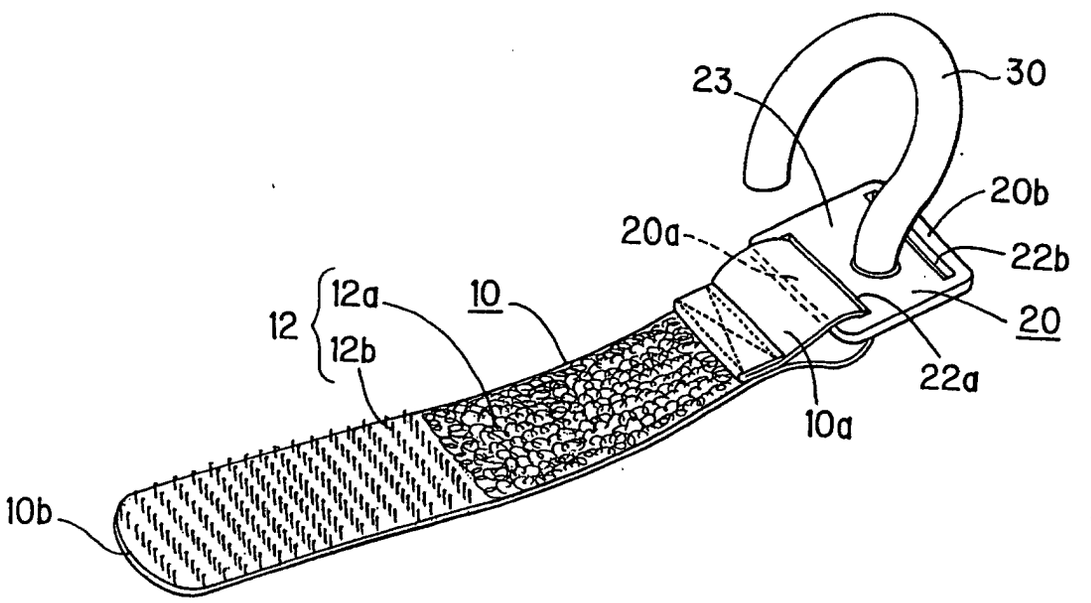
(54) SUPPORTEDLY SUSPENDING DEVICE

(57) A supportedly suspending device detached and moved easily and suspending various types of articles, wherein rectangular openings (22a, 22b) are formed in a rectangular platy member near two sides (20a, 20b) opposed to each other, one end (10a) of a band (10) is attached to one (22a) of the openings, and a hook-shaped locking device (30) allowing a hand luggage to be suspended therefrom is attached to an intermediate partition plate (23) formed between the openings (22a, 22b) and, on the band (10), a male surface fastener (12b) is installed on the plane of the band forming an outer peripheral side roughly in one half part thereof in longitudinal direction when the band (10) is wound around a mounted part (5) and a female surface fastener (12a) is installed roughly in the other half part.

F I G. 1



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Description

Technical field

[0001] The present invention concerns a supportedly suspending device, allowing to suspend various types of articles to, for instance, a handle or frame of a stroller and a bicycle and, handrails of a veranda, a fence and a laundry pole, etc.

Background Art

[0002] In order to suspend a bag, clothes, and other articles, conventionally, for example, a hook-shaped suspending metal fitting was attached to a wall or pillar by a nail and wood screw, and so on and various articles were enabled to be suspended by a suspending metal fitting.

[0003] It is difficult to move or put the aforementioned suspending metal fitting on a desired position for use because it is strongly installed in a wall, pillar, etc.

[0004] Moreover, it would be convenient to attach a locking device for suspending laundry and suspender, and so on from a handrail of a veranda and a cloth-drying place pole, for instance, when laundry is dried, to attach a locking device for hanging clothes and so on from a suspender rail and so on in a closet when various articles are stored, and in addition, to allow to attach a locking device or the like that can hang a shopping bag and so on from knobs installed in a passenger car, handle, frame or the like of a shopping cart, strollers, bicycles and so on , when one travels or goes out.

[0005] Moreover, contrary to the case, when a laundry pole and adornment, and so on are hung for instance indoors, if a locking device such as hooks can be installed in these for instance, the laundry pole and an adornment and so on can be easily hung on a lintel and a curtain rail, and so on and it is convenient.

[0006] However, installing the conventional suspending metal fittings in the place is not only difficult, it is not easy to remove them even if they are installed, and once installed, it is difficult to put them on a desired position by moving their installation position with ease.

[0007] Moreover, the wall and the pillar are perforated or damaged when such suspending metal fittings are installed, and their appearance will be damaged when the metal fittings are removed.

[0008] Then, the object of the present invention is to provide a supportedly suspending device devised to remedy the fault in the prior art, the device being able to be attached and removed without damaging a pillar nor a wall, and so on, and having a compact shape after detaching, to facilitate a transport thereof.

Disclosure of the Invention

[0009] A supportedly suspending device of the present invention is constructed by clings a band 10 provided with a male and female surface fastener 12 (12b, 12a) to an attachment ring 20 and a locking device 30 of, for instance, a hook or other shape is attached to an intermediate partition plate 23 of a attachment ring 20, to achieve the purpose.

[0010] A locking device 30 can be attached to an intermediate partition plate 23 rotatably, and can also be attached detachably.

[0011] Moreover, the intermediate partition plate 23 and the locking device 30 can be connected through a joint 80 for making the locking device 30 slidable by a joint 80, and especially, it is preferable to make this joint 80 into a universal joint that can change an angle of crossing between the intermediate partition plate 23 and the locking device 30 as desired.

[0012] As a structure of a joint 80, it may be composed of an articular sphere 81 formed integrally on one end of the locking device 30 and a socket 82 formed integrally with the intermediate partition plate 23, to envelop the articular sphere 81.

[0013] As for a material of locking device 30, a resin material, presenting a low elastic coefficient, constant withstand load, and an impact resistance, for instance, polycarbonate or acrylonitrile-butadiene-styrene resin can be used.

[0014] In addition, a brace 14, comprised of for instance a material with high friction coefficient such as rubber can be adhered to a contact surface with a mounted part 5 where a band 10 is mounted, for instance, with a prescribed intervals.

[0015] Open holes 25, 25 to insert one end of the locking device 30 may be disposed in the intermediate partition plate 23, and a flange 32 formed a larger diameter than that of the open holes 25,25 be formed on one end of the locking device 30 to be inserted in the open hole 25,25 and, at the same time, a expanding slot 34 from a flange 32 to one end of the locking device 30 may be formed when the locking device 30 shall be made rotatable and/or detachable.

[0016] Two or more the locking devices 30 may be mounted on the intermediate partition plate 23.

[0017] In addition, the supportedly suspending device 1 of the present invention is composed by mounting the locking device 30 on the attachment ring 20 by a linkage member 40 that can be divided into a male member 41 and a female member 42, and either one (male member 41) of male member 41 or female member 42 of a linkage member 40 may be mounted on a attachment ring 20, and the other (female member 42) may be mounted on the locking device 30.

[0018] Selection of the locking device 30 according to two or more kinds prepared beforehand may also be enabled, for the supportedly suspending device 1 in which the locking device 30 is made to be detachable

[0019] The locking device 30 can be made in a ring-shape, and it is desirable to support two or more ring-shaped members (two ring-shaped members 30a, and 30b in the example shown in the drawing) axially and

movably each other, to allow them to expand to the storage state where the ring-shaped members overlap each other and the developed state where the position of each ring-shaped member is shifted.

[0020] In addition, the locking device 30 may be composed to comprise a main body 301 of the locking device formed a C-shape and an opening and a closing means 302 for linking or opening between both open ends of the main body 301 of the locking device.

[0021] The locking device 30 may also be composed to comprise a cover member 90 to constitute a ring shape overlapping and fitted outside to the locking device 30.

[0022] The cover member 90 may be formed substantially a C-shape, overlapped on the locking device 30 formed substantially a C-shape, and installed rotatably on the locking device 30.

Brief Description of the Drawings

[0023]

Fig. 1 is a perspective view of the supportedly suspending device of the present invention.
Fig. 2 is a perspective view of the attachment ring and the locking device.
Fig. 3 is a perspective view of the attachment ring and the locking device, and (A), (B), and (C) have joint sections constituting respectively different movability states.
Fig. 4 is a perspective view of the attachment ring in which three locking devices are installed.
Fig. 5 is an explanation view where the installation of the supportedly suspending device is shown.
Fig. 6 is an explanation view showing examples of installation of the band and the attachment ring, and (A) is an example that uses two bands, (B), and (C) are examples using one band.
Fig. 7 is a perspective view of the supportedly suspending device viewed from the side to be brought in contact with the mounted part.
Fig. 8 is an explanation view where an example of using the supportedly suspending device of the present invention is shown.
Fig. 9 is a developed perspective view of the supportedly suspending device where the locking device is rotatable.
Fig. 10 is a perspective view that shows an example of using the supportedly suspending device of Fig. 9.
Fig. 11 is a cross sectional view of essential parts of the supportedly suspending device where a joint is disposed between an intermediate partition plate and the locking device.
Fig. 12 is a perspective view that shows one example of installation state of the supportedly suspending device in Fig. 11.
Fig. 13 is a perspective view that shows one example of installation state of the supportedly suspending device in Fig. 11.
Fig. 14 is a perspective view of the supportedly suspending device that has a linkage member.
Fig. 15 is a perspective view of a locking device (drink holder) for replacement.
Fig. 16 is a perspective view of a locking device (hook) for replacement.
Fig. 17 is a perspective view of a locking device (bag) for replacement.
Fig. 18 is a perspective view of a locking device (insulating container) for replacement.
Fig. 19 is a perspective view of the supportedly suspending device comprising a locking device made of a ring-shaped member.
Fig. 20 is a perspective view of the supportedly suspending device in developed state comprising a locking device made of a ring-shaped member.
Fig. 21 is an enlarged cross sectional view of essential parts of the supportedly suspending device of Fig. 19 and Fig. 20.
Fig. 22 is an explanation view where the use state of the supportedly suspending device of Fig. 19 and Fig. 20 is shown.
Fig. 23 is a cross sectional view where an example of modification of the ring-shaped member is shown.
Fig. 24 is an exploded perspective view of the supportedly suspending device wherein the locking device has a cover member.
Fig. 25 is an exploded perspective view of the supportedly suspending device wherein the locking device has a substantially C-shaped cover member.

Best Mode for carrying out the Invention

[0024] Next, embodiments of the present invention shall be described referring to the attached drawings.

[Embodiment 1]

[0025] In Fig. 1, 1 indicates a supportedly suspending device of the present invention, and the supportedly suspending device 1 has a band 10, an attachment ring 20 installed on one end 10a of the band 10, and a locking device 30 installed in the attachment ring 20.

