



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
01.03.2023 Bulletin 2023/09

(51) International Patent Classification (IPC):
A43C 7/08 (2006.01) **A43C 11/20** (2006.01)
A43C 11/22 (2006.01) **A43C 11/24** (2006.01)

(21) Application number: **21792246.7**

(86) International application number:
PCT/KR2021/004016

(22) Date of filing: **31.03.2021**

(87) International publication number:
WO 2021/215689 (28.10.2021 Gazette 2021/43)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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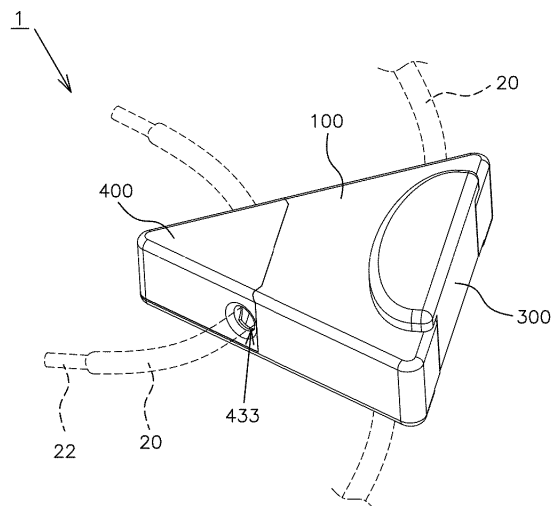
(30) Priority: **22.04.2020 KR 20200048463**

(54) **SHOELACE LOOSENING PREVENTION DEVICE**

(57) A shoelace loosening prevention device includes a casing member including a cover part that has a front end cut-portion and a rear end cut-portion, a bottom that has a drawing-out member fixing portion, a guide hole, and a rear end cut-portion, sides that have fixed pressing-protrusions formed inside thereof, respectively, and a pressing member accommodation section and a feeding member accommodation section, a pressing member accommodated in the pressing member accommodation section, having a guide protrusion at a center

of a bottom thereof, and having moving pressing-protrusions on both sides thereof, an elastic member having a first end accommodated in the elastic member accommodation section, a feeding member accommodated in the feeding member accommodation section, coupled to the pressing member, and forming a pair of left and right shoelace drawing-in holes, and sides coupled to a front end of the casing member and having shoelace drawing-out holes, respectively.

[Fig. 1]



Description

Technical Field

[0001] The present disclosure relates to a shoelace loosening prevention device and, more particularly, to a shoelace loosening prevention device that can prevent a shoelace fastened to a shoe from loosening by conveniently fixing the shoelace even without tying or loosening a knot of the shoelace.

Background Art

[0002] Recently, shoelaces are generally used as one of instruments for tightening shoes, such as various kinds of sports shoes, to fit to the feet of a user. Such shoelaces thread and fasten several holes arranged at the instep and ankle parts of a shoe and the remaining portions are fastened and knotted at the ends, thereby finishing fastening. Accordingly, there is inconvenience that a user has to tie or untie a knot on a shoe when fastening or unfastening a shoelace to a shoe.

[0003] Further, since most of common shoelaces are made of synthetic resin threads, they slide on each other. Accordingly, when a user does intense exercises or wears shoes for a long time with shoelaces tied, the shoelaces are unfastened or loosened, which is bad for aesthetic appearance. Further, when a shoelace loosened down comes in contact with a floor, the shoelace is contaminated, or when a user steps on a loosened shoelace, the user may fall down and a safety accident may occur.

[0004] In order to solve these problems, a "device for tightening a shoelace" has been developed and disclosed in Korean Utility Model No. WO-0440027 and Korean Patent No. 10-0904132.

[0005] Such devices for tightening a shoelace are configured such that a space is secured between a moving saw tooth part and a fixed tooth part when a pressing rod or a protruding rod is pressed, and the moving saw tooth part and the fixed tooth part are engaged with each other by elasticity of a spring or an elastic bar, which is an elastic member, when the pressure is removed after a shoelace is moved to an appropriate position to be fixed inside, thereby being able to simply fix the shoelace and prevent the shoelace from loosening even without fixing the shoelace and making a knot.

[0006] However, first, these inventions have a problem that pressure should be horizontally applied to form a gap between the moving saw tooth part and the fixed tooth part when applying pressure to secure a space between the moving saw tooth part and the fixed tooth part, but, the pressing rod or the protruding rod that is supposed to be held by one finger is formed over the moving saw part, so when the pressing rod or the protruding rod is pressed by a finger, pressure is not accurately horizontally applied and applied at an angle. Accordingly, a large force is required for applying pressure, so this work is not only difficult, but overworks a finger.

[0007] Further, second, these inventions have a problem that since shoelace holes of the flat-type devices for tightening a shoelace are arranged on sides of the front part, when a user puts on a shoe with the shoelace inserted and fixed inside, the rear of the devices is lifted perpendicularly to the instep part of the shoe due to tension that is applied to the shoelace, which is bad for the aesthetic appearance. Further, since the rear is lifted and protrudes, the devices and the shoelace coming out of the holes get in the way, which is inconvenient and causes a pain by applying pressure to a specific part.

[0008] Further, third, these inventions have a problem that when the remaining part of a shoelace fastened to a shoe is long, the remaining part should be inserted in the device and the part of the shoelace protruding out of the holes should be knotted or fitted in the space inside the shoe, that is, it is inconvenient to finish the end of the shoelace.

Disclosure

Technical Problem

[0009] Accordingly, in order to solve the problems described above, an objective of the present disclosure is to provide a shoelace loosening prevention device having a structure that can easily horizontally apply pressure for forming a gap between a moving saw tooth part and a fixed saw tooth part when applying pressure to secure a space between the moving saw tooth part and the fixed saw tooth part.

[0010] In order to solve the problems described above, another objective of the present disclosure is to provide a shoelace loosening prevention device that can be in close contact with the instep part of a shoe without being lifted even if tension is applied to a shoelace when a user puts on a shoe with the shoelace inserted and fixed inside.

[0011] In order to solve the problems described above, another objective of the present disclosure is to provide a shoelace loosening prevention device that can insert a remaining part therein and can easily fix and finish the end of a shoelace that protrude out of a hole when the remaining part of the shoelace fastened to a shoe is long.

Technical Solution

[0012] In order to achieve the objectives, a shoelace loosening prevention device according to the present disclosure includes a casing member including: a cover part that has a front end cut-portion and a rear end cut-portion; a bottom that has a drawing-out member fixing portion, a guide hole that is an oblong hole formed in a front-rear longitudinal direction, and a rear end cut-portion that is a cut groove corresponding to a shape of the rear end cut-portion of the cover part, which are sequentially formed with predetermined gaps from a front end to a rear end; sides that are disposed in a pair to connect

sides of the cover part and the bottom to each other, respectively, and have two fixed pressing-protrusions formed inside thereof, respectively, to face an inside of the casing member and face each other, and formed such that a gap therebetween decreases from a front end to a rear end; and rear parts that are formed in a pair and spaced apart from each other by cutting a center portions to connect rear ends of the cover part and the bottom to each other, and having a pressing member accommodation section at the front end thereof and a feeding member accommodation section at the rear end thereof, a pressing member accommodated in the pressing member accommodation section to be able to reciprocated forward and backward, and having a guide protrusion that is inserted in the guide hole and formed at a center of a bottom thereof, a feeding member coupling portion formed at a front end thereof, an elastic member accommodation section formed at a rear end thereof, and moving pressing-protrusions that have shapes that can be engaged with the fixed pressing-protrusions and are formed on a pair of both sides, respectively, an elastic member having a first end accommodated in the elastic member accommodation section, a feeding member horizontally coupled to the pressing member, accommodated in the feeding member accommodation section to be able to feed the pressing member forward and backward, and forming a pair of left and right shoelace drawing-in holes at a lower portion of the rear end of the casing member when coupled to the casing member, and a drawing-out member coupled to the front end of the casing member and having a top, a bottom that is formed in a shape corresponding to the top and has a casing coupling portion formed at a position of a lower portion thereof and coupled to the drawing-out member fixing portion, sides that are disposed in a pair to connect sides of the top and the bottom to each other, respectively, and have shoelace drawing-out holes at portions thereof, respectively, through which a shoelace inserted through the shoelace drawing-in holes is drawn out from the inside, and a rear part that has an elastic member accommodation section formed at a first end thereof and supporting a second end of the elastic member.

[0013] The feeding member may include a grip having a pressing member coupling portion formed at a front end thereof and coupled to the feeding member coupling portion.

[0014] The casing member may have an additional guide hole formed at the cover part and corresponding to the guide hole of the bottom, the pressing member may have an additional guide protrusion insertion hole that is a coupling groove formed in the top, and the feeding member may have an additional top coupled to an upper portion of the grip and an additional guide protrusion protruding downward from a front end of the top and sequentially inserted in the additional guide hole and the guide protrusion insertion hole.

[0015] The shoelace loosening prevention device for achieve the objectives according to the present disclosure

may further include a body having a pair of aglet insertion grooves formed with a predetermined depth from a first end to a second end and an aglet finishing member coupled to a first end of the body and having a drawing-out coupling portion partially detachably coupled to a front end of the drawing-out member.

[0016] The drawing-out member may include a top with a cut front end, a bottom, sides with cut front ends, an aglet finishing member coupling portion that is a coupling groove formed horizontally with a predetermined depth in a portion of a recessed front surface, and a rear part, and the aglet finishing member may be coupled at a predetermined depth to the aglet finishing member coupling portion by a step formed between the body and the aglet finishing member.

[0017] The drawing-out member may have an aglet finishing member coupling portion horizontally formed through the rear part from the front surface and may have an additional magnet member inserted in the rear part, and a drawing-out member coupling portion made of a metal member that is attached to the magnet member may be coupled to a first end the aglet finishing member, so the drawing-out member coupling portion may be inserted in the magnet member through the aglet finishing member coupling portion, thereby being maintained in a coupled state with the magnet member by a magnetic force.

