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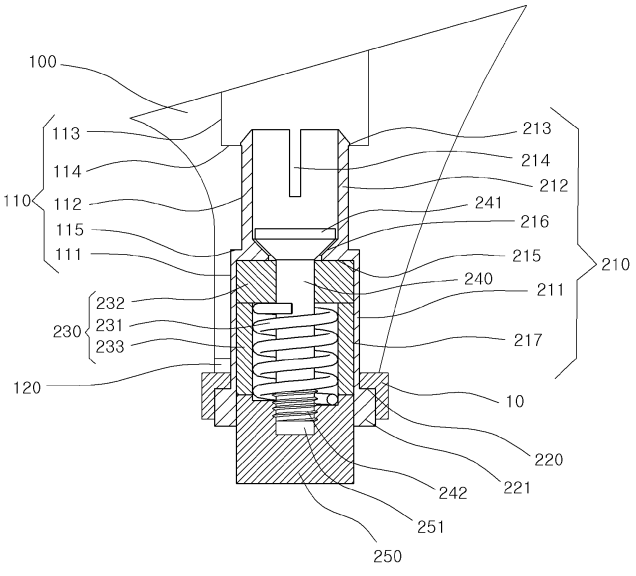
(54) SHOES HAVING REINFORCING STRUCTURE FOR HEEL

(57) The present disclosure relates to a heel-reinforced shoe in which a mounting structure of a detachable member (100) replaceably mounted on the heel body (200) is reinforced so as to improve the abrasion and damage resistance not only of the detachable member, which is replaceable in abrasion and damage, but also of the heel body (200), which is integrated with the shoe and thus is non-replaceable. The heel-reinforced shoe is provided with a heel (100), (200) including: a heel body (100) fixed to a rear portion of the bottom surface of the shoe, and having a groove (110) formed in the bottom surface thereof; and a detachable member (200) including an insertion portion (210) inserted into and fixed to the groove (110) in the heel body (100), and an upper contact surface (220) formed around the insertion portion (210) to be in close contact with the bottom surface of the heel body (100), so that the detachable member (200) is made to be replaceable. A reinforcing frame is interposed between the upper contact surface (220) of the detachable member (200) and the bottom surface of the heel body (100).

Fig. 4



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Description

Technical Field

[0001] The present disclosure relates to a heel-reinforced shoe in which a mounting structure of a detachable member replaceably mounted on the heel body is reinforced so as to improve the abrasion and damage resistance not only of the detachable member, which is replaceable, but also of the heel body, which is integrated with the shoe and thus is non-replaceable.

Background Art

[0002] Depending on the use or shape thereof, shoes, each having a heel protruding downward, are variously classified into leather shoes, formal shoes, high-heeled shoes, loafers, and boots. Such shoes may be manufactured in such a manner that the lower end of each heel, which comes into contact with the ground and is thus easily worn out, includes a detachable heel member, whereby the shoes can be used merely by replacing the heel member.

[0003] Referring to the detachable heel member, as illustrated in Korean Patent No. 10-1017789, a groove is formed in a bottom surface of the heel and a fixing pin is provided on the top surface of the heel member, so that the fixing pin is inserted into the groove, thereby fixing the heel member to the heel. In addition, when the heel member is worn out, the heel member may be removed by pulling the fixing pin out of the groove, and a new heel member may be installed. Accordingly, it is possible to use the shoes for a long period merely by replacing the easily worn-out heel member.

[0004] However, since the heel is formed of a rigid synthetic resin material, a surface of the heel, which is in contact with the heel member, i.e. the bottom surface of the heel may be worn out. Even though the heel member is fixed to the heel through fitting-fixing between the groove and the fixing pin, the top surface of the heel member and the bottom surface of the heel are in plane contact with each other. Thus, a strong impact is applied to the heel members when a user walks with the shoes, a contact surface therebetween may be worn out and, in particular, a corner of the contact surface may be damaged due to slight shaking.