[0026] The attachment ring 20 has, in the embodiment shown in Fig. 1, two openings 22a, 22b formed an elongated shape against two opposed sides 20a and 20b of a rectangular plate having a substantially rectangular form through a prescribed interval, and an intermediate partition plate 23 partitioning between these openings 22a and 22b is formed between these openings 22a and 22b.

[0027] A locking device 30 is installed in one plane of the intermediate partition plate 23, and a hook of substantially C-shape that is the locking device 30 is installed in the embodiment shown in Fig. 1. Various arti-

cles are made suspendable from the locking device 30 when the supportedly suspending device 1 of the present invention is installed in the mounted part 5, or the locking device 30 is hooked from the lintel and so on for instance, so that goods to which the supportedly suspending device 1 is mounted can be suspended.

[0028] The locking device 30 is not limited to the hook, and may be the one having a structure like a clothespin for instance, and formed to hang various articles and otherwise a ring shaped member like eggplant ring, a carabiner (snap ring) used as climbing gear and other various locking devices 30 can be installed.

[0029] Also, the shape of the hook[ed] is not limited to a case of installing a single hook shown in Fig. 1, but the locking device 30 may also have two hooks as shown in Fig. 2, and moreover, as shown in Fig. 3(A), Fig. 3(B), and Fig. 3(C), a joint part 36 may be installed and composed to allow bending or pivoting in the concerned part or, it may comprise 3 or more hooks as shown in Fig. 4, and it may also be formed to a shape that combines these compositions.

[0030] Resin material, that has a low elastic coefficient and constant withstand load and impact resistance, for instance, polycarbonate or acrylonitrile-butadiene-styrene resin can be used for the locking device so as to be able to avoid damaging by transforming when a high load is applied.

[0031] Besides, a knurl 24 having the same direction as the longitudinal direction of the opening 22a, 22b as its longitudinal direction may be formed on a surface in contact with the mounted part 5 of the attachment ring 20 (refer to Fig. 5) in order to prevent dislocation such as rotation and so on of the supportedly suspending device 1 of the present invention on a mounted part 5 due to the contact between the formation portion of a knurl 24 and the mounted part 5 when it is attached to the handle of bicycle or stroller, veranda handrail, laundry pole or additionally various other mounted part 5 and, furthermore, a brace such as elastomer or rubber piece 87 or the like may be adhered to a portion coming in contact with the mounted part of the attachment ring in a way to prevent rotation or dislocation (refer to Fig. 7).

[0032] Moreover, the attachment ring 20 may be composed of a member having a flexibility that can be transformed in conformity with the configuration shape of the mounted part 5 when it is installed on the mounted part 5, it may be formed with a metal piece formed relatively thin or resin material, and so on, allowing to install more closely to the mounted part 5 when the supportedly suspending device 1 of the present invention is installed in the mounted part 5 and, furthermore, the attachment ring 20 may be curved according to the configuration shape of the mounted part 5, in case of manufacturing the supportedly suspending device 1 by limiting beforehand the mounted part 5 to which the supportedly suspending device 1 of the present invention is installed to cylindrical or pillar shaped ones such as laundry pole, handle of bicycle or stroller, and so on.

[0033] Moreover, though the locking device 30 and an attachment ring 20 are molded integrally with a resin material in the embodiment, the locking device 30 and the attachment ring 20 may combine and use those independently formed respectively as described later, and a method for molding or forming is not limited, provided that the locking device 30 and the attachment ring 20 are maintained in the linked state.

[0034] One end 10a of a band 10 composed by attaching surface fasteners 12(12a,12b) is connected with the aforementioned attachment ring 20 composed as described above (refer to Fig. 1). In the embodiment, the connection of one end 10a of the band 10 and the attachment ring 20 is done by inserting the one end 10a of the band 10 in the opening 22a formed in the attachment ring 20, turning the one end 10a of the band 10 toward the other end 10b of the band 10, and affixing by heat seal, sawing, or other methods like the loop.

[0035] The band 10 has known surface fasteners 12 (12a,12b) formed on one of planes as shown in Fig. 1, and in the embodiment, a female surface fastener 12a having a number of loops formed is installed roughly in the half part of its longitudinal direction, while a male surface fastener 12b, having for instance a hook-like tip, to be locked with the loop of the female surface fastener 12a for surface adhesion is installed in the other half part of its longitudinal direction.

[0036] These surface fasteners 12(12a, 12b) are installed, in the embodiment, in one of planes of the band to be located on the outer peripheral side, when the band 10 is wound around the mounted part 5, roughly the half part of an end part (called "linkage end" hereinafter) 10a side of the band 10 linked to the attachment ring 20 is made as a female surface fastener 12a, while male surface fastener 12b is formed roughly in the half part of an end part (called "free end" hereinafter) 10b side not linked to the attachment ring 20.

[0037] The band 10 may be formed by linking for instance a band where the male surface fastener 12b is formed and the band 10 where the female surface fastener 12a is formed by for instance heat seal, sawing, or other methods, and moreover, male and female surface fasteners 12b, 12a may be attached on one face of a band made of leather or cloth by heat seal, sawing, or other methods.

[0038] Preferably, it is desirable for the contact surface of the band 10 with mounted part 5 to install a brace 14 of the material with a high coefficient of friction made for instance of rubber and so on. As for the brace 14, a round rubber piece is adhered to one of surfaces of the band 10 that comes in contact with the mounted part 5 as shown in Fig. 7 in the embodiment by a prescribed pattern, in a way to prevent the supportedly suspending device 1 from dislocation when the supportedly suspending device 1 is installed by winding the band 10 around the mounted part 5., but the composition of the brace is not limited to the example shown in the drawing, and, for instance, rubber seat and so on are also good

for the composition of the brace by pasting the same all over the contact surface of the mounted part 5 with the band 10.

[0039] The use of the supportedly suspending device 1 of the present invention comprised as mentioned above will be described. First of all, in the supportedly suspending device 1, in a state shown in Fig. 1 where the free end 10b of the band 1 is extracted from the opening 22a of the attachment ring 20, the surface where the knurl 24 of the attachment ring 20 is formed is applied to the mounted part 5 such as handle of a stroller and so on, the band 10 is wound around the mounted part 5 and the free end 10b thereof is inserted in the other opening 22b of the attachment ring 20.

[0040] Afterwards, the band 10 is pressure fitted to the outer periphery of the mounted part 5 by pulling the free end 10b of the band 10 or the like, the band 10 is folded back at the insertion position of the opening 22b, a part of the band free end 10b side is wound furthermore around the outer periphery of the band 10 where the mounted part 5 is to be wound, for superposing on the band 10 that has already been wound around the mounted part 5.

[0041] For the band 10, as the male surface fastener 12b is formed in roughly the half part of the free end 10b side and, at the same time, the female surface fastener 12a is formed in roughly the half part of the longitudinal direction of the fixed end 10a side, the male surface fastener 12b formed in the free end 10b side of the band, inserted into the opening 22b of the Attachment ring 20 and folded back comes into contact with and adheres to the female surface fastener 12a formed along fixed end 10a side, allowing to installed the supportedly suspending device 1 of the present invention on the mounted part 5.

[0042] Thus, when the installation of the supportedly suspending device 1 on the mounted part 5 is completed, hanging the a bag, shopping bag, and so on by the locking device 30 such as hook installed in the supportedly suspending device 1 for instance becomes possible.

[0043] Thus, luggage and so on can be suspended easily at a desired position by installing the supportedly suspending device 1, because the supportedly suspending device 1 for hanging luggage and so on can be installed easily at any position provided that the outer peripheral size of the mounted part 5 allows to wind the band 10 attached to the same.

[0044] Thus installed supportedly suspending device 1 can be detached easily from the mounted part 5, by separating the male surface fastener 12b provided on the free end 10b of the band 10 from the female surface fastener 12a to which the male surface fastener 12b adheres and, at the same time, extracting the free end 10b of the band 10 inserted into the opening 22b of the attachment ring 20 from the opening 22b.

[0045] Besides, thus detached supportedly suspending device 1 can be stored extremely compactly by folding the band 10 for instance, and be carried conveniently.

[0046] Though, in the supportedly suspending device 1 explained above, it was described to have a single band 10, the band 10 may be the one linking respectively one end of two bands to the attachment ring 20 as shown in Fig. 6(A) for instance, and to be installed in a way to envelop the mounted part 5 by the other end of both bands, and further, it may the one inserting a single band 10 in both of openings 22a and 22b formed on the attachment ring 20 and to be installed in a way to envelop the mounted part 5 by both ends thereof as shown in Fig. 6(B) and, furthermore, it may be the one composed to be installed by inserting a band 10 having a folded ring 50 installed on one end into both of openings 22a and 22b formed on the attachment ring 20 as shown in Fig. 6(C).

[0047] Besides, the supportedly suspending device 1 formed as mentioned above can be used not only in case of hanging various articles by the locking device 30, but also in its upside-down state and, for instance, as shown in Fig. 8, it can be installed on the upper end of a roller screen 60 and used for installing a sunshade in the room or other works, by fixing the locking device 30 to a curtain rail 70, lintel or the like, and moreover, a pole that can serve as the base for drying laundry in the room when it rains or for attaching interior decoration objects can be suspended in the room, by hanging a laundry pole or a pole, by attaching the band 10 to a laundry pole or various kinds of pole by winding it around them, and by fixing a hook, constituting the locking device 30, to a lintel or the like.

[0048] Moreover, in case of attaching the supportedly suspending device 1 to a laundry pole used in the veranda and so on of an apartment or the like and attaching the locking device 30 to a hook-like metal fitting for suspending from the laundry pole, the laundry pole shifts hardly, and accidents such as dislocation of the laundry pole and fall of the laundry pole soiling the laundry when the wind blows strong, or fall of the laundry pole itself from the veranda can be avoided.

[Embodiment 2]

[0049] Next, another embodiment of supportedly suspending device 1 of the present invention shall be described referring to Fig. 9.

[0050] The locking device 30 of the supportedly suspending device 1 of the embodiment is installed rotatably on the intermediate partition plate 23 of the attachment ring 20, and one example of installation making the locking device 30 rotatable can be explained as shown in Fig. 9.

[0051] Open holes 25,25 are formed to install the locking device 30 in the intermediate partition plate 23 of the attachment ring 20 and one end of the locking device 30 is inserted in a free rotation into the open hole 25, 25, in Fig. 9.

[0052] A flange 32, that projects to the end part outer periphery is formed on one end of the locking device 30 inserted in the open hole 25, and the locking device 30 inserted in the open hole 25 is composed so that it is stopped at the open hole 25 edge by the flange 32 and should not drop out.