[0018] An additional magnet member and a portion of the elastic member may be sequentially inserted in the rear part of the drawing-out member, and the aglet finishing member may be made of a metal material that is attached to a magnet at the first end of the body, and the drawing-out member coupling portion corresponding to a shape of a front end of the drawing-out member may be maintained in a coupled state with the magnet member by a magnetic force without direct contact.

Advantageous Effects

[0019] Since the shoelace loosening prevention device according to the first embodiment of the present disclosure has a structure in which the grip 310 of the feeding member is disposed horizontally, there is an advantageous effect that horizontal pressing is easy and, in the process of pressing for securing gap spaces between the moving pressing-protrusions and the fixed pressing-protrusions to adjust the positions of the shoelace accommodated inside, and it is easy to secure gap spaces for adjusting the position of the shoelace between the moving pressing-protrusions and the fixed pressing-protrusions.

[0020] Further, according to the shoelace loosening prevention device of the present disclosure, since the shoelace drawing-in holes are open downward at the rear end, even though tension is applied to the shoelace when a user wears a shoe with the shoelace accommodated inside and tightened and fixed, a supporting force acts on a wide area of the bottom of the rear end of the shoe-

lace loosening prevention device, so there is an advantageous effect that the shoelace loosening prevention device can keep in close contact with the instep part of the shoe without the front surface thereof lifted.

[0021] Further, according to the shoelace loosening prevention device of the present disclosure, there is an advantageous effect that when the remaining portion of a shoelace fastened to a shoe is long, it is possible to accommodate the remaining portion in the shoelace loosening prevention device and it is possible to easily fix and finish aglets at the ends of the shoelace protruding out of the drawing-out holes by accommodating the aglets in the aglet insertion grooves of the aglet finishing member.

Description of Drawings

[0022]

FIGS. 1 and 2 are assembled perspective views of a shoelace loosening prevention device according to a first embodiment of the present disclosure, respectively.

FIGS. 3 and 4 are exploded perspective views of the shoelace loosening prevention device according to the first embodiment of the present disclosure, respectively.

FIGS. 5 and 6 are state views showing a state in which a pressing member of the shoelace loosening prevention device according to the first embodiment of the present disclosure is pressed.

FIGS. 7 and 8 are assembled perspective views of a shoelace loosening prevention device according to a second embodiment of the present disclosure, respectively.

FIGS. 9 and 10 are exploded perspective views of the shoelace loosening prevention device according to the second embodiment of the present disclosure, respectively.

FIG. 11 is an assembled perspective view of a shoelace loosening prevention device according to a third embodiment of the present disclosure.

FIGS. 12 and 13 are exploded perspective views of the shoelace loosening prevention device according to the third embodiment of the present disclosure, respectively.

FIGS. 14 and 15 are exploded perspective views of a shoelace loosening prevention device according to a fourth embodiment of the present disclosure, respectively.

FIGS. 16 and 17 are exploded perspective views of a shoelace loosening prevention device according to a fifth embodiment of the present disclosure, respectively.

FIG. 18 is a state view showing the state in which a shoelace fastened to a shoe is fastened to the shoelace loosening prevention device according to the first embodiment of the present disclosure.

FIG. 19 is a state view showing the state in which a shoelace fastened to a shoe is actually fastened to the shoelace loosening prevention device according to the first embodiment of the present disclosure.

Best Mode

[0023] Details related to embodiments of the present disclosure are included in the following detailed description and the accompanying drawings.

[0024] The advantages and features of the present disclosure, and methods of achieving them will be clear by referring to the exemplary embodiments that will be describe hereafter in detail with reference to the accompanying drawings. However, the present disclosure is not limited to the exemplary embodiments described hereafter and may be implemented in various ways, and the exemplary embodiments are provided to complete the description of the present disclosure and let those skilled in the art completely know the scope of the present disclosure and the present disclosure is defined by claims.

[0025] Like reference numerals indicate like components throughout the specification. Embodiments of the present disclosure are described herein with reference to ideal assembled perspective views, exploded perspective views, and state views of the present disclosure.

[0026] Hereafter, several embodiments of a shoelace loosening prevention device according to the present disclosure are described in detail with reference to the accompanying drawings.

[0027] First, a shoelace loosening prevention device 1 according to a first embodiment of the present disclosure is described in detail with reference to FIGS. 1 to 6.

[0028] FIGS. 1 and 2 are assembled perspective views of a shoelace loosening prevention device according to a first embodiment of the present disclosure, respectively, FIGS. 3 and 4 are exploded perspective views of the shoelace loosening prevention device according to the first embodiment of the present disclosure, respectively, and FIGS. 5 and 6 are state views showing a state in which a pressing member of the shoelace loosening prevention device according to the first embodiment of the present disclosure is pressed.

[0029] A shoelace loosening prevention device 1 according to a first embodiment of the present disclosure includes a casing member 100, a pressing member 200, an elastic member 250, a feeding member 300, and a drawing-out member 400.

[0030] The casing member 100 has a cover part 110, a bottom 120, sides 130, and rear parts 140, a pressing member accommodation section 150 is formed at the front end of the casing member 100, and a feeding member accommodation section 160 is formed at the rear end of the casing member 100.

[0031] The cover part 110 is formed entirely in a triangular shape, but a front end cut-portion 113 is formed at the front end thereof and a rear end cut-portion 114 that is a cut groove is formed at a portion of the center of the

rear end.

[0032] The bottom 120 is also formed entirely in a triangular shape to correspond to the cover part 110. A drawing-out member fixing portion 122 that is a through-hole, a guide hole 124 that is an oblong hole formed in the front-rear longitudinal direction, and a rear end cut-portion 126 that is a cut groove corresponding to the shape of the rear end cut-portion 114 of the cover part 110 are sequentially formed with predetermined gaps therebetween from the front end to the rear end.

[0033] The sides 130 are disposed in a pair at the portions corresponding to two equal sides of the triangular cover part 110 and bottom 120 to connect sides of the cover part 110 and the bottom 120 to each other, respectively. Fixed pressing-protrusions 132 facing the inside of the casing member 100 are formed on the inner sides of the sides 130, respectively. The two fixed pressing-protrusions 132 facing each other are formed such that the gap therebetween decreases from the front end to the rear end.

[0034] The rear parts 140 are formed in a pair and spaced apart from each other on the bases of the triangular cover part 110 and bottom 120, respectively, by cutting the center portions of the bases to connect the rear ends of the cover part 110 and the bottom 120 to each other.

[0035] Accordingly, the pressing member accommodation section 150 and the feeding member accommodation section 160 connected to each other are formed at the front end and the rear end of the casing member 100, respectively, by combination of the cover part 110, the bottom 120, the sides 130 and the rear parts 140.

[0036] Meanwhile, when the feeding member 300 to be described below is coupled, shoelace drawing-in holes 170 are formed at the left and right side in a pair at the lower portion of the rear end of the casing member 100.

[0037] The pressing member 200 is formed in a triangular shape having a predetermined thickness and can reciprocate forward and backward in the pressing member accommodation section 150. To this end, the pressing member 200 has a guide protrusion 214 that is inserted in the guide hole 124 at the center of the bottom, a feeding member coupling portion 215 that is a coupling protrusion at the front end, an elastic member accommodation section 216 that is a supporting groove at the rear end, an elastic member supporting portion 218 that is a protrusion at the center in the elastic member accommodation section 216, and moving pressing-protrusions 232 that have corresponding shapes and can be engaged with the fixed pressing-protrusion 132 on a pair of both sides.

[0038] Accordingly, the pressing member 200 is moved forward and backward by forward and backward feeding operation of the feeding member 300 and the elastic member 250 to be described below, so engagement is made with both sides of a shoelace 20 fitted between the fixed pressing-protrusions 132 and the moving

pressing-protrusion 232, whereby the shoelace 200 is fixed or is released by removing the engagement.

[0039] The elastic member 250 provides elasticity to the pressing member 200, and in this embodiment, a coil spring is used as the elastic member and is accommodated in the elastic member accommodation section 216 with the elastic member supporting portion 218 inserted therein. As the elastic member, unlike this embodiment, well-known other members having the same function as a coil spring may also be used.

[0040] The feeding member 300 is coupled to the pressing member 200 horizontally in a straight line and is accommodated in the feeding member accommodation section 160 to be able to feed the pressing member 200 in the front-rear direction. To this end, the feeding member 300 has: a grip having a pressing member coupling portion 315, which is a coupling groove coupled to the feeding member coupling portion 215, at the front end thereof, and having a surface that is leveled with the rear parts 140 when the pressing member 200 is pressed; and a top 320 having a surface parallel with the cover part 110 and coupled to the upper portion of the grip 310 to cover the upper portion of the rear end cut-portion 126. Meanwhile, unlike this embodiment, the top 320 is a configuration that can be omitted, if necessary.

[0041] The drawing-out member 400 has a top 410, a bottom 420, sides 430, and a rear part 440, which are entirely formed in a triangular shape having a predetermined thickness, is coupled to the front end of the casing member 100 to support a second end of the elastic member 250 such that the elastic member 250 provides elasticity to the pressing member 200 and ends of the shoelace 20 inserted through the shoelace drawing-in holes 170 are drawn out.

[0042] The bottom 420 is formed entirely in a triangular shape corresponding to the top 410 formed entirely in a triangular shape and has a casing coupling portion 442, which is a pair of coupling protrusion coupled to the drawing-out member fixing portion 122, at a position of the lower portion.

[0043] The sides 430 are disposed in a pair at the portions corresponding to two equal sides of the triangular top 410 and bottom 220 to connect sides of the top 420 and the bottom 420 to each other, respectively. A shoelace drawing-out hole 433 through which the shoelace 20 inserted through the shoelace drawing-in holes 170 is drawn out from the inside is formed at portions of the sides 430, respectively.