[0005] In addition, since the heel member is manufactured to be smaller and thinner than the heel in order to emphasize the beauty of the curve of the heel member, the heel member may be easily damaged, rather than worn out from the bottom surface thereof, which comes into contact with the ground, when a strong impact is applied thereto. Thus, the heel member needs to be frequently replaced.

[0006] Further, heels, which are sensitive to fashions, like dresses, and thus when the heels, which are hardly replaced, become scratched, the user may have desire to replace his/her shoes and may thus buy new shoes. The shoes may not be used for a long time.

[0007] Meanwhile, Korean Patent No. 10-1201844, filed and registered in the name of the applicant of the present disclosure, discloses a detachable heel member, in which, in configuring the detachable heel member on a heel, a heelpiece, which comes into contact with the ground, is made to be movable up and down and a shock-absorbing member is incorporated therein, so that an impact applied to the heel is buffered by the shock-absorbing member. According to this patent, in the detachable structure of the heel member, a groove is formed in the heel and an insertion portion (a constituent element corresponding to the fixing pin of Korean Patent No. 10-1017789) to be inserted into and fixed to the groove in the heel is formed in the top surface of the heel member. Thus, the heelpiece, which may be easily worn out or damaged, may be easily removed from the heel member such that the shock-absorbing member, the shock buffering function of which deteriorates upon long-term use, may also be easily removed from the heel member so as to be replaced and the entire heel member may also be easily replaced. Thus, it is possible to provide shock-absorbing shoes, which can be used for a long period at a low cost by replacing only some of the constituent elements of the easily detachable heel member of the heel.

[0008] However, even in Korean Patent No. 10-1201844, filed in the name of the applicant of the present disclosure, a structure, in which a projection of a heel member is inserted into and fixed to the groove of the heel is provided, as in Korean Patent No. 10-1017789. Thus, during the use of the shoes, the bottom surfaces and corners of the heels may be easily worn out or damaged, and the replaceable heel members may also be easily damaged.

[0009] Moreover, as the heel member is detachably installed, a line (an outer trace of a contact portion), which looks like a scratch, appears, which makes the overall appearance of the heel look bad.

[Prior Art Document]

[Patent Document]

[0010]

(Patent Document 1) KR 10-1017789 B1 issued on February 18, 2011
(Patent Document 2) KR 10-1201844 B1 issued on November 09, 2012

Detailed Description of the Invention

Technical Problem

[0011] The present disclosure was made in order to solve the problems described above, and an object of the present disclosure is to provide a heel-reinforced

shoe, which can be manufactured in such a manner that the endurance of a heel is improved by detachably installing a heel member to the heel, and the heel member, which is replaced and used, is protected so that the usable lifetime of the heel member can be significantly increased, and the overall appearance of the heel can be made to be beautiful even though the heel member is detachably installed.

[0012] In addition, another object of the present disclosure is to provide a shoe which is provided with a heel, which is easily detachable and mountable and is improved in elasticity, and in which a heelpiece shock-absorbing member is made to absorb a load while sliding up and down within a heelpiece body when the load if the weight of a user is applied thereto, and if necessary, the heelpiece shock-absorbing member as well as the heelpiece body can be easily removed to thus be repaired or to be replaceably used, whereby the endurance of the shoe can be improved and economic efficiency and convenience can be remarkably improved.

Technical Solution

[0013] In order to achieve the object described above, the present disclosure provides a heel-reinforced shoe provided with a heel including: a heel body fixed to a rear portion of the bottom surface of the shoe, and having a groove formed in the bottom surface thereof; and a detachable member including an insertion portion inserted into and fixed into the groove in the heel body, and an upper contact surface formed around the insertion portion to be in close contact with the bottom surface of the heel body, so that the detachable member is made to be replaceable. The shoe further includes a reinforcing frame made of a metal material and interposed between the upper contact surface of the detachable member and the bottom surface of the heel body, the reinforcing frame includes a side cover portion bent to extend downwards from the peripheral edge of the upper contact surface so as to cover the side surface of the detachable member, and the side cover portion is formed to protrude outwards from the side surface of the lower portion of the heel body.