[0053] Desirably, at the end part of the locking device 30, a expanding slot 34 dividing the flange 32 in the peripheral direction is installed from the flange 32 up to one end of the locking device 30, and when the flange 32 portion of the locking device 30 is inserted into the open hole 25 provided in the intermediate partition plate 23 in a way to reduce the width of the expanding slot 34 by pinching for instance the end part of the locking device 30 and then fingers pinching the end part of the locking device 30 are released, the end part of the locking device 30 elastically deformed to reduce the width of the expanding slot 34 returns to the original form, locks the flange 32 to the open hole 25 edge and inhibits to extract the locking device 30 from the open hole 25.

[0054] Moreover, a counter boring 26 for fitting the flange 32 formed at one end of the locking device 30 is provided around the peripheral edge of the open hole 25 to prevent the one end of the locking device 30 from protruding on the side face of the side in contact with the mounted part 5 of the attachment ring 20, allowing the locking device to rotate when it is mounted on the mounted part.

[0055] The supportedly suspending device 1 of the present invention formed as mentioned above can change the direction of the locking devices 30[and] 30 according to the shape, the size, and so on of the hung article and, hang various articles easily, and is convenient. Moreover, the locking devices 30, 30 can be removed easily from the opening 25, 25 formed in the intermediate partition plate 23 by doing a work opposite to the case of the installation mentioned above, it is possible to cope easily even if it is used for a different usage by exchanging with a locking device of another shape in place of the hooked locking devices 30, 30 shown in Fig. 9. Moreover, the supportedly suspending device 1 is not bulky when disassembled in the way and it becomes convenient for carrying.

[0056] When washed shoes for instance are dried by directing outside both of hooks that are locking devices 30, 30 as shown in Fig. 10 for instance, the supportedly suspending device 1 of the embodiment provided with tow hook-like locking devices 30 is convenient.

[0057] The supportedly suspending device 1 of the embodiment can be used to suspend and to support various articles similar to the case of the embodiment 1, and the shape of the locking device 30 is not limited to the hooked one shown in Fig. 9 and Fig. 10, but may be transformed variously similar to the case of the embodiment 1, and the locking device of the composition similar to locking device 30 shown in Fig. 2, Fig. 3(A) to Fig. 3(C), and Fig. 4 may be mounted rotatably on the attachment ring 20 by a method similar to the embodiment.

[Embodiment 3]

[0058] In the embodiment shown in Fig. 11, a joint 80 is installed as an installation structure of the locking device 30 to the intermediate partition plate 23 of the attachment ring 20, and the locking device 30 is made rotatable through the joint 80, and composed to be oscillatable in a prescribed direction.

[0059] The joint 80 is an articular sphere joint enveloping an articular sphere 81 by a socket 82 formed as one piece in the intermediate partition plate 23 in the embodiment shown in Fig. 11, and the hook is composed to be rotatable by forming the articular sphere 81 integrally at one end of the hook-shaped locking device 30.

[0060] A guide slot 83 is provided in the socket 82 of the articular sphere joint in parallel to the direction of length of the opening 22a and 22b formed in the attachment ring 20, and the axis end part of the hook that is the locking device 30 can pivot about the articular sphere 81, being guided by the guide slot 83.

[0061] The composition of the joint 80 to make the hook that is the locking device 30 rotatable and, at the same time, pivotable is not limited to the articular sphere joint of the structure shown in Fig. 11 to Fig. 13 and for instance assumed to be a universal joint that can freely change the intersecting angle between the intermediate partition plate 23 and the end part of the hook and the hook is made pivotal in all directions by the locking device 30 or it may also be any other known various kinds of fitting.

[0062] In the supportedly suspending device 1 in the embodiment composed like the, it is used with the axial end part of the locking device 30 made orthogonal to the intermediate partition plate 23 as shown in Fig. 12 when installing it on the mounted part 5 made horizontal, like the handle and so on of the stroller, and it is also possible to use with the axial end part of the locking device 30 folded down in the direction where the axial end part of the locking device 30 is applied to the intermediate partition plate 23 as shown in Fig. 13 when installing it on a mounted part 5 set vertical such as a frame and so on, and it is possible to use it suitably independently of the direction of installation thereof.

[0063] Especially, because the attachment ring 20 is firmly fixed to the mounted part 5 even if it is installed on the mounted part 5 set vertical as shown in Fig. 13 in the composition in which rubber pieces 87, 87 or other braces are adhered to the attachment ring 20 at a position that comes in contact with the mounted part 5, dislocation shall never be caused by the sliding fall, and the supportedly suspending device 1 of the present invention can be installed even when a step or difference is not formed in the mounted part 5.

[0064] In addition, in the embodiments shown in Fig. 11 to Fig.13, at least a part of the axial end part of the

locking device is made rectangular and preferably square in section and at the same time, it may also be composed to pinch and fix the axial end part of the locking device 30 between pinch pieces 84, 84, by protruding two pinch pieces 84, 84 with a width substantially identical to one side of the sectional shape, on the attachment ring 20 of the portion where the axial end part formed rectangular in section is positioned, when the locking device 30 is folded down in the direction of contact with the intermediate partition plate 23. In the case, the locking device 30 folded down in the direction of contact with the intermediate partition plate 23 will be pinched and fixed by pinch pieces 84 and 84 in the axial end part thereof, allowing to assure a stable use by fixing the position of the locking device 30 even in the state of use shown in Fig. 13 and, at the same time, when it is carried, the supportedly suspending device 1 becomes compact and convenient to carry, by pinching the axial end part of the locking device 30 by these pinch pieces 84 and 84 with the locking device in Fig. 13 rotated for instance by 90° in the horizontal direction.

[Embodiment 4]

[0065] In addition, another examples of executing the supportedly suspending device 1 of the present invention shall be described referring to Fig. 14 to Fig. 18.

[0066] In the supportedly suspending device 1 of the present embodiment, the locking device 30 is mounted on the attachment ring 20 through a linkage member 40 that can be divided respectively into a male member 41 and a female member 42 and, in the embodiment shown in Fig. 14, the female member 42 among the aforementioned linkage member 40 is attached to an annular locking device 30 having a shape similar to the carabiner used as mountain climbing tool and, at the same time, the male member 41 and the female member 42 are linked by attaching the male member 41 of the linkage member 40 on the attachment ring 20, allowing to link the locking device 30 to the attachment ring 20 and to form the supportedly suspending device 1.

[0067] Though the mounting of the male member 41 on the attachment ring 20 is represented as an integral formation of the attachment ring 20 and the male member 41 of the linkage member 40 in the embodiment shown in Fig. 14, both of them may be installed rotatably as explained in the embodiment 2, or through a joint 80 shown in example 3, and the composition thereof is not limited to the one shown in Fig. 14. Moreover, as the linkage member 40, those of already-known various kinds can be used, if they can be divided into the male member 41 and the female member 42, and, they can endure the load when various articles are hung, and it is not limited to the one of the embodiment shown in Fig. 14.

[0068] It is possible to exchange with the locking device 30 of different kinds and shapes according to the usage for the supportedly suspending device 1 composed as mentioned above.

[0069] The locking device for exchange 30 is provided respectively with a female member 42 that can be linked to the male member 41 of the linkage member 40 mounted on the attachment ring 20 and in the embodiment, in addition to a locking device 30 similar to carabiner shown in Fig. 14, locking device 30 composed of a drink holder for fixing a can, a PET bottle or various beverage container, a nurse bottle and so on (refer to Fig. 15), locking device 30 composed of a hang hook (refer to Fig. 16), a locking device used for such as net, bag, or the like accommodating various articles (refer to Fig. 17), a locking device composed of a cooling/insulating container containing/locking a beverage container or the like (refer to Fig. 18) and so on are prepared beforehand, allowing to obtain easily a supportedly suspending device 1 appropriate for the purpose or usage, without detaching the band 10, by selecting a locking device 30 in conformity with the usage among them.

[0070] For instance, the supportedly suspending device 1 in the embodiment is used by attaching to a knob installed in the back seat of a passenger car and, a supportedly suspending device 1 for hanging the luggage such as bags is formed when a carabiner-like locking device 30 shown in Fig. 14 is used, and when the locking device 30 of Fig. 15 is used, the drink holder for back seat can be installed. It is possible to hang a plastic bag, obtained in the supermarket or the like and use it as the garbage box when the locking device 30 shown in Fig. 16 is selected and installed, or to use it as the storage bag that stores a road map, pens and pencils, and so on when the locking device 30 shown in Fig. 17 is installed and so on, allowing to use it in various usage's by exchanging the locking device 30.

[Embodiment 5]

[0071] Furthermore, another embodiment of the present invention shall be described referring to Figs. 19 to 22. In the embodiment shown in Fig. 19, the locking device 30 to which various articles can be locked. In the present embodiment presents an annular shape, for instance, two supportedly suspending devices 1 provided with locking device 30 having the annular shape are attached to a frame of a stroller with a prescribed interval vertically. These supportedly suspending devices fix an umbrella to the frame of the stroller by locking the peripheral portion of the ferrule part of the umbrella with the lower supportedly suspending device and the peripheral portion of the handle of the umbrella with the upper one. (refer to Fig. 22)

[0072] The locking device 30 can be formed a single ring shape, in an embodiment shown in Figs. 19 and 20, the locking device of the supportedly suspending device is constructed of two ring-shaped members 30a and 30b linked mutually.

[0073] Two ring-shaped members 30a and 30b are connected by linkage pieces 37a, 37b protruding from

an outer periphery of respective ring-shaped member 30a, 30b shown in the illustrated example. The linkage pieces 37a, 37b of two ring-shaped members 30a, 30b are axially supported by a support axis 86 to a linkage axis 85 linked to an articular sphere 81 enveloped in a socket 82 provided on the intermediate partition plate 23 (refer to Fig. 21), and are constructed so as to deform to each other a developed state in which two ring-shaped members 30a and 30b are arranged by shifting the position as shown in Fig. 20 and a storage state in which two ring-shaped members 30a and 30b are arranged by overlapping each other as shown in Fig. 19.

[0074] The construction of the linkage part is not limited to the structure shown in Fig. 21, if two ring-shaped members 30a, 30b can deform to each other the storage state and the developed state as mentioned above.

[0075] Moreover, though the example of the combination with the articular sphere joint is described in the embodiment shown in Fig. 21, the ring-shaped member 30a and 30b can be attached directly to the intermediate partition plate 23 without other joints or any joint.

[0076] In the supportedly suspending device 1 of the present embodiment thus constructed, two locking devices 30a and 30b overlapping each other in the storage state become the developed state by being pivoted respectively in the opposite direction about the support axis 86 axially supporting linkage pieces 37a and 37b as shown in Fig. 20. In case of locking umbrellas as mentioned above, each one of two umbrellas can be locked on ring-shaped members 30a and 30b respectively.