[0044] The rear part 440 has an elastic member accommodation section 446, which is a supporting groove supporting the second end of the elastic member 250, at the center portion and an elastic member supporting portion 448 that is a protrusion is formed at the center in the elastic member accommodation section 446.

[0045] Hereafter, a method of assembling the shoelace loosening preventing device 1 according to the first embodiment of the present disclosure with a shoelace inserted therein is described with reference to FIGS. 1

to 4.

[0046] First, the casing member 100 and the pressing member 200 are combined with each other by inserting the guide protrusion 214 of the pressing member 200 into the guide hole 124 of the casing member 100 through the pressing member accommodation section 150. In this state, the first end and the second end of the elastic member 250 are inserted into the elastic member accommodation section 216 of the pressing member 200 and the elastic member accommodation section 446 of the drawing-out member 400, respectively, and then the casing coupling portion 422 of the drawing-out member 400 is inserted into the drawing-out member fixing portion 122, whereby the drawing-out member 400 and the casing member 100 are combined with each other. Accordingly, the pressing member 200 is guided and moved backward by the guide hole 124 due to elasticity of the elastic member 250, whereby the moving pressing-protrusion 232 and the fixed pressing-protrusion 132 are engaged with each other. Then, the pressing member coupling portion 315 is coupled to the feeding member coupling portion 215 by inserting the feeding member 300 through the feeding member accommodation section 160, whereby assembly of the shoelace loosening prevention device 1 is finished. Since the coupling portions are coupling grooves and coupling protrusions, they may be coupled to each other by general forcible fitting or may be replaced with well-known configurations that can be coupled to each other.

[0047] Meanwhile, the shoelace 20 is supposed to be coupled to the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure in the process of assembling the shoelace loosening prevention device 1. First, a pair of shoelaces 20 can be coupled to the shoelace loosening prevention device 1 through the following work of inserting the shoelaces 20 into the pressing member accommodation section 150 through the feeding member accommodation section 160 of the casing member 100, taking out the ends of the shoelaces through the shoelace drawing-out holes 433 from the inside, starting to put sides of the shoelaces 20 close to the two fixed pressing-protrusions 132 formed inside the sides of the casing member 100, respectively, and then inserting the guide protrusion 214 into the guide hole 124.

[0048] Meanwhile, it is possible to couple the shoelaces 20 to the shoelace loosening prevention device 1 in the process of assembling the shoelace loosening prevention device 1. First, after the process of coupling the drawing-out member 200 to the casing member 100 described above is performed, when a user pushes forward the feeding member coupling portion 215 of the pressing member 200 using a thumb or an index finger, the pressing member 200 is moved and guided forward by the guide hole 124, whereby the moving pressing-protrusions 232 are disengaged from the fixed pressing-protrusions 132 and gap spaces are formed. Next, a pair of shoelaces 20 is inserted into the pressing member ac-

commodation section 150 from the feeding member accommodation section 160 through a pair of gap spaces, respectively, ends of the shoelaces are taken out through the shoelace drawing-out holes 433 from the inside, the pressure of the finger is removed, and then the pressing member coupling portion 315 is pressed and coupled to the feeding member coupling portion 215 by inserting the feeding member 300 through the feeding member accommodation section 160, whereby the shoelace loosening prevention device 1 finishes being assembled with the shoelaces 20 accommodated therein. Accordingly, the shoelaces 20 are inserted through the shoelace drawing-in holes 170 of the shoelace loosening prevention device 1 and the ends protrude outside through the shoelaces drawing-out holes 433.

[0049] In order to firmly fasten the shoelaces 20 to a shoe and prevent the shoelaces 20 from loosening using the shoelace loosening prevention device 1 with the shoelaces 20 accommodated therein as described above, as shown in FIGS. 5 and 6, when a user presses the grip 310 of the feeding member 300 forward in the direction of the dotted-line arrow using a thumb with an index finger and a middle finger of one hand in contact with the sides 430 of the drawing-out member 400, respectively, the pressing member 200 is moved and guided by the guide hole 125 (124), whereby the moving pressing-protrusion 232 and the fixed pressing-protrusion 132 are disengaged from each other, and gap spaces are formed. In this state, when the user draws out the shoelace by a predetermined amount by pulling two ends of the shoelace 20 through the shoelace drawing-out holes 433 and then releases the grip 310, the pressing member 200 is moved and guided backward by the guide hole 124 by the elasticity of the elastic member 250, and the moving pressing-protrusions 232 are engaged with the fixed pressing-protrusions 132 with the shoelaces 20 therebetween, thereby preventing the shoelace 20 from loosening, as shown in FIG. 18. Meanwhile, unlike this embodiment, for convenient gripping in pressing, the drawing-out member 400 may have a shape with a cut front end such that a user can sequentially put an index finger, a middle finger, and a ring finger on the sides 430 of the drawing-out member 400 and the cut front end.

[0050] FIG. 18 is a state view showing the state in which a shoelace 20 fastened to a shoe is fastened to the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure. Meanwhile, when a user wants to take off a shoe, the user loosens the shoelace 20 by pulling down the shoelace 20 to the lower ends of the shoelace drawing-in holes 170 with the grip 310 pressed and can easily take off the shoe in this state.

[0051] As described above, since the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure has a structure in which the grip 310 of the feeding member 300 is disposed horizontally in a straight line with the pressing member 200 with respect to the casing member 101, there is an ad-

vantageous effect that horizontal pressing is easy and, in the process of pressing for securing gap spaces between the moving pressing-protrusions 232 and the fixed pressing-protrusions 132 to adjust the position of the shoelace 20 accommodated inside, and it is easy to secure gap spaces between the moving pressing-protrusions 232 and the fixed pressing-protrusions 132 to tighten or loosen the shoelace 20.

[0052] Further, according to the shoelace loosening prevention device 1 of the present disclosure, since the shoelace drawing-in holes 170 are open downward at the rear end, even though tension is applied to the shoelace 20 when a user wears a shoe with the shoelace 20 accommodated inside and tightened and fixed, a supporting force acts on a wide area of the bottom of the rear end corresponding to the wide base of the triangular shape of the shoelace loosening prevention device 1, so there is an advantageous effect that the shoelace loosening prevention device 1 can keep in close contact with the instep part of the shoe without the front surface thereof lifted.

[0053] Hereafter, a shoelace loosening prevention device 2 according to a second embodiment of the present disclosure is described mainly about the difference from the shoelace loosening prevention device according to the first embodiment of the present disclosure shown in FIGS. 1 to 6 with respect to FIGS. 7 to 10.

[0054] FIGS. 7 and 8 are assembled perspective views of a shoelace loosening prevention device according to a second embodiment of the present disclosure, respectively, and FIGS. 9 and 10 are exploded perspective views of the shoelace loosening prevention device according to the second embodiment of the present disclosure, respectively.

[0055] The shoelace loosening prevention device 2 according to the second embodiment of the present disclosure is modified to be able to finish ends of a shoelace 20 when the shoelace 20 to be fastened to a shoe are long, and is the same as the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure except that the feeding member coupling portion 217 of the pressing member 201 and the pressing member coupling portion 316 of the feeding member 301 are switched as a coupling groove and a coupling protrusion, respectively, unlike the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure, and an aglet finishing member 500 is further coupled to the front end of the drawing-out member 401 of which the shape is changed.

[0056] The drawing-out member 401 has a top 411 with a cut front end, a triangular bottom 421, sides 431 with a cut front end, an aglet finishing member coupling portion 436 that is a coupling groove formed horizontally with a predetermined depth in a portion of a recessed front surface, and a rear part 440, and the aglet finishing member 500 is accommodated and coupled at the front end thereof.

[0057] The aglet finishing member 500 has a body 510

and a drawing-out member coupling portion 535.

[0058] The body 510 is made of a flexible synthetic resin material or a rubber material, is coupled to the drawing-out member 401 with a portion accommodated in the drawing-out member 410, and has a pair of aglet insertion grooves 522 formed with a predetermined depth from a first end to a second end.

[0059] The aglet insertion grooves 522 accommodates aglets 22 made of a synthetic resin material or a metal material and formed at ends of the shoelace 20, thereby making it possible to finish the ends of a long shoelace 20, as shown in FIG. 19. FIG. 19 is a view showing the state in which shoelaces fastened to a shoe are actually fastened to the shoelace loosening prevention device according to the first embodiment of the present disclosure.

[0060] The drawing-out member coupling portion 535 is connected to a first end of the body 510 and is coupled at a predetermined depth to the aglet finishing member coupling portion 436 by a step 539 formed between the body 510 and the drawing-out member coupling portion 535.

[0061] Accordingly, the shoelace loosening prevention device 2 according to the second embodiment of the present disclosure can further achieve an advantageous effect that when the remaining portion of a shoelace 20 fastened to a shoe is long, it is possible to accommodate the remaining portion in the shoelace loosening prevention device 2 and it is possible to easily fix and finish aglets at the ends of the shoelace 20 protruding out of the shoelace drawing-out holes 453 by accommodating the aglets in the aglet insertion grooves 522 of the aglet finishing member 500.

[0062] Hereafter, a shoelace loosening prevention device 3 according to a third embodiment of the present disclosure is described mainly about the difference from the shoelace loosening prevention device according to the first embodiment of the present disclosure shown in FIGS. 1 to 6 with respect to FIGS. 11 to 13.

[0063] FIG. 11 is an assembled perspective view of a shoelace loosening prevention device according to a third embodiment of the present disclosure and FIGS. 12 and 13 are exploded perspective views of the shoelace loosening prevention device according to the third embodiment of the present disclosure, respectively.

[0064] The shoelace loosening prevention device 3 according to the third embodiment of the present disclosure is the same as the shoelace loosening prevention device 1 according to the first embodiment of the present disclosure except that the coupling force and guide convenience between the pressing member 202 and the feeding member 302 are further increased to conveniently pressing the feeding member 302.