[0014] In the detachable member, a heelpiece is mounted on the bottom portion so as to be in contact with the ground such that the heelpiece is introduced into the detachable member in a piston-like manner so as to move up and down, and an elastic member is incorporated in the detachable member so as to buffer an impact applied to the heelpiece.

[0015] The elastic member includes one or multiple compression springs.

[0016] When one compression spring is provided, a long bolt is provided so as to be slidable up and down, and when multiple compression springs are provided, a long bolt is provided to be slidable up and down between the compression springs.

[0017] When multiple compression springs are provided, a guide protection tube is further provided and the long bolt is installed by being inserted into the guide protection tube.

[0018] A notch is formed in the lower end of the heel body such that the detachable member is separated from the heel body by inserting a ring into the notch and pulling the detachable member downward.

[0019] The side cover portion of the reinforcing frame protrudes outwards from the side surface of the heel body.

Advantageous Effects

[0020] According to the present disclosure configured as described above, because the reinforcing frame is interposed between the heel body and the detachable member, it is possible to prevent the abrasion of the heel body even if the detachable member is shaken with respect to the heel body. In particular, when the detachable member is formed of a material having a small coefficient of friction and a smooth surface, as described in claim 3, it is possible to maximize the abrasion prevention effect.

[0021] In addition, according to one embodiment of the present disclosure described in claim 2, it is also possible to improve the endurance of the detachable member, which may be replaced and used, by protecting the side surface of the detachable member, which is damaged easily, with the reinforcing frame.

[0022] In addition, according to an embodiment of the present disclosure described in claim 4, the detachable member, which includes the elastic member therein, is prevented from being damaged by the reinforcing frame, so that the detachable member can be used for a long period merely by replacing the heelpiece.

[0023] In addition, according to an embodiment of the present disclosure described in claim 5, the notch is formed in order to enable the mounted detachable member to be easily separated, and it is possible to prevent the detachable member from being damaged when separating the detachable member using the notch.

[0024] In addition, according to an embodiment of the present disclosure described in claim 6, the lower end of the heel body, which may be damaged by being placed close to the ground, can be protected by the reinforcing frame, which protrudes outwards from the side face of the lower end of the heel body.

Brief Description of the Drawings

[0025]

FIG. 1 is a perspective view illustrating a heel-reinforced shoe according to a first embodiment of the present disclosure;

FIG. 2 is a perspective view illustrating a detachable member in the disassembled state in the heel-reinforced shoe according to the first embodiment of the present disclosure;

FIG. 3 is a perspective view illustrating a detachable

member in the assembled state in the heel-reinforced shoe according to the first embodiment of the present disclosure;

FIG. 4 is a cross-sectional view of the heel-reinforced shoe according to the first embodiment, in which a long bolt and a compression spring are illustrated in a side view;

FIG. 5 is a perspective view illustrating a detachable member in the disassembled state in a heel-reinforced shoe according to a second embodiment of the present disclosure;

FIG. 6 is a cross-sectional view illustrating a state in which two or three compression springs are inserted in a heel-reinforced shoe according to a third embodiment of the present disclosure;

FIG. 7 is a view illustrating a detachable member in a disassembled state in the heel-reinforced shoe according to the third embodiment of the present disclosure;

FIG. 8 is a view illustrating a detachable member in a disassembled state in a heel-reinforced shoe according to a fourth embodiment of the present disclosure; and

FIG. 9 is a view illustrating a detachable member in a disassembled state in a heel-reinforced shoe according to a fifth embodiment of the present disclosure.

Mode for Carrying Out the Invention

[0026] Hereinafter, embodiments of the present disclosure will be described with reference to the accompanying drawings such that a person ordinarily skilled in the art can easily carry out the present disclosure.