[0077] In addition, each of ring-shaped members 30a and 30b shown in Figs. 19 and 20 respectively may be constructed of a substantially C-shaped main body 301 of the locking device and an opening and closing means 302 linking between both the open ends of the main body 301 of the locking device, which may be openable or linkable by the opening and closing means 302.

[0078] Any construction of the opening and closing means 302 can be adopted if it can open and link between both the open ends of the main body 301 of the locking device. In the present embodiment, at least one of the open ends of the main body 301 of the locking device formed a hollow chamber 303. A curved bar-shaped member of the opening and closing means 302 is inserted movably backward and forward into the hollow chamber 303.

[0079] In the hollow chamber 303 may be installed a biasing means 304 such as a spring to bias the curved bar, that is the opening and closing means 302, in a direction of the other end of an opening of the main body 301 of the locking device. In this construction, the opening and closing means 302 keeps the opening of the main body 301 of the locking device in a closed state all the time by sliding the opening and closing means 302 to the other end of the opening of the main body 301 of the locking device. An umbrella or other fixed articles can be inserted easily into the locking device 30 through the opening of the main body 301 of the locking device which is opened by pushing the opening and closing means 302 into the hollow chamber 303 against the biasing force due to the biasing means.

[0080] Moreover, the construction of the opening and closing means 302 is not limited to the example shown in the drawing, and any construction may be adopted thereto if it can open and close between both the open ends of the main body 301 of the locking device.

[Embodiment 5]

[0081] Further, the locking device 30 of the supportedly suspending device 1 of the present invention may be provided with a cover member 90 as shown in Figs. 24 and 25. For instance, the locking device 30 is constructed to be formed a ring-shape by overlapping and fitting outside the cover member 90 to the substantially C-shaped locking device 30.

[0082] In case that the locking device 30 is provided with the cover member 90 which overlaps and fits outside the same, for example, there is a fear of falling down of a suspended article when using the locking device 30 as a hook-shape, the cover member 90 is attached to or detached from according to the use of the supportedly suspending device 1, for instance, forming the locking device 30 into a ring-shape by attaching thereto with the cover member 90. Thereby, there are advantages that the shape of the locking device 30 can be properly selected from either of a ring-shape attached thereto with the cover member 90 or the shape before the cover member 90 is attached.

[0083] In addition, in case where the locking device 30 is a hook of substantially C-shaped as shown in Figs. 24 and 25, the cover member 90 may be substantially C-shaped as shown in Fig. 24 and rotatable on the locking device 30 to which the cover member 90 is overlapped and fitted outside.

[0084] In the supportedly suspending device 1 thus constructed, the shape of the locking device formed by the two following members is substantially C-shaped because a notched part of the C-shaped locking device 30 is positioned to, overlapped and fitted outside with a notched part of the C-shaped cover member. For instance, a handle or the like of a bag can be locked on the locking device through the notched part, and then, after thus locked, is not taken out therefrom by rotating the cover member 90 in a direction of an arrow in Fig. 25 to displace the notched part of the locking device 30 from the same of the cover member 90 and to make the locking device ring-shaped wholly.

[0085] According to each construction of the present invention described above, the supportedly suspending device can be provided, which can be easily attached to the mounted part and detached easily after use and on disuse. Thus it is convenient to be carried because it becomes compact in shape after detached.

[0086] Moreover, in the supportedly suspending device above constructed, in case that the locking device

is attached rotatably to the intermediate partition plate, various articles can be suspended therefrom rotating it in a desirable direction, so the working to suspend them is easy.

[0087] In case where the locking device is linked to the intermediate plate by the joint, it can be pivoted in a desirable direction according to the attaching direction of the supportedly suspending device.

[0088] In addition, in case that the brace made of material having a high friction coefficient is attached to the contact surface with the mounted part where the band is installed, the supportedly suspending device can be preferably prevented from dispositioning at the mounted part.

[0089] Furthermore, in case where the locking device is attached detachably to the intermediate partition plate, the supportedly suspending device can be easily disassembled and assembled, and is convenient to be carried. Especially in case where the locking device for desired usage can be selected from various locking devices, the supportedly suspending device associated with various usage can be obtained by using common components.

[0090] The supportedly suspending device in which the locking device is ring-shaped is convenient to fix a long suspended article such as an umbrella by using a pair of locking devices. In case that a plurality of ring-shaped members is installed on each supportedly suspending device, a plurality of long suspended articles like this can be locked at the same time.

[0091] Further, in the supportedly suspending device comprising the main body of the locking device in which the ring-shaped member is formed substantially C-shaped, and the opening and closing means which opens and links between both parts of the open ends of the locking device main body, a suspended article can be easily inserted into the ring-shaped member by opening both the open ends of the main body of the locking device through operation of the opening and closing means.

[0092] In addition, in the supportedly suspending device provided with the cover member which overlaps and fits outside with the locking device, the shape of the locking device can be easily changed by attaching and detaching the cover member or rotating the same, and can be easily changed selectably according to the usage.

Claims

1. A supportedly suspending device, comprising

a band having a male and female surface fastener,
said band is fixed to an attachment ring, and
a locking device is attached to an intermediate partition plate of said attachment ring.

2. The supportedly suspending device according to claim 1, wherein said locking device is rotatably attached to the intermediate partition plate.

3. The supportedly suspending device according to claim 1 or 2, wherein the intermediate partition plate and said locking device are connected through a joint.

4. The supportedly suspending device according to claim 3, wherein the joint is a universal joint.

5. The supportedly suspending device according to claim 3 or 4, wherein the joint comprises an articular sphere integrally formed at an end of said locking device and a socket integrally formed on the intermediate partition plate so as to hold the articular sphere therein.

6. The supportedly suspending device according any one of claims 1 to 5, wherein a brace made of high friction coefficient material is adhered on a contact surface of said band with a mounted part.

7. The supportedly suspending device according to any one of claims 1 to 6, wherein said locking device is detachably attached to the intermediate partition plate.

8. The supportedly suspending device according to claim 7, wherein the intermediate partition plate comprises an opening for inserting an end of said locking device, and said locking device further comprising a flange part of a larger radius than that of the opening formed on the end of said locking device inserted in said opening, and an expanding slot is formed from said flange part to the end of said locking device.

9. The supportedly suspending device according to any one of claims 1 to 8, wherein a plurality of said locking device is attached to the intermediate partition plate.

10. The supportedly suspending device according to claim 7, wherein said locking device is attached to said attachment ring through a linkage member separatable from a male member and a female member, either of the male member or female member of the linkage member is attached to said attachment ring, and the other thereof is attached to said locking device.

11. The supportedly suspending device according to claim 7, 8, or 10, wherein said locking device can be selected from a plurality of types prepared in advance.

12. The supportedly suspending device according to any one of claims 1 to 11, wherein said locking device is formed into a ring shape.

13. The supportedly suspending device according to claim 12, wherein said locking device is provided with a plurality of ring-shaped members, said locking device is axially movably supported each other a plurality of the ring-shaped members and can be moved between a storage state overlapping a plurality of said ring-shaped members and a separately developed state arranged by shifting a position of each of said ring-shaped members.

14. The supportedly suspending device according to claim 12 or 13, wherein said locking device comprises a main body thereof substantially formed a C-shape and an opening and closing means for linking or opening between both the open ends of the main body of said locking device.

15. The supportedly suspending device according. to claim 12, wherein said locking device has a ring-shaped cover member overlapping and fitting outside said locking device.

16. The supportedly suspending device according to claim 15, wherein the cover member formed a substantial C-shape is rotatably provided on said locking device by overlapping said substantial C-shaped locking device.