[0065] That is, the casing member 101 has an additional guide hole 115 formed at the cover part 111 and corresponding to the guide hole 124 of the bottom 120, the pressing member 202 has an additional guide protrusion insertion hole 219 that is a coupling groove formed in the top, and the feeding member 302 has an additional

guide protrusion 325 protruding downward from the front end of the top 321 to be inserted in the additional guide hole 115 and guide protrusion insertion hole 219.

[0066] Therefore, the shoelace loosening prevention device 3 according to the third embodiment of the present disclosure can achieve an additional advantageous effect that since the coupling force and guide convenience are further included, the feeding member 302 is more easily and stably moved forward when the grip 310 is pressed.

[0067] Hereafter, a shoelace loosening prevention device 4 according to a fourth embodiment of the present disclosure is described mainly about the difference from the shoelace loosening prevention device 2 according to the second embodiment of the present disclosure shown in FIGS. 7 to 10 with respect to FIGS. 14 and 15.

[0068] FIGS. 14 and 15 are exploded perspective views of a shoelace loosening prevention device according to a fourth embodiment of the present disclosure, respectively.

[0069] The shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure has the same external appearance as the shoelace loosening prevention device 20 according to the second embodiment of the present disclosure, and is the same as the shoelace loosening prevention device 2 according to the second embodiment of the present disclosure except that the drawing-out member 402 and the aglet finishing member 501 are combined by the magnetic force of a magnet member 550 additionally disposed on the rear part 440 of the drawing-out member 402 rather than forcible fitting.

[0070] That is, the drawing-out member 402 has an aglet finishing member coupling portion 437 horizontally formed through the rear part 440 from the front surface and a ring-shaped magnet member 550 is inserted in the rear part 440. Further, a drawing-out member coupling portion 536 made of a metal member that is attached to the magnet member 550 is coupled to a first end of the aglet finishing member 501 by insert injection, so the drawing-out member coupling portion 536 is inserted in the magnet member 550 through the aglet finishing member coupling portion 437, thereby being maintained in a coupled state with the magnet member 550 by the magnetic force. In this embodiment, in order to insert the drawing-out member coupling portion 536 into the aglet finishing member coupling portion 437, the elastic member 251 is formed such that the diameter thereof decreases so that the magnet member 550 is inserted therein.

[0071] Accordingly, the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure has an advantageous effect that since the drawing-out member 402 and the aglet finishing member 501 are combined by the magnetic force of the magnet member 550 additionally disposed on the rear part 440 of the drawing member 402 rather than combined by forcible fitting, easiness of coupling can be additionally secured.

[0072] A shoelace loosening prevention device 5 according to a fifth embodiment of the present disclosure, similar to the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure, has the same external appearance as the shoelace loosening prevention device 20 according to the second embodiment of the present disclosure, and is the same as the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure except that the drawing-out member 403 and the aglet finishing member 501 are combined by the magnetic force of a magnet member 550 additionally disposed on the rear part 440 of the drawing-out member 402 rather than forcible fitting.

[0073] Hereafter, a shoelace loosening prevention device 5 according to a fifth embodiment of the present disclosure is described mainly about the difference from the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure shown in FIGS. 14 and 15 with respect to FIGS. 16 and 17.

[0074] FIGS. 16 and 17 are exploded perspective views of the shoelace loosening prevention device according to the fifth embodiment of the present disclosure, respectively.

[0075] The shoelace loosening prevention device 5 according to a fifth embodiment of the present disclosure is also the same as the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure in that the drawing-out member 403 and the aglet finishing member 502 are combined by the magnetic force of a magnet member 550 additionally disposed on the rear part 440 of the drawing-out member 403. However, the aglet finishing member 437 that is a through-hole is omitted at the drawing-out member 404, unlike the fourth embodiment, and a coin-shaped magnet member 551 and a portion of the elastic member 250 are sequentially inserted in a magnet member accommodation section 449 of the rear part 440. Further, the aglet finishing member 502 is made of a metal material that is attached to a magnet at a first end of the body 510, and the drawing-out member coupling portion 537 corresponding to the shape of the front end of the drawing-out member 404 is formed by insert injection and is maintained in a coupled state with the magnet member 551 by a magnetic force without direct contact.

[0076] Accordingly, the shoelace loosening prevention device 5 according to the fifth embodiment of the present disclosure has an additional advantageous effect that since the aglet finishing member coupling portion 437 is not additionally formed through the drawing-out member 403, the manufacturing efficiency is more excellent in comparison to the shoelace loosening prevention device 4 according to the fourth embodiment of the present disclosure.

[0077] Although embodiments of the present disclosure were described above in detail, the spirit of the present disclosure is not limited thereto and the present disclosure may be changed and modified in various ways

on the basis of the basic concept without departing from the scope of the present disclosure described in the following claims.

Claims

1. A shoelace loosening prevention device, the device comprising:

a casing member including: a cover part that has a front end cut-portion and a rear end cut-portion; a bottom that has a drawing-out member fixing portion, a guide hole that is an oblong hole formed in a front-rear longitudinal direction, and a rear end cut-portion that is a cut groove corresponding to a shape of the rear end cut-portion of the cover part, which are sequentially formed with predetermined gaps from a front end to a rear end; sides that are disposed in a pair to connect sides of the cover part and the bottom to each other, respectively, and have two fixed pressing-protrusions formed inside thereof, respectively, to face an inside of the casing member and face each other, and formed such that a gap therebetween decreases from a front end to a rear end; and rear parts that are formed in a pair and spaced apart from each other by cutting a center portions to connect rear ends of the cover part and the bottom to each other, and having a pressing member accommodation section at the front end thereof and a feeding member accommodation section at the rear end thereof;

a pressing member accommodated in the pressing member accommodation section to be able to reciprocated forward and backward, and having a guide protrusion that is inserted in the guide hole and formed at a center of a bottom thereof, a feeding member coupling portion formed at a front end thereof, an elastic member accommodation section formed at a rear end thereof, and moving pressing-protrusions that have shapes that can be engaged with the fixed pressing-protrusions and are formed on a pair of both sides, respectively;

an elastic member having a first end accommodated in the elastic member accommodation section;

a feeding member horizontally coupled to the pressing member, accommodated in the feeding member accommodation section to be able to feed the pressing member forward and backward, and forming a pair of left and right shoelace drawing-in holes at a lower portion of the rear end of the casing member when coupled to the casing member; and

a drawing-out member coupled to the front end

of the casing member and having: a top; a bottom that is formed in a shape corresponding to the top and has a casing coupling portion formed at a position of a lower portion thereof and coupled to the drawing-out member fixing portion; sides that are disposed in a pair to connect sides of the top and the bottom to each other, respectively, and have shoelace drawing-out holes at portions thereof, respectively, through which a shoelace inserted through the shoelace drawing-in holes is drawn out from the inside; and a rear part that has an elastic member accommodation section formed at a first end thereof and supporting a second end of the elastic member.

2. The shoelace loosening prevention device of claim 1, wherein the feeding member includes a grip having a pressing member coupling portion formed at a front end thereof and coupled to the feeding member coupling portion.

3. The shoelace loosening prevention device of claim 2, wherein the casing member has an additional guide hole formed at the cover part and corresponding to the guide hole of the bottom,

the pressing member has an additional guide protrusion insertion hole that is a coupling groove formed in the top, and the feeding member has an additional top coupled to an upper portion of the grip and an additional guide protrusion protruding downward from a front end of the top and sequentially inserted in the additional guide hole and the guide protrusion insertion hole.

4. The shoelace loosening prevention device of claim 1, further comprising a body having a pair of aglet insertion grooves formed with a predetermined depth from a first end to a second end and an aglet finishing member coupled to a first end of the body and having a drawing-out coupling portion partially detachably coupled to a front end of the drawing-out member.

5. The shoelace loosening prevention device of claim 4, wherein the drawing-out member includes a top with a cut front end, a bottom, sides with cut front ends, an aglet finishing member coupling portion that is a coupling groove formed horizontally with a predetermined depth in a portion of a recessed front surface, and a rear part, and the aglet finishing member is coupled at a predetermined depth to the aglet finishing member coupling portion by a step formed between the body and the aglet finishing member.

6. The shoelace loosening prevention device of claim

4, wherein the drawing-out member has an aglet finishing member coupling portion horizontally formed through the rear part from the front surface and has an additional magnet member inserted in the rear part, and

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a drawing-out member coupling portion made of a metal member that is attached to the magnet member is coupled to a first end the aglet finishing member, so the drawing-out member coupling portion is inserted in the magnet member through the aglet finishing member coupling portion, thereby being maintained in a coupled state with the magnet member by a magnetic force.

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7. The shoelace loosening prevention device of claim 4, wherein an additional magnet member and a portion of the elastic member are sequentially inserted in the rear part of the drawing-out member, and the aglet finish member is made of a metal material that is attached to a magnet at the first end of the body, and the drawing-out member coupling portion corresponding to a shape of a front end of the drawing-out member is maintained in a coupled state with the magnet member by a magnetic force without direct contact.