[0027] First, in connection with reference numerals indicated in the accompanying drawings, it shall be noted that, even though heel bodies and detachable members, which constitute heels in different embodiments, are differently configured depending on embodiments, and constituent elements, in which upper contact surfaces are formed in the detachable member, are different from each other depending on the embodiments, the heel bodies, the detachable members, and the upper contact surfaces will be denoted by the same reference numerals, respectively.

[0028] As illustrated in FIGS. 1 to 4, a heel-reinforced shoe according to a first embodiment of the present disclosure includes an upper configured to receive a human foot, an insole provided on a bottom surface inside the upper so that the sole of a foot is in contact with the insole, an outsole provided on the bottom side of the insole to come into contact with the ground, and a heel 100 or 200 installed to the rear portion of the outsole to protrude downwards so as to lift a foot heel.

[0029] The heel 100 or 200 includes: a heel body fixed to the rear portion of the bottom surface of the outsole; a detachable member detachably mounted on the lower portion of the heel body so as to come into contact with the ground and support the heel body, and including a heelpiece, which is mounted on a bottom portion of the heel body to come into contact with the ground, the heelpiece being mounted to be introduced into the detachable member like a piston so as to move up and down, and an elastic member incorporated in the detachable member such that an impact applied to the heelpiece is absorbed by the elastic member, which is compressed when the heelpiece is introduced into the detachable member; and a reinforcing frame, which wraps a portion, which is in contact with the heel body, on the surface of the detachable member so as to prevent the detachable member and the heel body from being worn out or damaged, whereby the heel has a structure that improves endurance while relieving an impact applied through the heel 100 or 200 while a user walks in the state of wearing the shoe.

[0030] Here, it is evident to a person ordinarily skilled in the art that the upper, the insole, and the outsole are not limited to the shapes illustrated in the accompanying drawings of the present application, and may be modified in various forms depending on types of shoes. Since the shapes, structures, materials, and the like thereof are known in the related art, detailed descriptions thereof will be omitted.

[0031] Since a deep groove is formed in the heel body upwards from the bottom surface thereof, the detachable member can be mounted by inserting the insertion portion, which protrudes upward from the detachable member to be described later, into the groove. After being mounted, the detachable member can be separated as necessary.

[0032] Referring to the detailed shape of the groove, the groove includes a lower space portion formed in a lower side, a bottle-neck space portion formed in a middle portion to be narrower than the lower space portion such that a lower end step is formed at the boundary between the bottle-neck space portion and the lower space portion, and an upper space portion formed in an upper side to be wider than the bottle-neck space portion such that an upper end step is formed at the boundary between the bottle-neck space portion and the upper space portion.

[0033] At this time, in the first embodiment of the present disclosure, the upper space portion is formed to penetrate the upper surface of the heel body, and the groove is formed vertically through the heel body. Accordingly, when the outsole is penetrated at the position of the upper space portion and the rear portion of the insole is configured to be removed, a long bolt can be inserted through the upper space portion even in the state in which the heel body is fixed to the bottom of the rear portion of the outsole.

[0034] The detachable member includes: an insertion portion, which is detachably inserted into and fixed to the groove in the heel body so as to make the detachable member detachable from the heel body; an upper contact surface formed around the insertion portion to be in close

contact with the bottom surface of the heel body; and the heelpiece, which comes into direct contact with the ground.

[0035] In the first embodiment of the present disclosure, the detachable member is provided with an inner space, the lower portion of which is opened, and the elastic member is inserted into the inner space. After the heelpiece is separately manufactured, the upper portion of the heelpiece is inserted into the inner space from the lower side so as to move up and down like a piston while receiving elastic force applied by the elastic member.

[0036] Referring to the shape of the detachable member, a heel protection step extending outwards from the lower end of the insertion portion is formed, and the top surface of the heel protection step is formed as the upper contact surface. Here, the heel protection step comes into close contact with the bottom surface of a frame that forms the periphery of the inlet of the groove of the heel body, thereby protecting the heel body such that the heel body does not come into direct contact with the ground.