FIG. 1

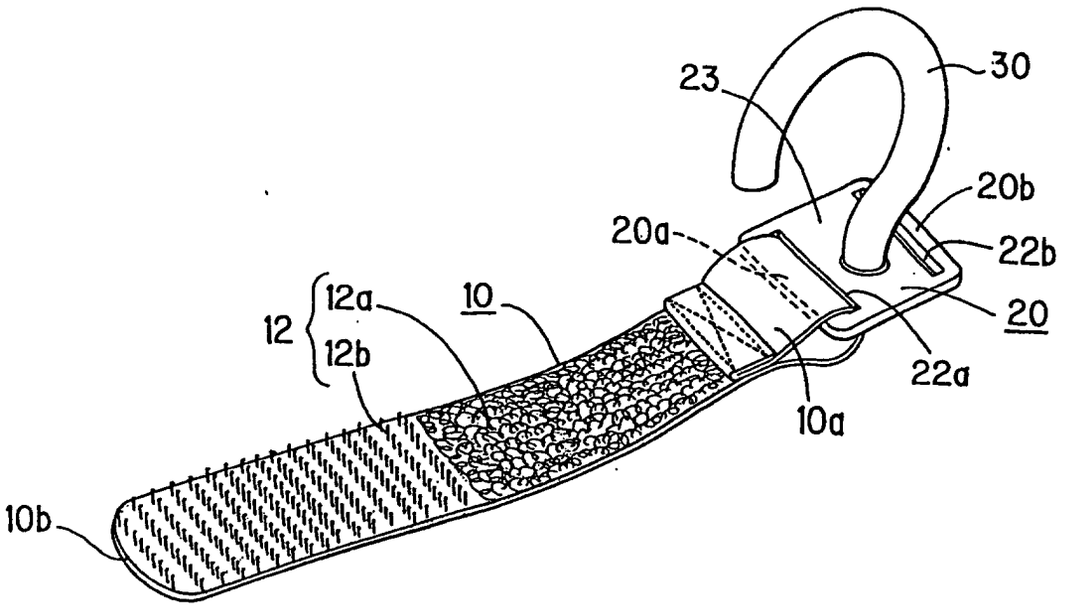


FIG. 2

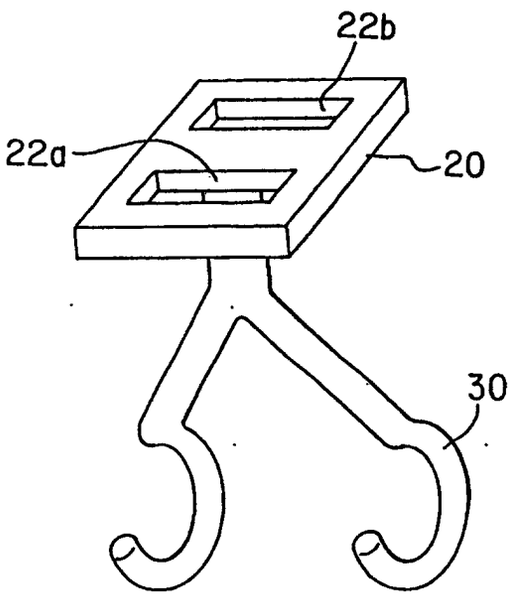


FIG. 3

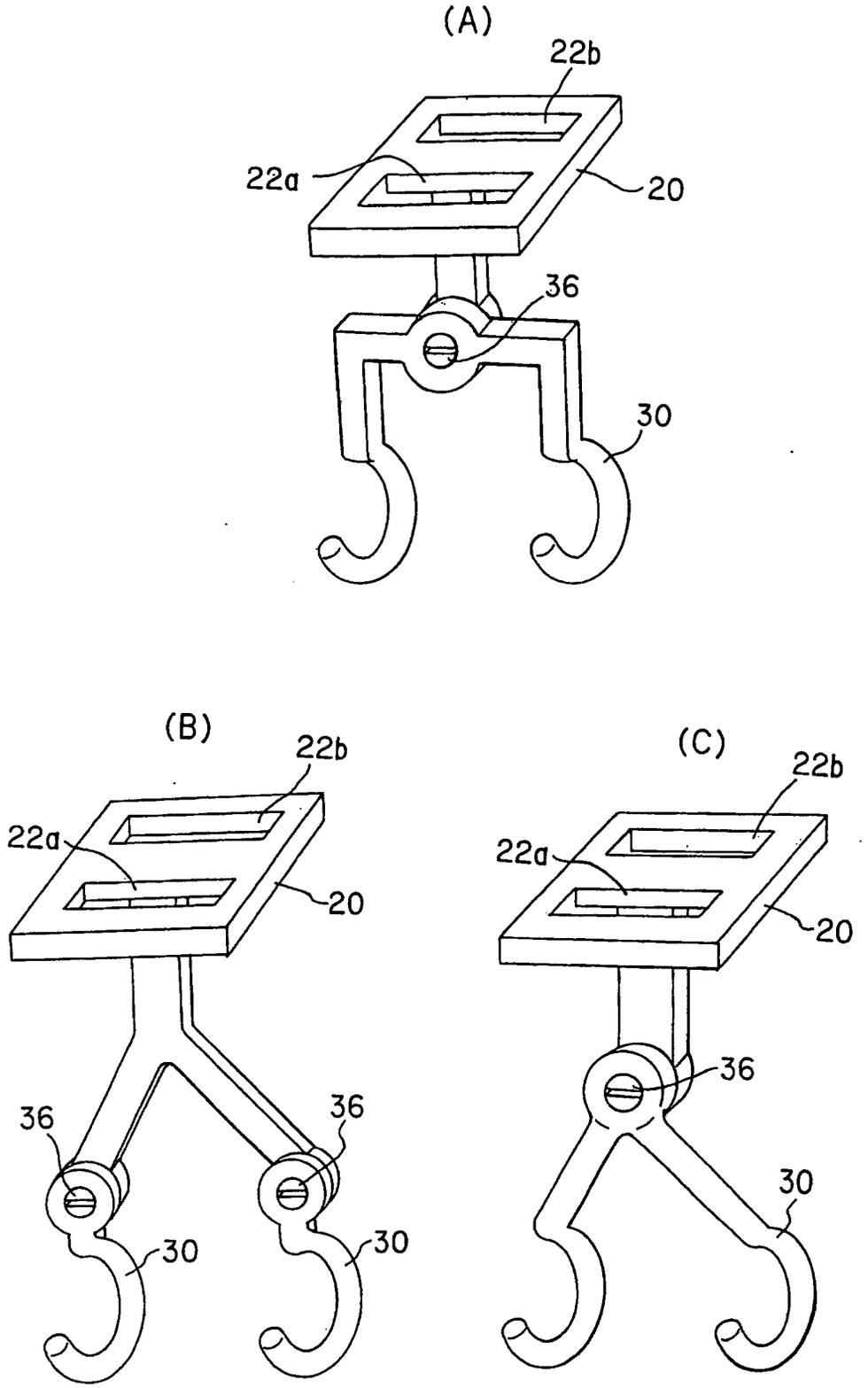


FIG. 4

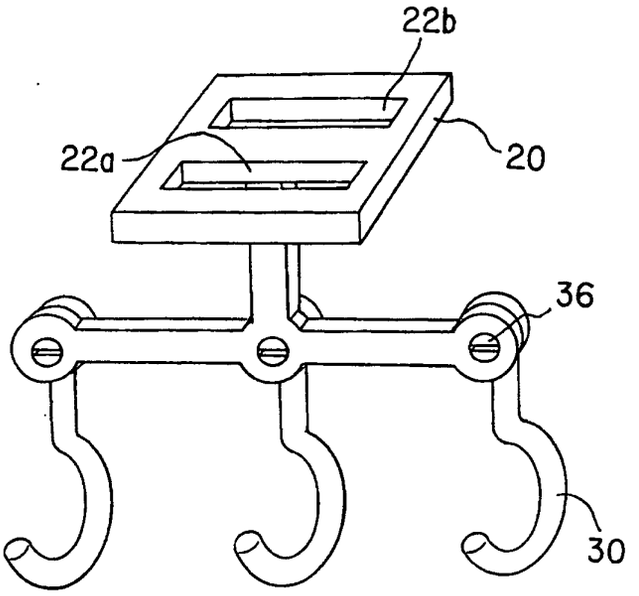


FIG. 5

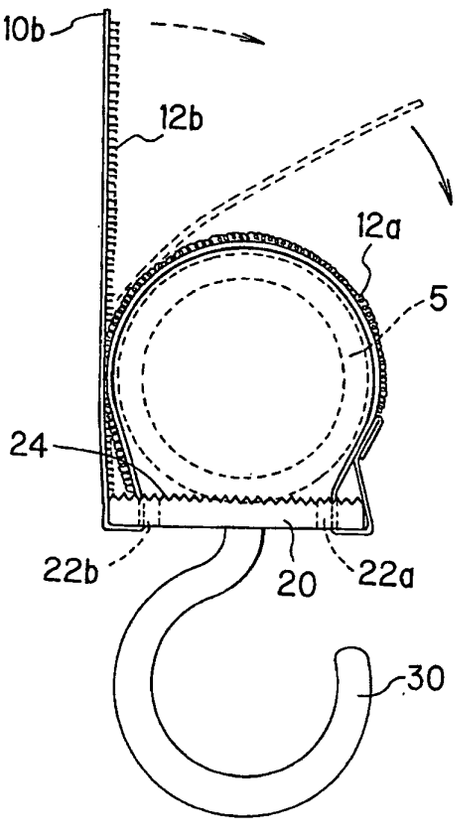
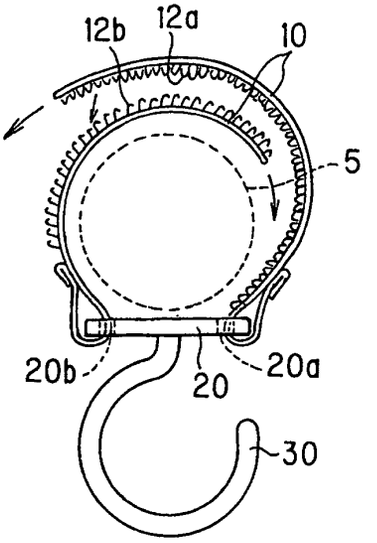
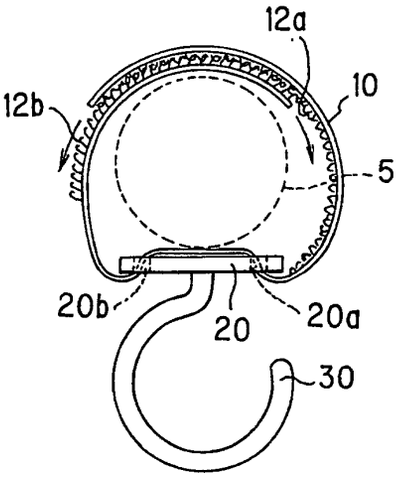


FIG. 6

(A)


12b
12a
10
5
20b
20
20a
30

(B)


12a
12b
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5
20b
20
20a
30

(C)