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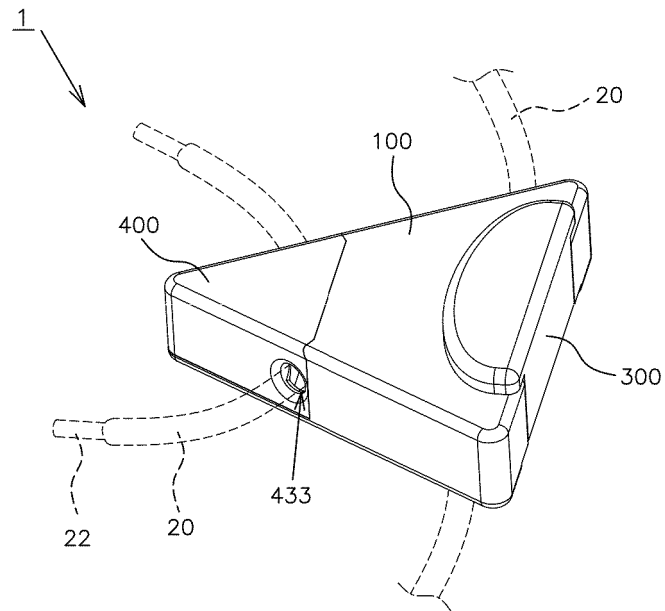
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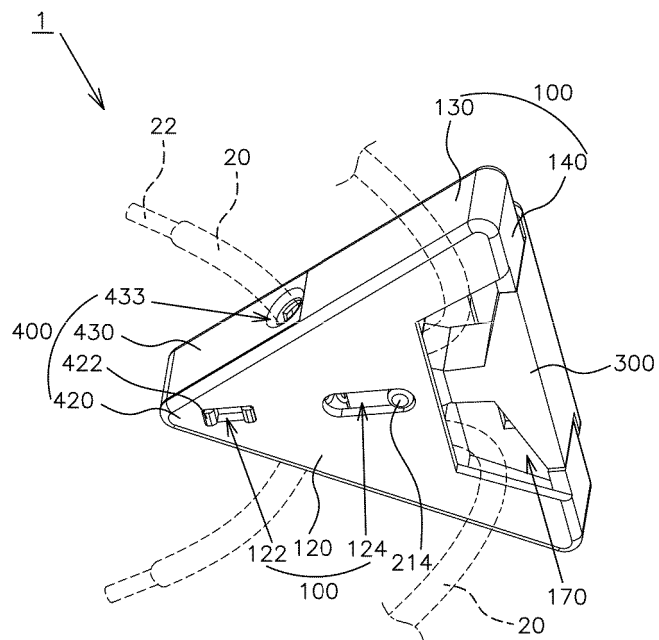
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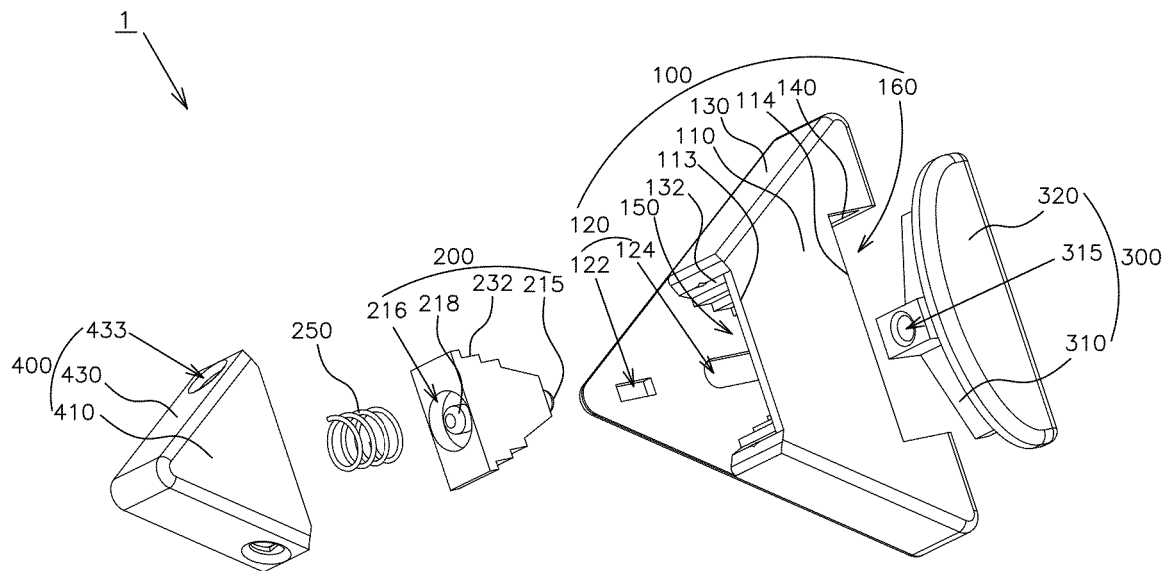
[Fig. 1]



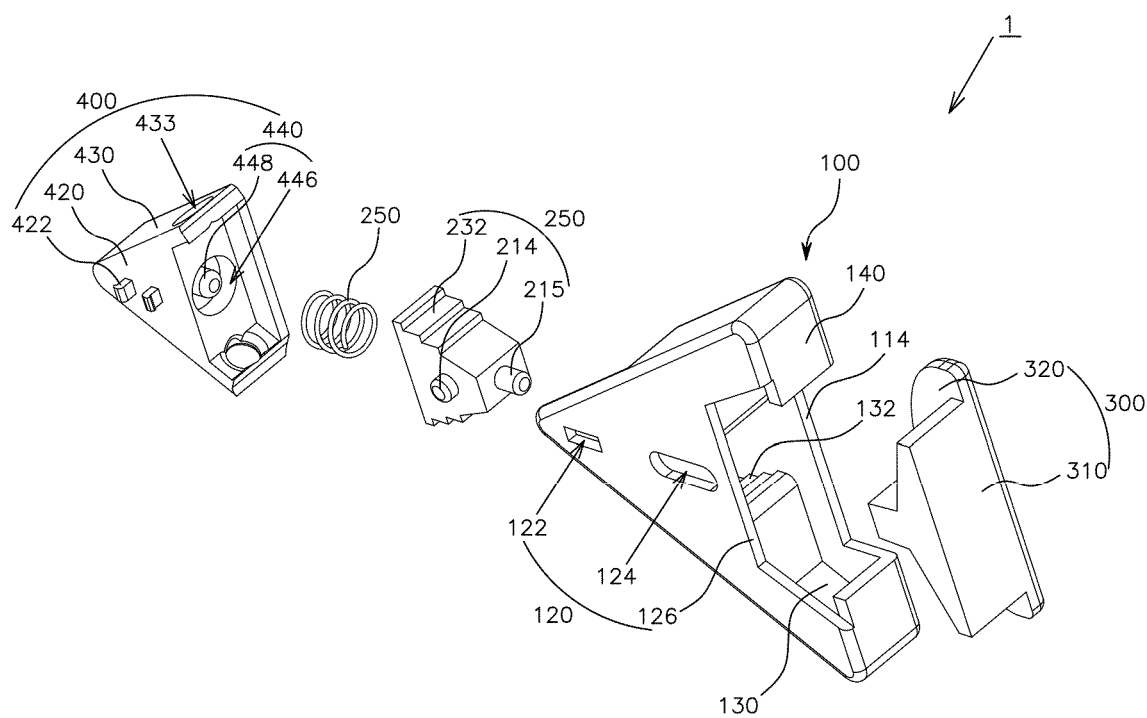
[Fig. 2]



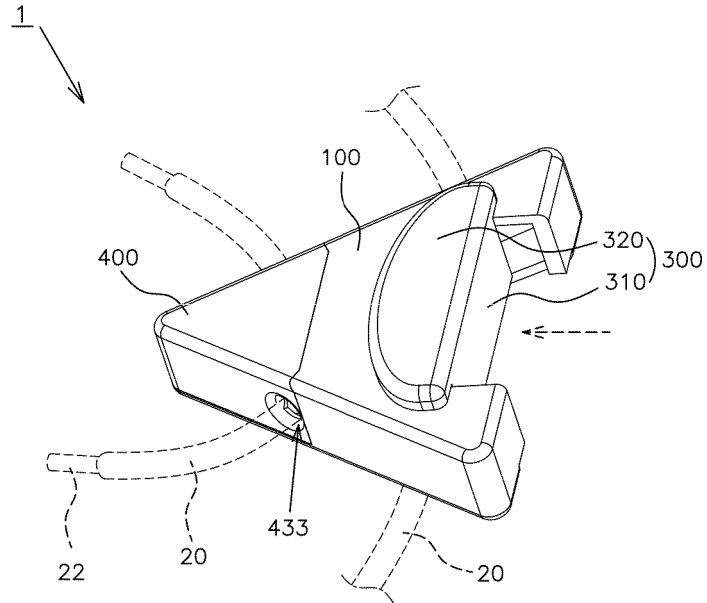
[Fig. 3]



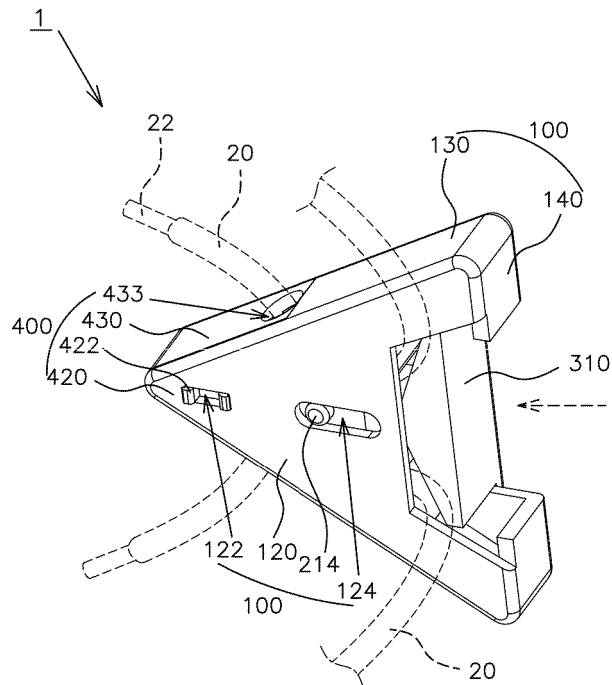
[Fig. 4]