[0037] In addition, the insertion portion may include a hollow large-diameter portion, which is inserted into the lower space portion of the groove, and a hollow small-diameter portion, which is formed above the large-diameter portion and inserted into the bottle-neck space portion of the groove, so that the insertion portion can be inserted into the groove.

[0038] At this time, the small-diameter portion is provided with a fixing step, which is formed at the upper end thereof to protrude outwards, and a slot, which is formed to be elongated downwards by cutting the small-diameter portion from the upper end thereof such that the small-diameter portion is inserted into the bottle-neck space portion of the groove while being contracted. Thus, elastic restoring force, which expands the small-diameter portion again, is exhibited such that the small-diameter portion is brought into close contact with the bottle-neck space portion and the fixing step is engaged with the upper end step and locked so as not to be pulled out unless forcibly pulled out.

[0039] In addition, the lower end inside the small-diameter portion communicates with the inside of the large-diameter portion, and a bolt head seat step is formed in the lower end inside the small-diameter portion so as to protrude inwards.

[0040] In the case of the large-diameter portion, an inner end step is formed at the boundary portion between the large-diameter portion and the small-diameter portion and the inner space is formed inside the large-diameter portion so as to accommodate the elastic member therein. Thus, the upper portion of the elastic member abuts on the inner end step and the heelpiece, inserted through the lower opening of the inner space, abuts on the top surface of the elastic member, so that when the heelpiece is pushed into the inner space, elastic restoring force is applied thereto so as to push the heelpiece to the outside.

[0041] In addition, the elastic member includes a first shock-absorbing material mounted to directly abut on the inner end step, a compression spring vertically erected such that the upper end thereof abuts on the first shock-absorbing material, and a second shock-absorbing material that wraps the compression spring along the outer periphery thereof. Accordingly, when compressed by the heelpiece, the compression spring and the second shock-absorbing material are simultaneously contracted, so that elastic restoring force generated by each of the compression spring and the second shock-absorbing material is exhibited, and the first shock-absorbing material is also contracted by the contraction of the compression spring and the second shock-absorbing material, so that elastic restoring force is exhibited.

[0042] Thus, the elastic member is configured to execute a dual shock-absorbing action by the compression spring and the second shock-absorbing material and a multi-stage shock-absorbing action by the addition of the first shock-absorbing material, so that compared to the case in which only the compression spring is installed, an impact may be received in a more distributed manner and the life span of the compression spring may also be extended. In addition, in order to allow the long bolt to pass freely through the compression spring, the diameter of the inner cross section of the compression spring is set to be larger than the outer diameter of the long bolt. At this time, the second shock-absorbing material wraps the compression spring, which causes the compression spring to be stably maintained in an erected state and also prevents the compression spring and the long bolt from coming into contact with each other.

[0043] Here, since the heelpiece should not be detached from the detachable member, an insert, which is formed with female threads, is embedded in the top surface of the heelpiece. In addition, the long bolt, which has the bolt head formed on the upper end thereof and male threads formed on the lower peripheral surface thereof to a predetermined height, is inserted into the small-diameter portion and through the first shock-absorbing material, and penetrates through the inside of the compression spring. Then, the lower end of the long bolt is inserted into and screwed into the insert.

[0044] At this time, since the bolt head is seated on the bolt head seat step of the small-diameter portion, the heelpiece is not detached from the detachable member after the long bolt is screwed to the insert. In addition, the screwed depth between the long bolt and the insert, that is, the length of the lower portion of the long bolt, which is inserted into the insert, should be adjusted in such a manner that the upper portion of the heelpiece is at least partially maintained in the state of being inserted into the inner space of the detachable member while no external force is applied to the heelpiece. Further, the magnitude of initial elastic restoring force may be changed by adjusting the screwed depth between the long bolt and the insert. For example, since the elastic restoring force of the elastic spring has a characteristic of being linearly proportional to a contracted length, the magnitude of the elastic restoring force exhibited at the

time at which the elastic spring receives external force may be changed by adjusting the contracted length of the elastic body in the state in which the elastic spring does not receive external force.