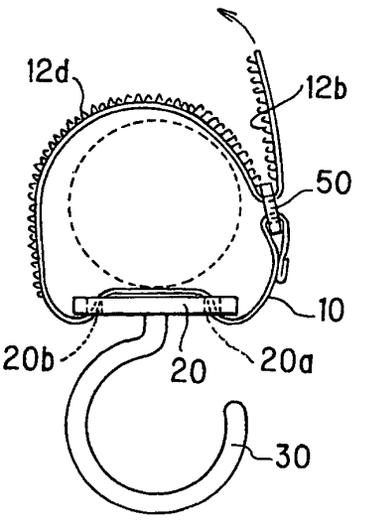

12d
12b
50
10
20b
20
20a
30

FIG. 7

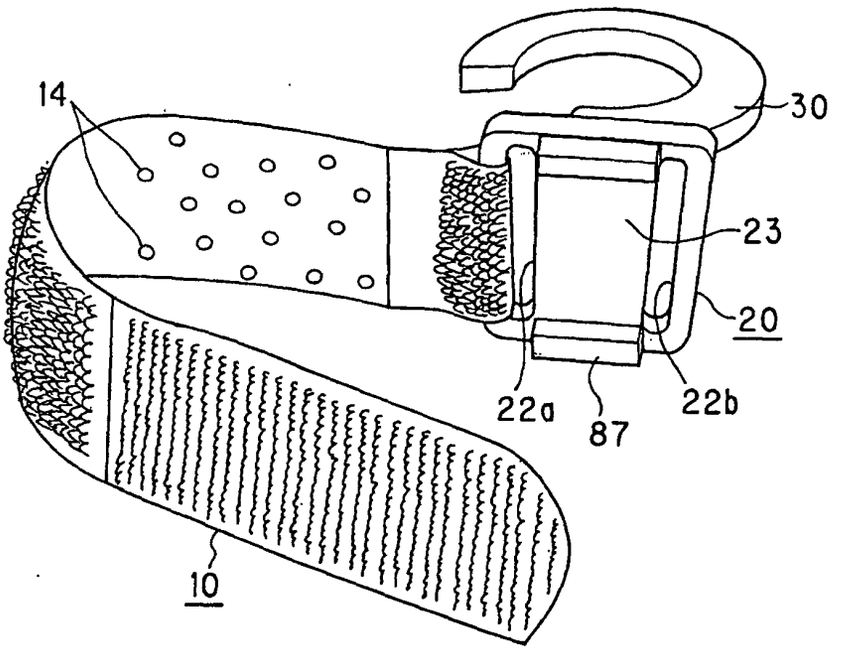


FIG. 8

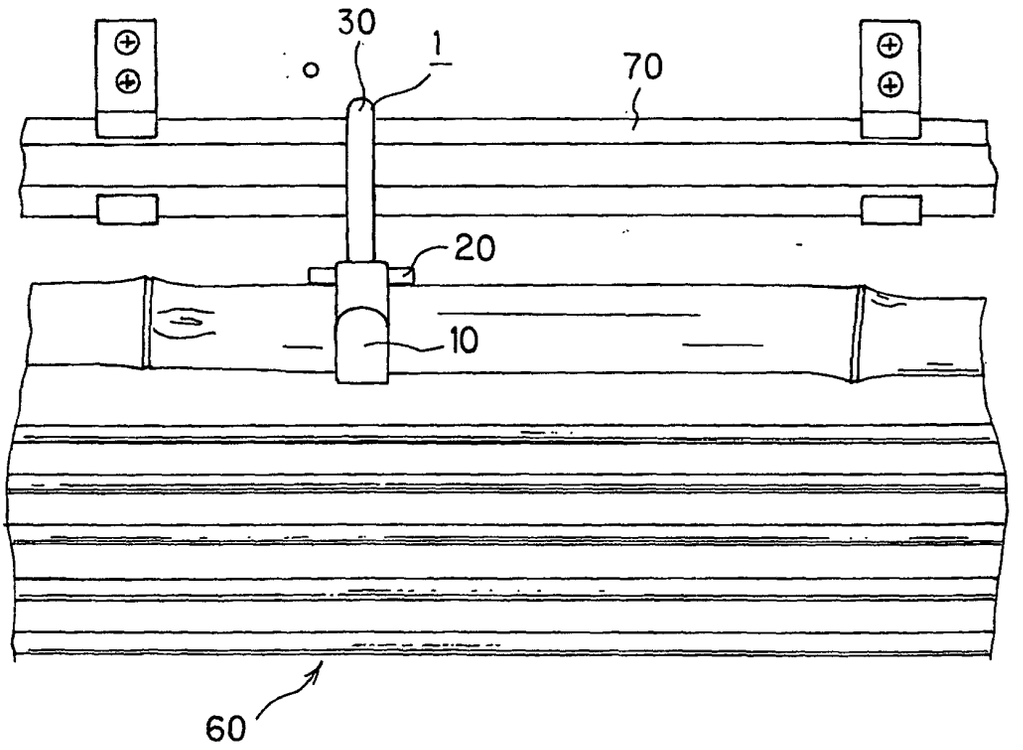


FIG. 9

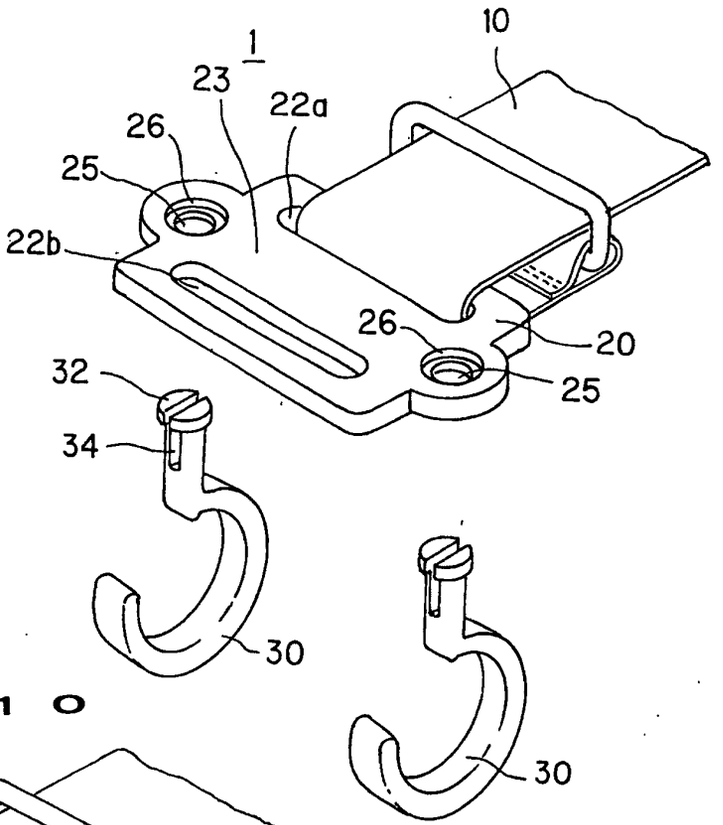


FIG. 10

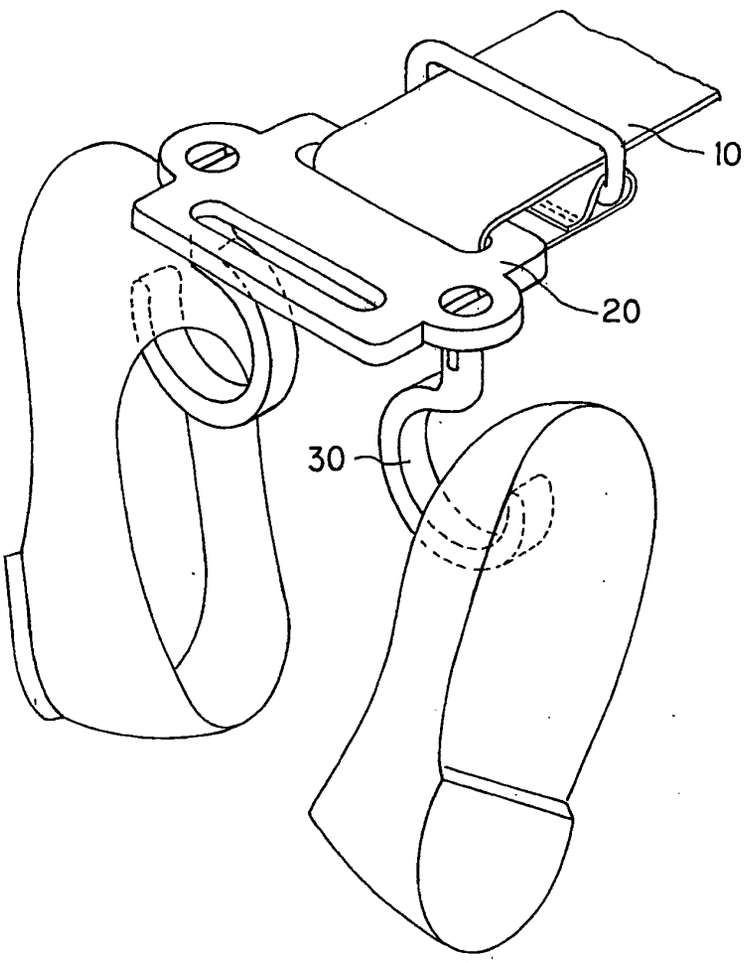


FIG. 11

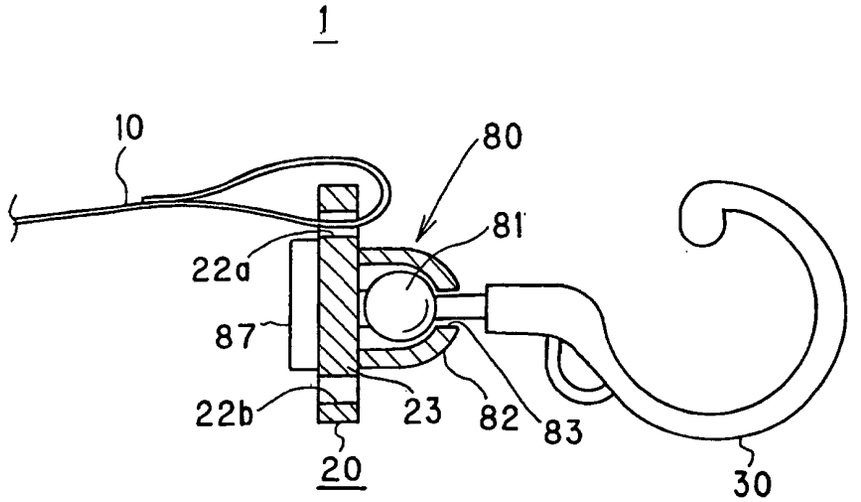


FIG. 12

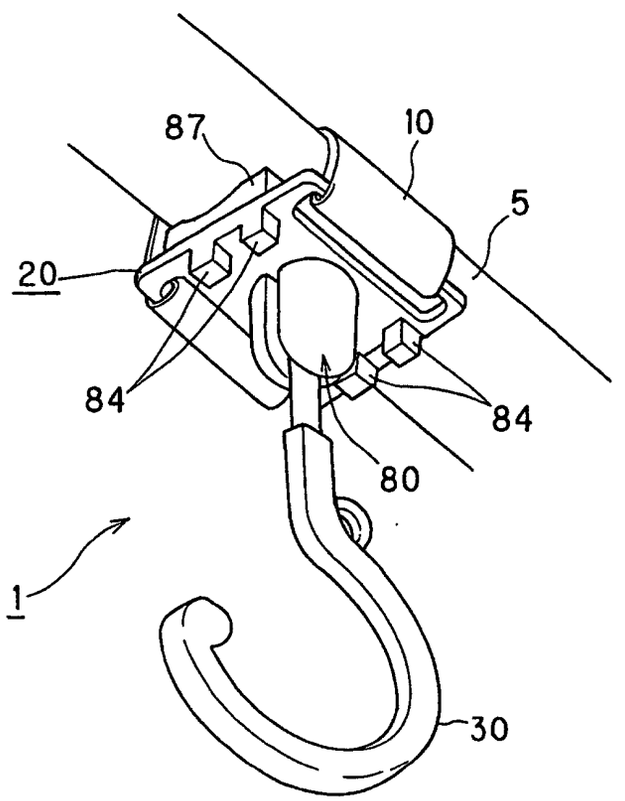


FIG. 13

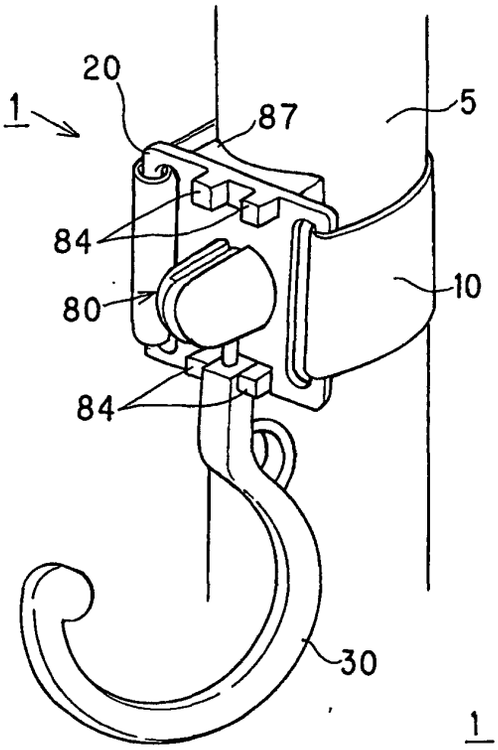


FIG. 14

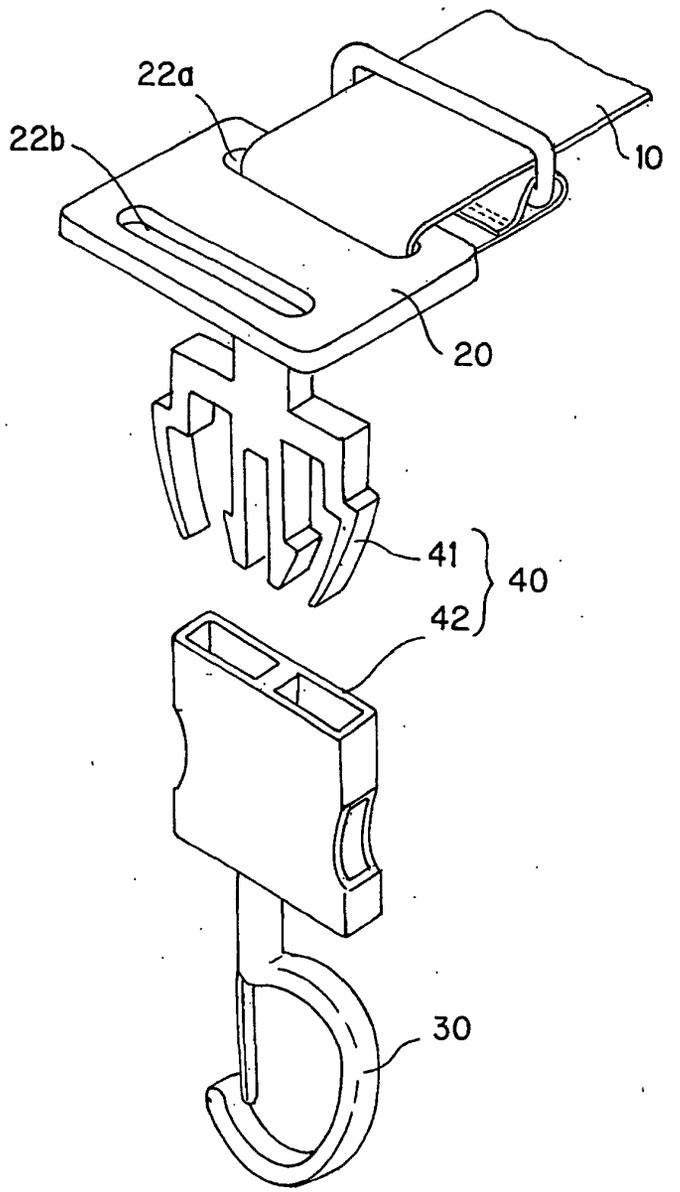


FIG. 15

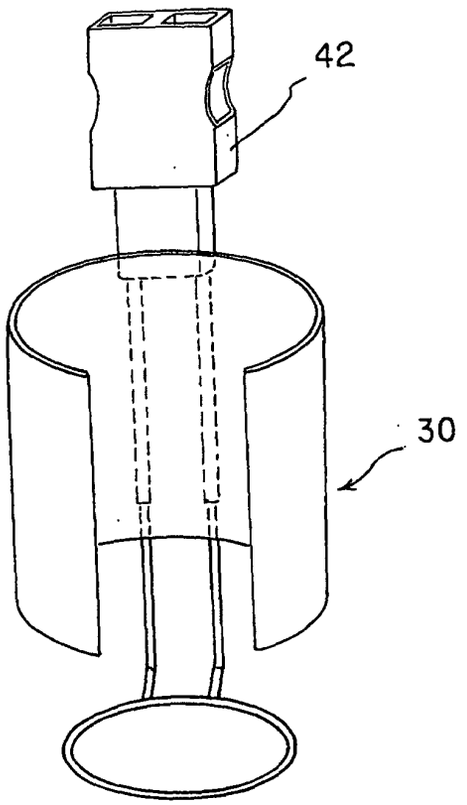


FIG. 16

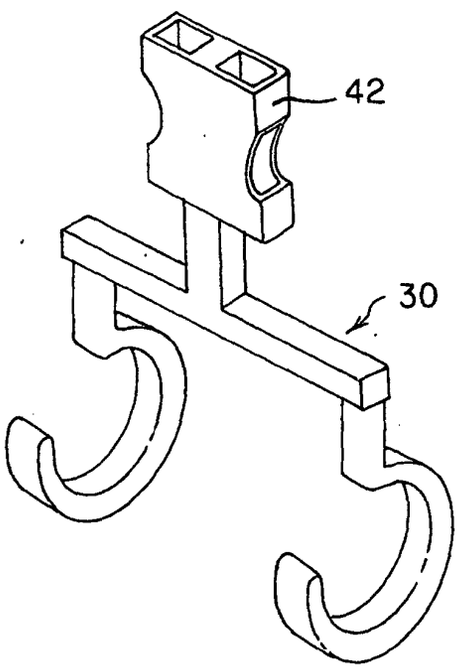


FIG. 17

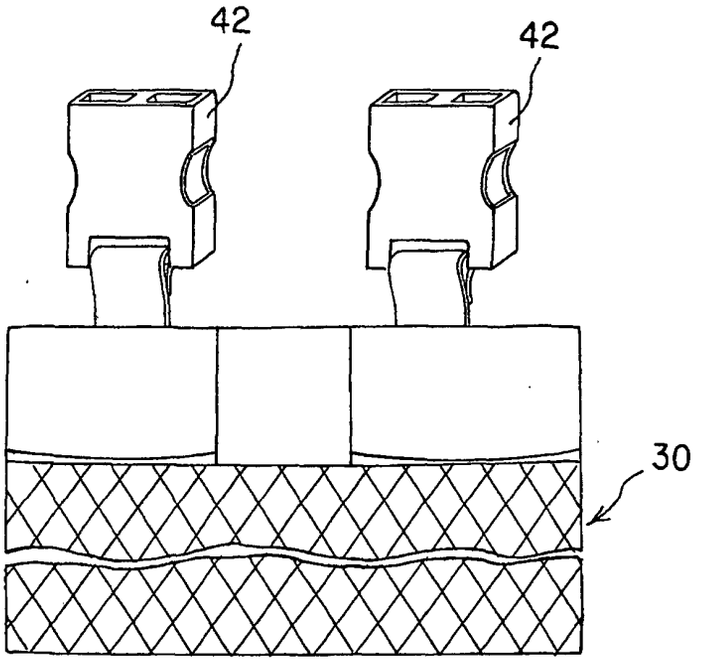


FIG. 18

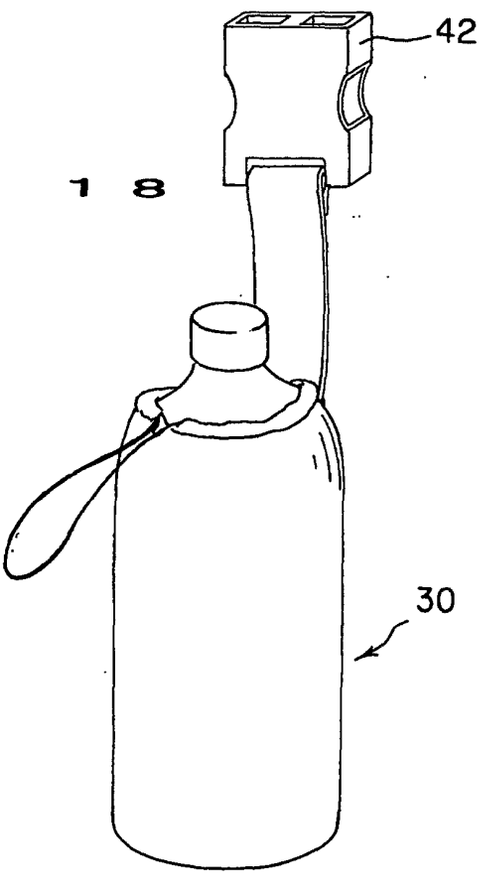


FIG. 19

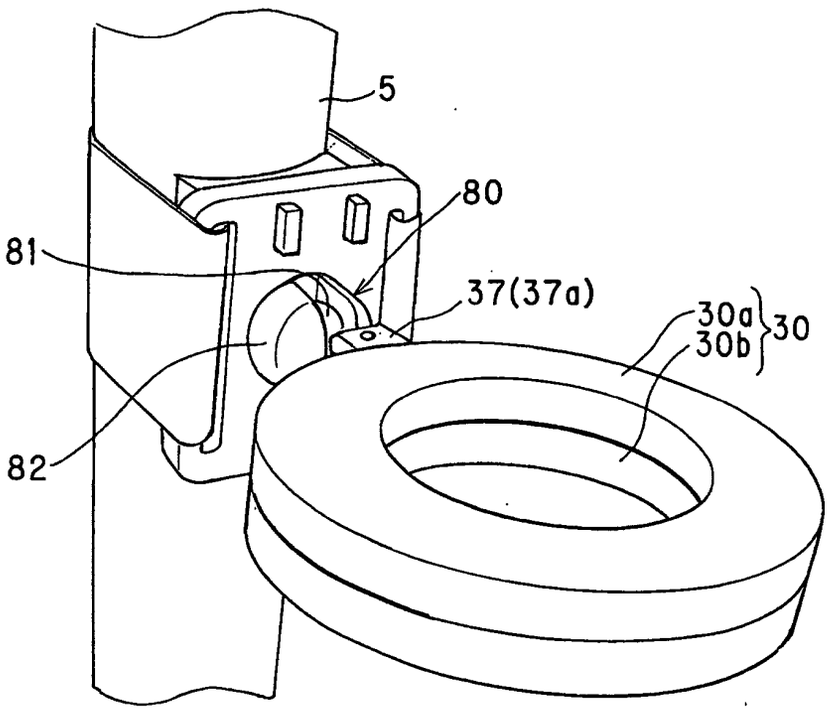


FIG. 20

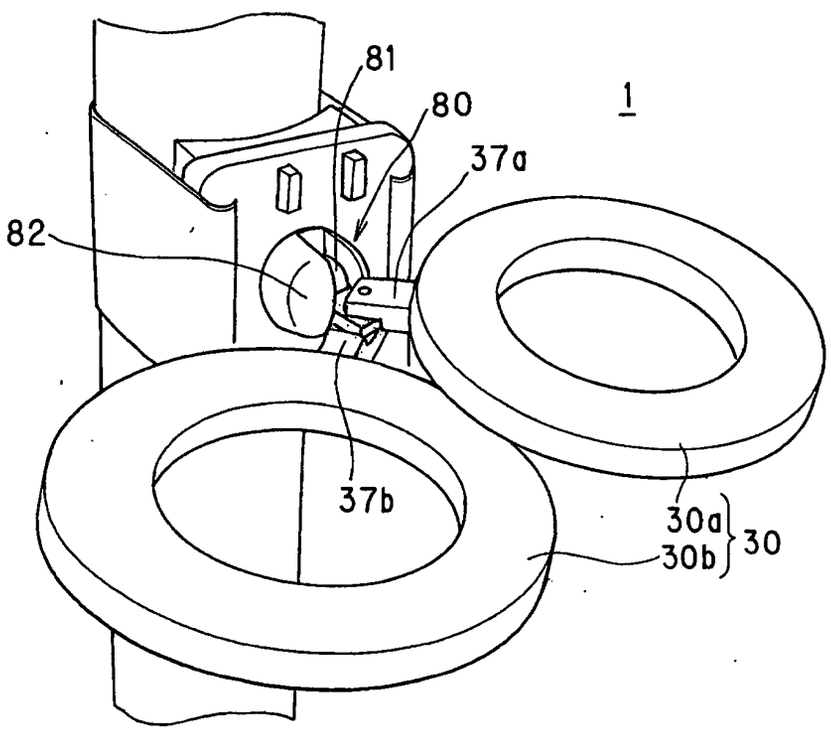


FIG. 21

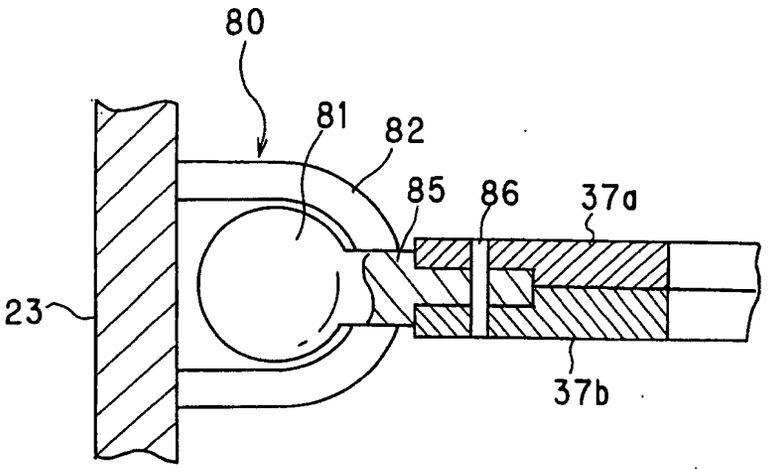


FIG. 22

FIG. 23