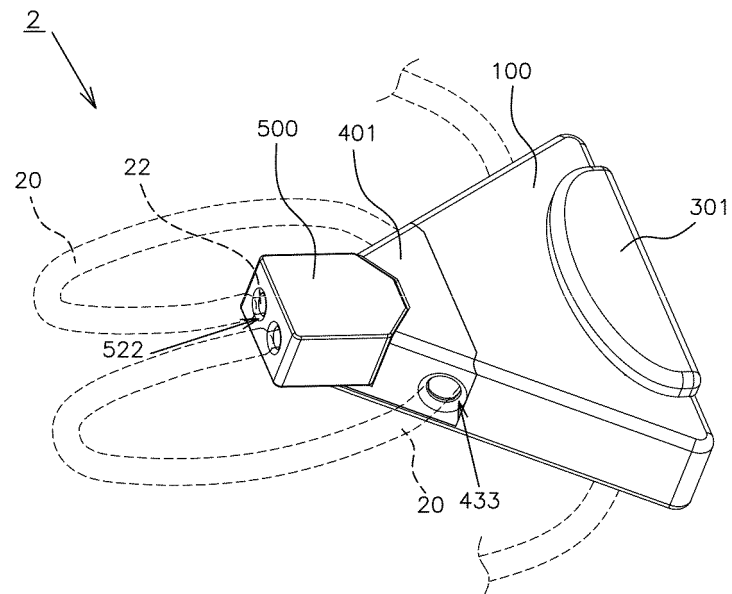
[Fig. 5]



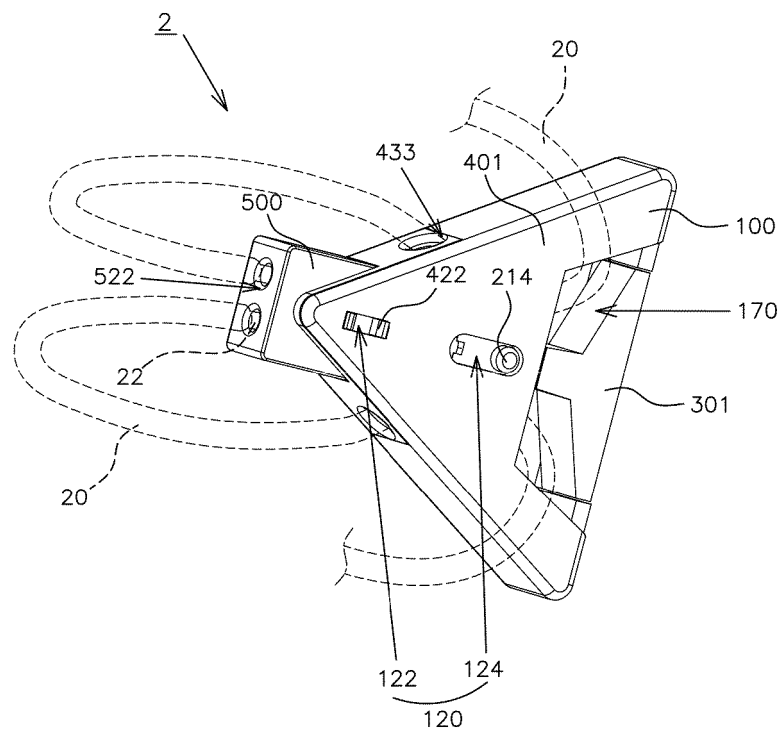
[Fig. 6]



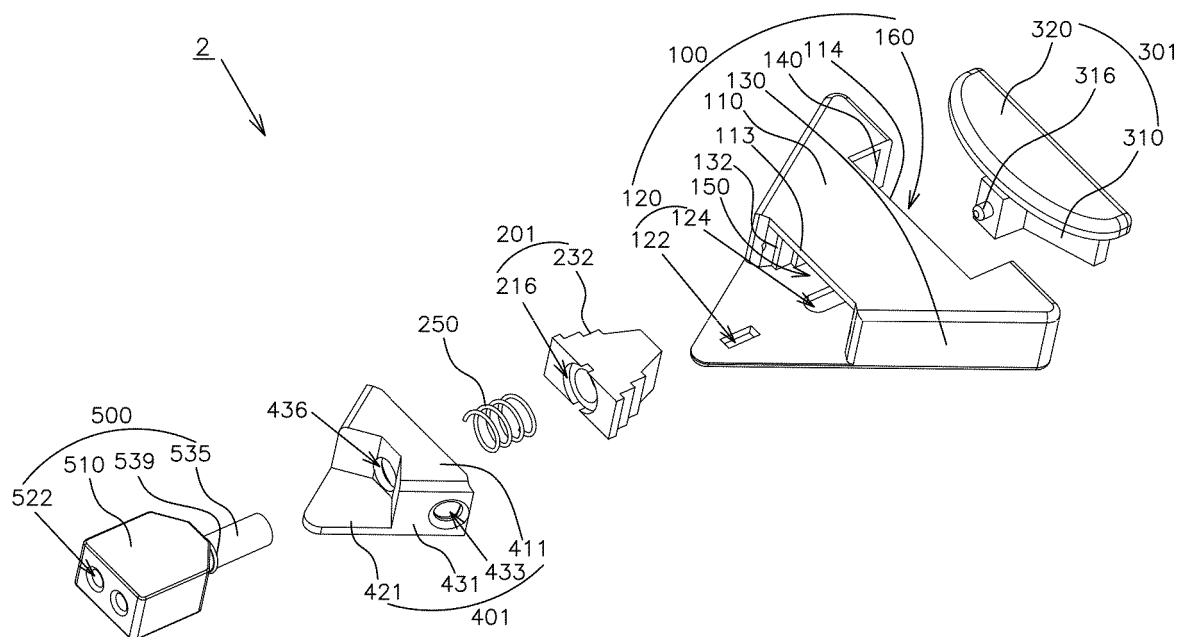
[Fig. 7]



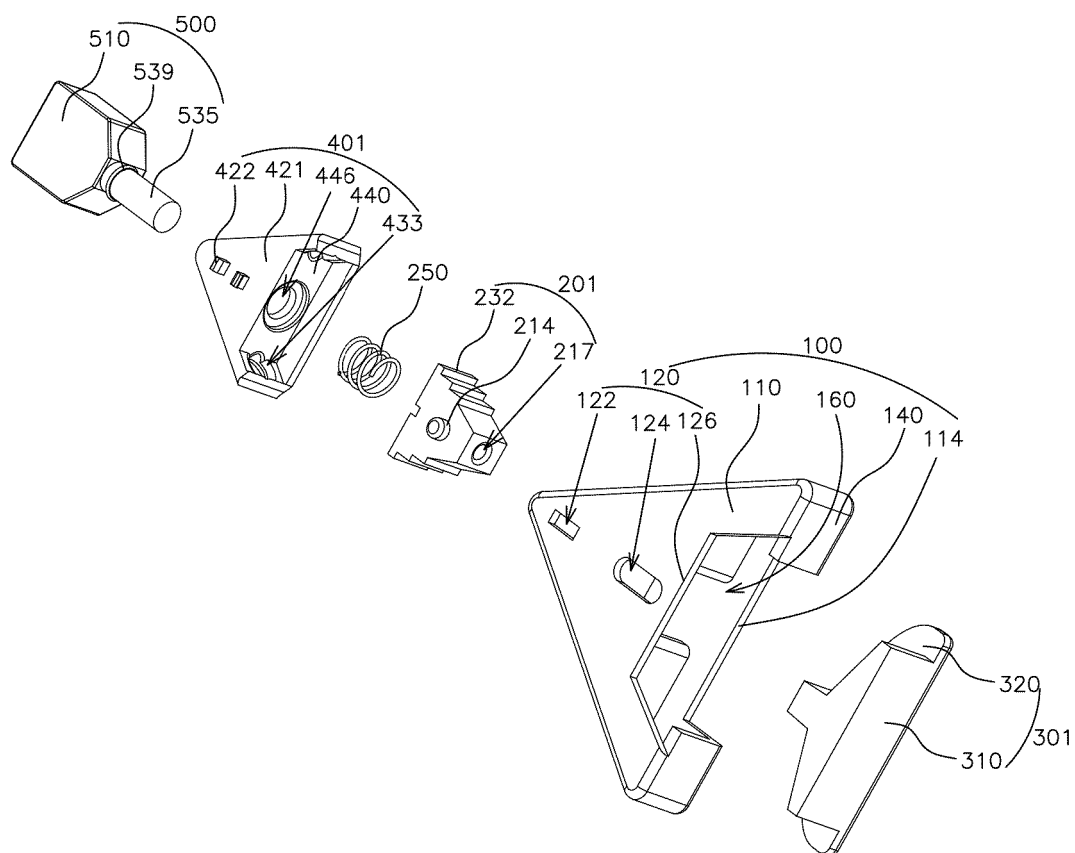
[Fig. 8]



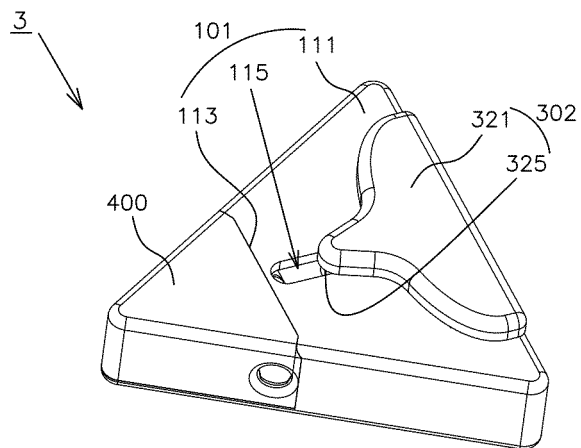
[Fig. 9]