[0045] As described above, by configuring the heel 100, 200 with the heel body and the detachable member, and by installing the heelpiece to the detachable member to slide in the vertical direction using the long bolt and detachably mounting the detachable member on the bottom surface of the heel body, when a constituent element among the constituent elements of the detachable member is worn or damaged, it is possible to separate the detachable member from the heel body, to disassemble the detachable member, to assemble a new constituent element so as to replace only the worn or damaged constituent element, and then to mount the detachable member on the heel body.

[0046] Further, according to the present disclosure, a reinforcing frame is mounted on the detachable member so as to protect the heel body while protecting the detachable member such that the detachable member is not worn or damaged.

[0047] The reinforcing frame includes an upper cover portion, which covers the upper contact surface of the heel protection step, and a side cover portion, which extends from the peripheral edge of the upper cover portion and is bent downwards so as to cover the side face of the heel protection step, so that, when the reinforcing frame is mounted on the heel protection step, the reinforcing frame covers the edge on the periphery of the upper contact surface therearound.

[0048] In addition, by mounting the detachable member in which the reinforcing frame is mounted on the heel protection step, on the heel body, the upper cover portion of the reinforcing frame is interposed between the upper contact surface of the heel protection step and the bottom surface of the heel body so that the upper contact surface does not directly come into contact with the bottom surface of the heel body, and the side cover portion of the reinforcing frame is bent downward from the peripheral edge of the upper contact surface so as to protect the side surface of the heel protection step.

[0049] Since the heel is manufactured using a rigid synthetic resin material or is manufactured by stacking leather in multiple layers and then compressing the leather, the heel may be worn or damaged by an external impact. Further, when the heel includes the heel body and the detachable member and the detachable member is detachably mounted on the heel body as in the present disclosure, the detachable member is slightly shaken with respect to the heel body when an external impact is applied thereto. Accordingly, the contact surfaces between the detachable member and the heel body are worn by the shaking of the detachable member. In contrast, according to the present disclosure, since the upper cover portion of the reinforcing frame is interposed between the bottom surface of the heel body and the upper contact surface of the detachable member, it is possible to minimize not only the abrasion of the heel body, but also the abrasion of the upper contact surface of the detachable member.

[0050] In addition, although the heel protection step of the detachable member is exposed to the outside, the heel protection step is covered by the side cover portion of the reinforcing frame according to the present disclosure. Thus, it is possible to enhance the endurance of the detachable member by protecting the heel protection step from an external impact. In particular, when the ground is treaded strongly with the heel to such an extent that the heelpiece is introduced deeply into the inner space in the detachable member or when a user walks on a rough path in shoes having such heels, the heel protection step may be damaged by colliding with the ground. However, since the heel protection step is protected by the reinforcing frame, the heel may be used by replacing only the heelpiece, which is easily worn or damaged, while leaving the detachable member as it is. In addition, as illustrated in the drawings, since the reinforcing frame includes the upper cover portion and the side cover portion and is installed to be seated on the edge of the heel protection step, the reinforcing frame is detachable. Thus, when the reinforcing frame is damaged, the heel may be used by replacing only the reinforcing frame.

[0051] In the embodiment of the present disclosure, in order to minimize the abrasion of the heel body and the detachable member, the reinforcing frame is made of a metal material. This is because the metal material may make the surface smooth so as to reduce the frictional coefficient, and further, the strength of the metal material is higher than the heel body and the detachable member.

[0052] In addition, since the side cover portion of the reinforcing frame is exposed to the outside, the reinforcing frame may be colored, for example, may be gold-plated such that the entire heel looks beautiful. Before the reinforcing frame is provided, the overall shape of the heel does not look beautiful since the boundary between the heel body and the detachable member is exposed to the outside. However, in providing the reinforcing frame according to the present disclosure, it is possible to manufacture a heel having a beautiful shape by providing the reinforcing frame which can be plated, even though the heel cannot be plated due to the material characteristics thereof.