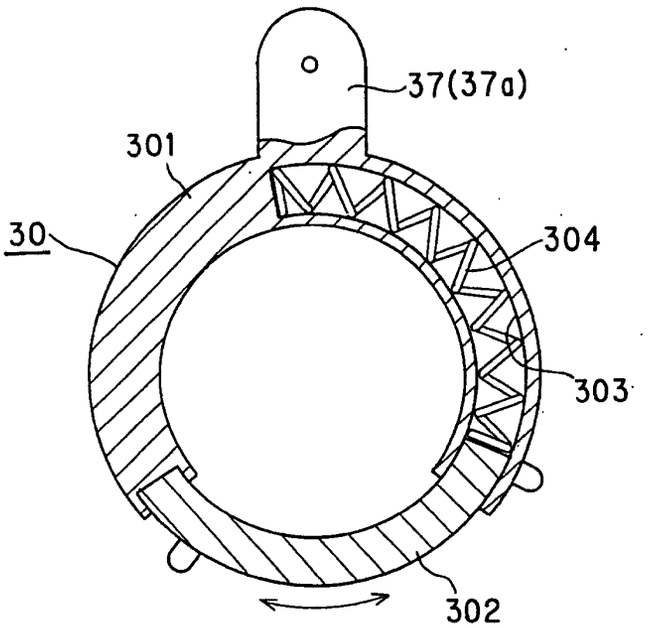


FIG. 24

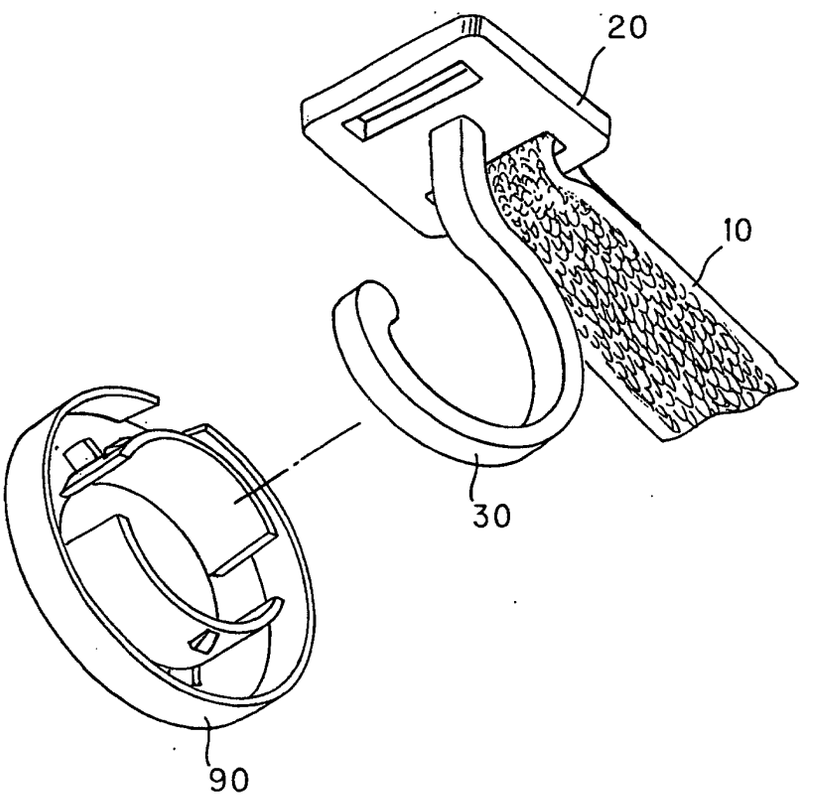
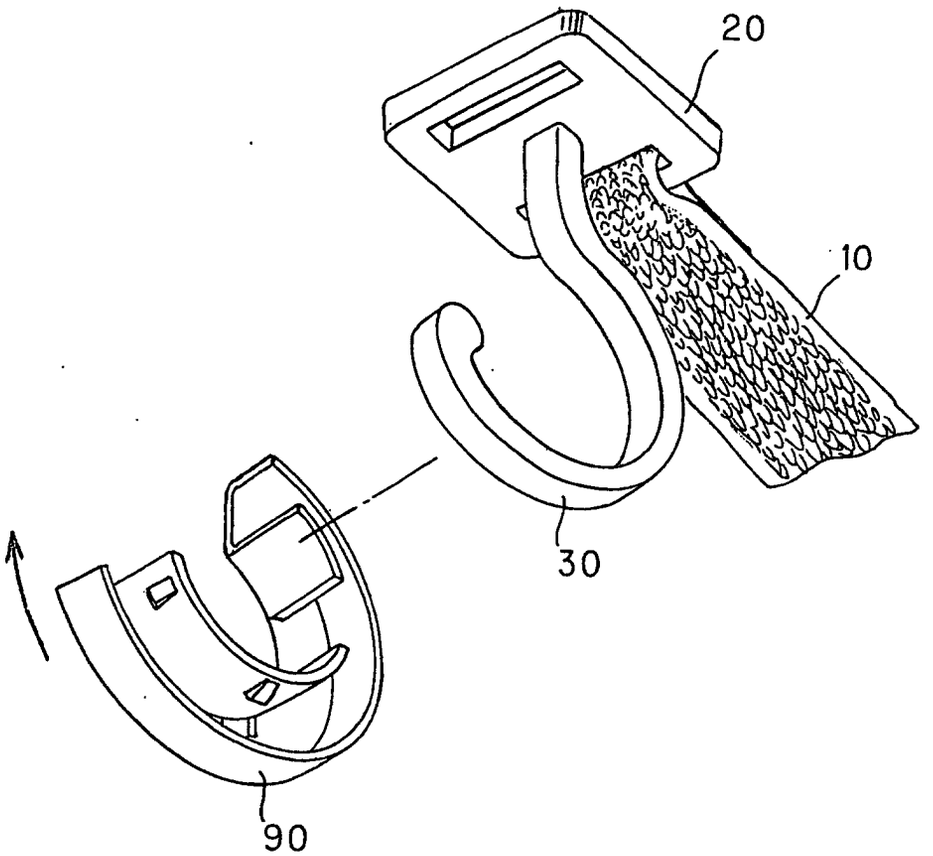


FIG. 25



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP01/09961

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] D06F 57/00, A47G29/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] D06F 57/00, D06F 57/00, 310, D06F 57/12, A47G 29/00, A44B 18/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1940-2002 Toroku Jitsuyo Shinan Koho 1994-2002
Kokai Jitsuyo Shinan Koho 1971-2002 Jitsuyo Shinan Toroku Koho 1996-2002

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5136759 A (Thomas W. Armour, II), 11 August, 1992 (11.08.1992)	1-16
A	CD-ROM of Japanese Utility Model Application No. 33453/1992 (Laid-open No. 84658/1993) U (Kuraray Co., Ltd.), 16 November, 1993 (16.11.1993), (Family: none)	1-16
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 67781/1987 U (Takahide NAKAZAWA), 16 November, 1988 (16.11.1988), (Family: none)	1-16
A	EP 1020131 A (YKK Corporation), 19 July, 2000 (19.07.2000), & JP 2000-203625 A	1-16
A	US 5957141 A (Bernadette Elkins), 28 September, 1999 (28.09.1999), (Family: none)	1-16

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 February, 2002 (14.02.02)	26 February, 2002 (26.02.02)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP01/09961

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5201100 A (Velcro Industries B.V.), 13 April, 1993 (13.04.1993), (Family: none)	1-16
A	US 5075933 A (Kenneth L. Kemper), 31 December, 1991 (31.12.1991), (Family: none)	1-16
A	US 4862563 A (Jane Marie Flynn), 05 September, 1989 (05.09.1989), (Family: none)	1-16

Form PCT/ISA/210 (continuation of second sheet) (July 1992)