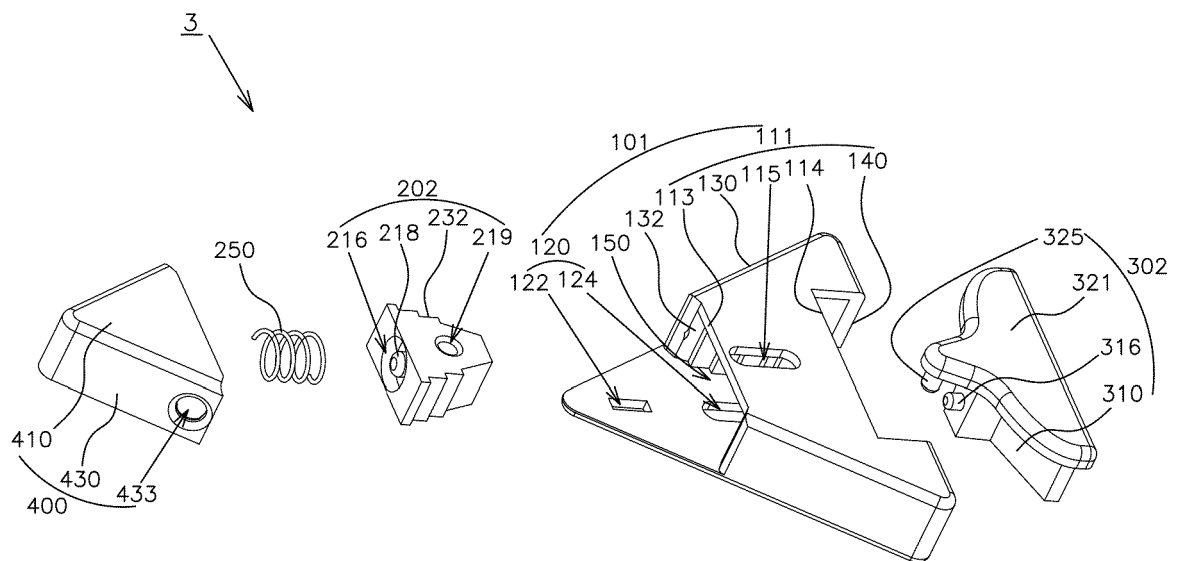
[Fig. 10]



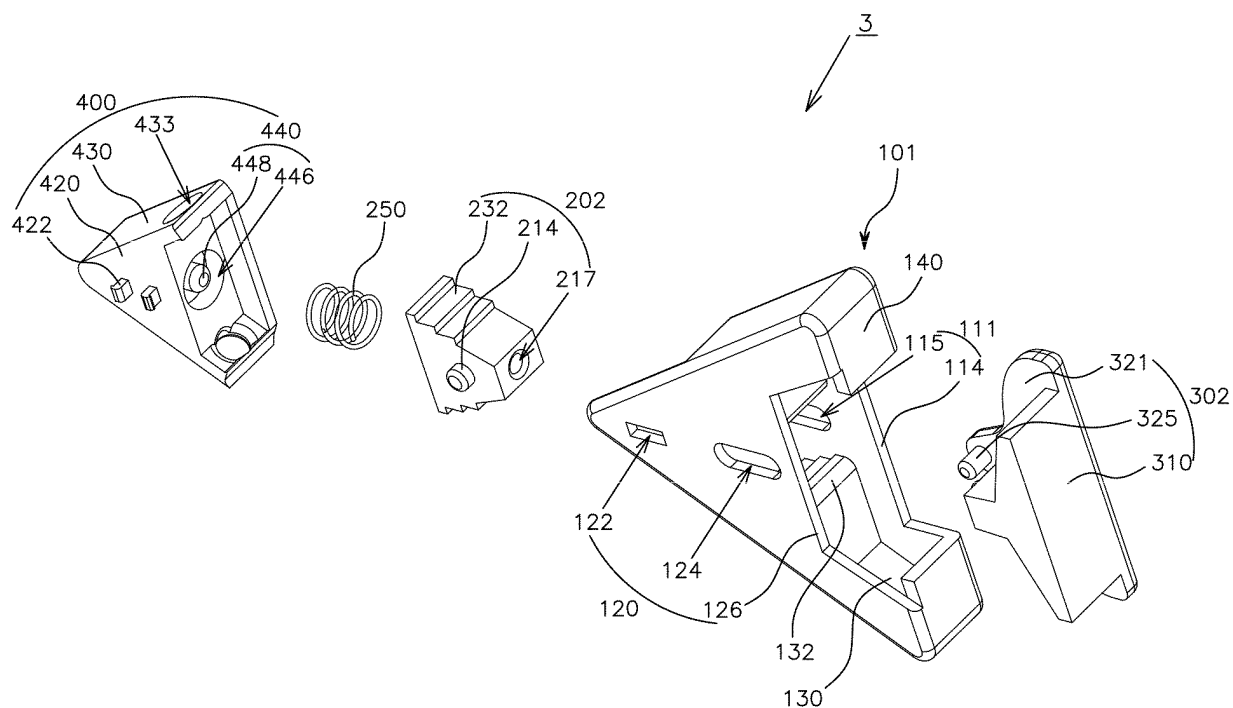
[Fig. 11]



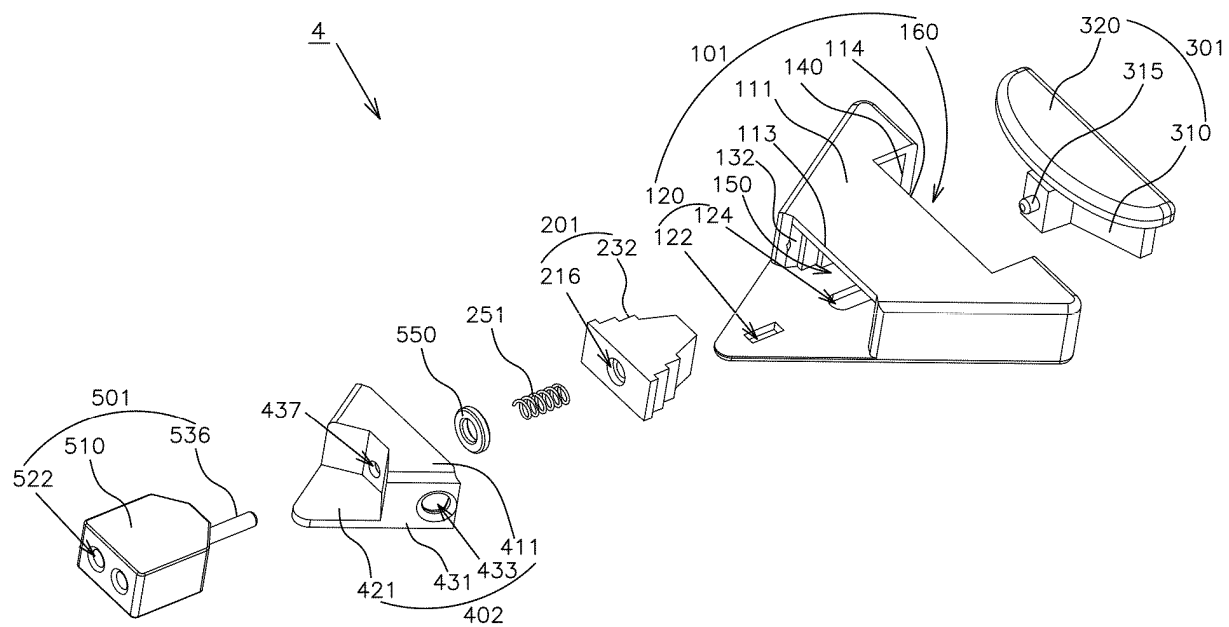
[Fig. 12]



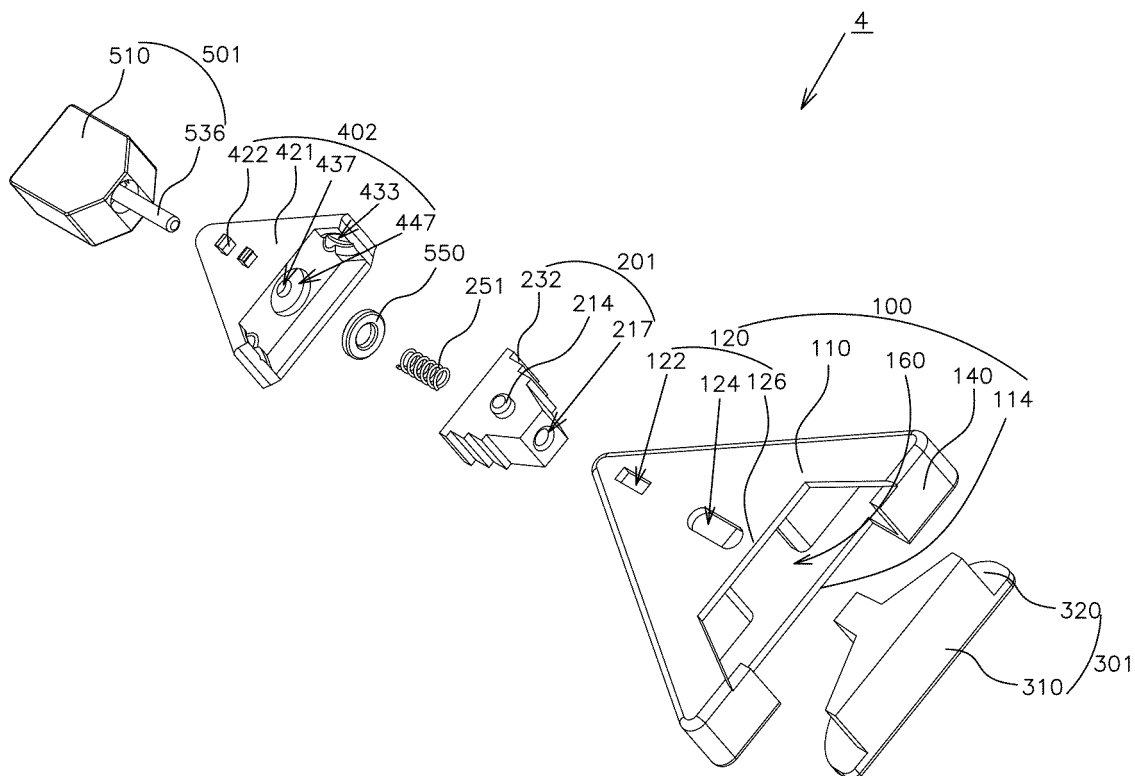
[Fig. 13]