[0053] Meanwhile, at least one notch is formed in the lower end of the heel body. Here, the notch is formed as a groove in the bottom surface of the heel body, and is formed by being cut in the form of a groove extending from the outer surface to the inner surface of the inner space. If the thickness between the outer surface and the inner surface of the heel body is large, the notch may be formed in the form of a downwardly and outwardly opened groove by cutting, to a predetermined depth, the groove toward the inner surface (but not all the way to the inner surface), starting from the outer surface.

[0054] Thus, when the detachable member is mounted

on the heel body, the upper cover portion of the reinforcing frame is partially exposed in the lower portion of the notch. Thus, when, for example, a hook is inserted into the notch and pulled downward, the detachable member can be easily separated from the heel body. Here, since the reinforcing frame is installed to the detachable member and the hook comes into contact with the upper cover portion of the reinforcing frame, the detachable member is not damaged by the hook. In replacing the heelpiece, which is most easily worn among the constituent elements of the detachable member, it is possible to replace the heelpiece without scratching the detachable member, so that the detachable member can be used for a long period.

[0055] In addition, the reinforcing frame is mounted in such a manner that the side cover portion thereof protrudes outwards from the side surface of the heel body. For this purpose, in the embodiment of the present disclosure, by manufacturing the detachable member such that when the detachable member is mounted on the heel body without mounting the reinforcing frame, the side surface of the detachable member and the side surface of the heel body are smoothly continued, and then mounting the reinforcing frame on the detachable member, the reinforcing frame protrudes outwards from the side surface of the lower end of the heel body by the thickness of the side cover portion thereof. Accordingly, even though the reinforcing frame does not cover the lower end of the heel body, the reinforcing frame protrudes outwards from the lower end of the heel body so that the lower end of the heel body can be protected, even if the user walks on a road on which stones are spread. In particular, since the groove is formed for insertion of the insertion portion, the lower end of the heel body may be easily fractured by an external impact, but the lower end of the heel body can be protected by providing the reinforcing frame.

[0056] FIG. 5 is a view illustrating the detachable member in the disassembled state in the heel-reinforced shoe according to the second embodiment of the present disclosure.

[0057] FIG. 6 is a cross-sectional view illustrating a state in which two or three compression springs are inserted in the heel-reinforced shoe according to the second embodiment of the present disclosure.

[0058] The second embodiment is the same as the first embodiment in that in a heel-reinforced shoe is provided with a heel 100, 200 including: a heel body fixed to a rear portion of the bottom surface of the shoe, and having a groove formed in the bottom surface thereof; and a detachable member including an insertion portion inserted into and fixed to the groove in the heel body, and an upper contact surface formed around the insertion portion to be in close contact with the bottom surface of the heel body. The shoe further includes a reinforcing frame made of a metal material and interposed between the upper contact surface of the detachable member and the bottom surface of the heel body, the reinforcing frame includes a side cover portion bent to extend downwards from the peripheral edge of the upper contact surface so as to cover the side surface of the detachable member, and the side cover portion is formed to protrude outwards from the side surface of the lower portion of the heel body.

[0059] However, the first embodiment and the second embodiment are different from each other in that while the first embodiment is provided with one compression spring in the elastic member and the long bolt slides up and down within the compression spring, the second embodiment is provided with a plurality of compression springs within the elastic member and the long bolt is slidable between the compression springs rather than within the compression spring.

[0060] In addition, there is provided a guide protection tube, which is fitted on the long bolt so as to prevent the compression springs from coming into contact with and interfering with the long bolt when the compression springs are extended/contracted.

Meanwhile, when a plurality of compression springs is formed, compression-spring-fixing-projections are formed on the portions where the respective springs are positioned on the top surface of the heelpiece.

[0061] In addition, as illustrated in FIG. 6, the present disclosure may be configured by changing the size of the heelpiece and providing three or more compression springs which are inserted into the inside of the heelpiece. That is, the number of compression springs may be appropriately increased or decreased so as to exhibit elastic force corresponding to the load of the user's weight, so that an impact can be properly buffered.