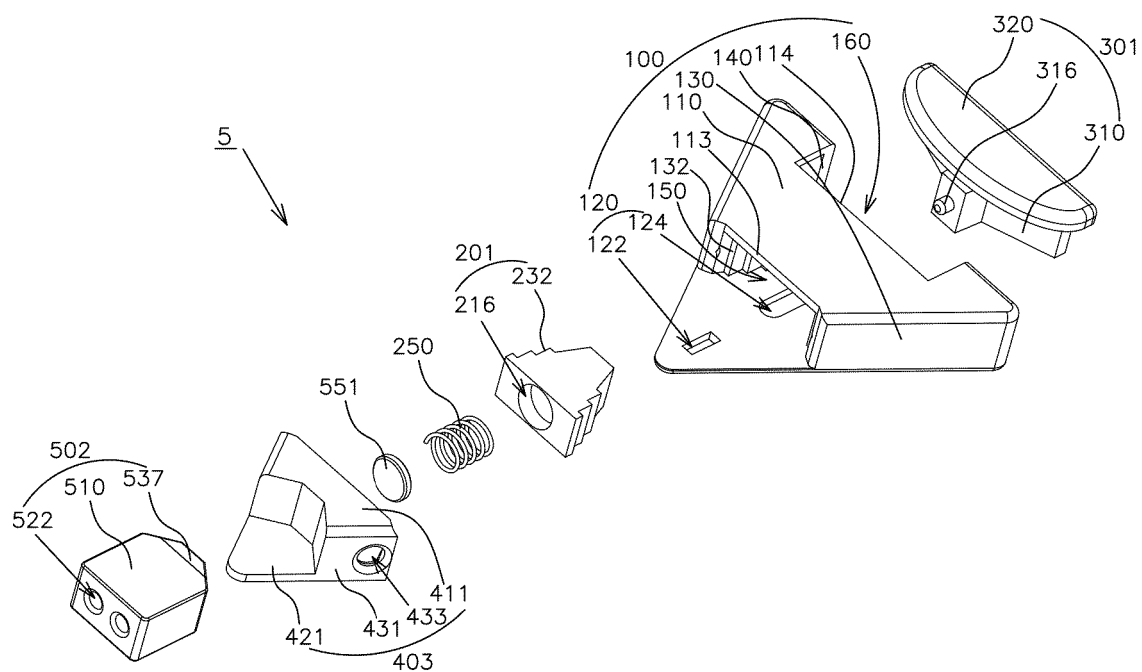
[Fig. 14]



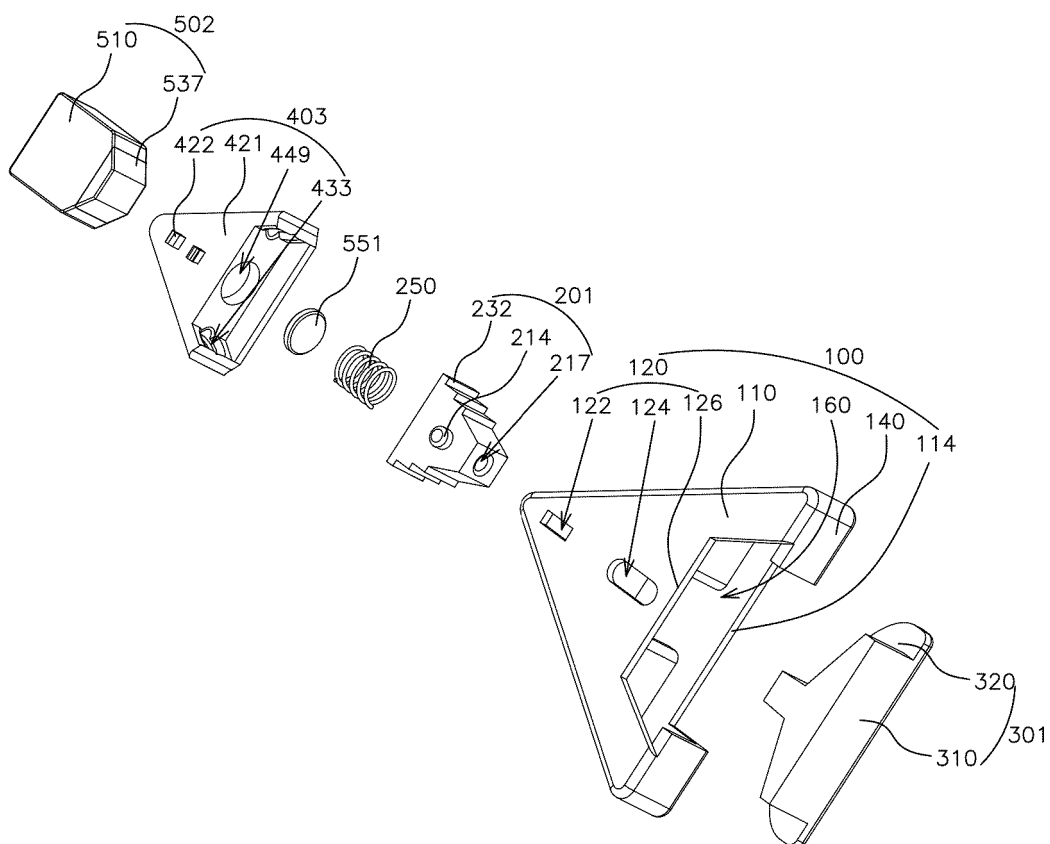
[Fig. 15]



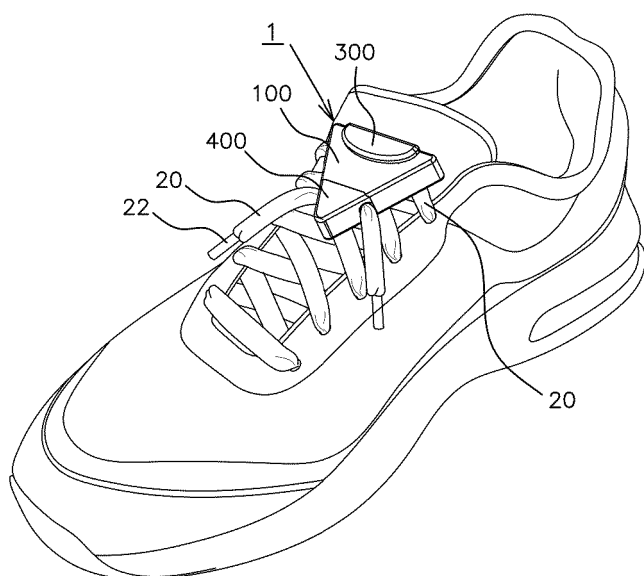
[Fig. 16]



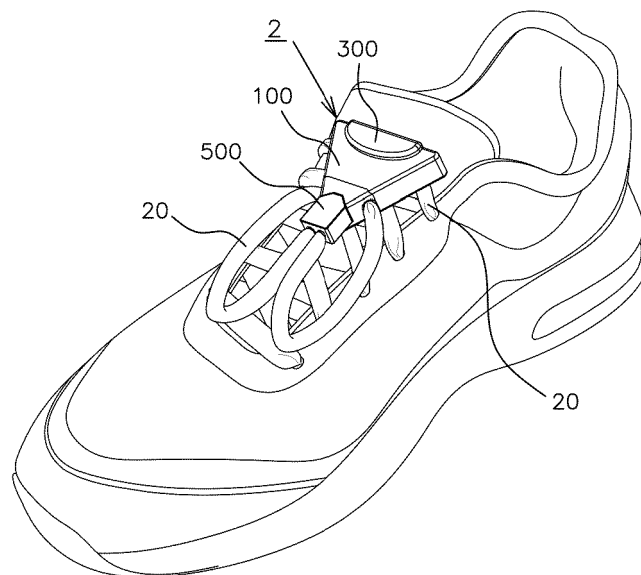
[Fig. 17]



[Fig. 18]



[Fig. 19]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2021/004016

A. CLASSIFICATION OF SUBJECT MATTER

A43C 7/08(2006.01)i; A43C 11/20(2006.01)i; A43C 11/22(2006.01)i; A43C 11/24(2006.01)i

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)

A43C 7/08(2006.01); A43C 1/00(2006.01); A43C 11/12(2006.01); A43C 11/14(2006.01); A43C 7/00(2006.01);
A43C 7/02(2006.01); A44B 99/00(2010.01); F16G 11/10(2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 신발끈(shoestring), 고정(locking), 누름(push), 해제(release)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A		5-7
Y	KR 10-2018-0088028 A (JEON, Hyo Seok) 03 August 2018 (2018-08-03) See paragraphs [0049] and [0080]; and claim 4.	1-4
Y	JP 2018-089199 A (NIFCO INC.) 14 June 2018 (2018-06-14) See paragraphs [0011]-[0029]; and figure 3.	2-3
Y	US 2018-0220743 A1 (SCHREINER, K. E.) 09 August 2018 (2018-08-09) See paragraphs [0053]-[0054]; and figures 1-2.	4
A	EP 2607747 A2 (NIFCO TAIWAN CORPORATION) 26 June 2013 (2013-06-26) See entire document.	1-7

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 ☒ See patent family annex.

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Date of the actual completion of the international search 30 July 2021	Date of mailing of the international search report 30 July 2021
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex-Daejeon Building 4, 189 Cheongsaro, Seo-gu, Daejeon 35208 Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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