[0062] FIG. 7 is a view illustrating the detachable member in the disassembled state in the heel-reinforced shoe according to the third embodiment of the present disclosure,

[0063] FIG. 8 is a view illustrating the detachable member in the disassembled state in a heel-reinforced shoe according to a fourth embodiment of the present disclosure, and FIG. 9 is a view illustrating the detachable member in the disassembled state in a heel-reinforced shoe according to a fifth embodiment of the present disclosure. In order to help understanding, the heel body is illustrated in a lower side perspective view, and the detachable member is illustrated in an upper side perspective view.

[0064] In the embodiment illustrated in FIGS. 7 to 9, the detachable member includes a heelpiece, an insertion portion formed as a small rod-shaped pin and installed to protrude from the top surface of the heelpiece, and a reinforcing frame covering the peripheral edge of the top surface of the heelpiece. The present embodiment does not include a structure for installing the elastic member or a structure for making the heelpiece slidable up and down, unlike the first embodiment. In addition, the groove formed in the bottom surface of the heel body is formed in a shape to which the pin-shaped insertion portion can be press-fitted.

[0065] When describing the embodiments of FIGS. 7 to 9 separately for respective drawings, FIG. 7 illustrates

a shoe in which one insertion portion is formed on the top surface of the heelpiece, for example, a high-heeled shoe, FIG. 8 illustrates a shoe in which two insertion portions are formed on the top surface of the heelpiece, for example, a shoe having a heelpiece thicker than that of the high-heeled shoe, and FIG. 9 illustrates a shoe in which more than two insertion portions are formed on the top surface of the heelpiece, for example, a formal shoe. Since these shoes can be manufactured by the shoe heel manufacturing method disclosed in Korean Patent No. 10-1017789, detailed descriptions of the structure of the detachable member and the shape of the groove are omitted.

[0066] According to the embodiments illustrated in FIGS. 7 to 9, when the insertion portions are inserted into the groove so as to mount the detachable member on the heel body, an upper contact surface of the detachable member, which comes into close contact with the bottom surface of the heel body, is formed as the top surface of the detachable member from which the insertion portions protrude.

[0067] In addition, the reinforcing frame is formed to be suitable for the shape of the peripheral edge of the top surface of the heelpiece such that the side cover portion covers the side surface of the heelpiece along the peripheral direction and the upper cover portion is provided to be interposed between the top surface of the heelpiece and the bottom surface of the heel body.

[0068] At this time, when the heelpiece of the detachable member comes into contact with the ground so that abrasion proceeds to some extent starting from the bottom surface, the detachable member is separated and removed from the heel body, and a new detachable member is mounted on the heel body. Thus, the side cover portion of the reinforcing frame is configured to cover only the upper side surface of the heelpiece. For example, as illustrated in Korean Patent No. 10-1017789, the side surface of the upper portion of the heelpiece may be covered by the side cover portion of the reinforcing frame to the buried depth of the lower portion of the insertion portion, which is buried to the heelpiece, or to the buried depth of a support member, which is fixed to the lower end of the insertion portion and buried to the heelpiece, so as to rigidly install the insertion portion to protrude from the heelpiece.

[0069] In addition, although not illustrated in FIGS. 7 to 9, a notch may also be formed in the lower end of the heel body in the second to fourth embodiments of the present disclosure as in the first embodiment of the present disclosure. In this case, the notch may be formed by cutting the heel body only to a predetermined depth rather than to the groove, starting from the side surface of the heel body. However, when replacing the heelpiece in the third to fifth embodiments of the present disclosure, the pin-shaped insertion portion, the lower end of which is buried to the heelpiece, is also replaced. Thus, it is possible to hold the heelpiece, which will be wasted anyway, using pincers, and to separate the heelpiece from the heel body, instead of forming the notch.

[0070] Meanwhile, as illustrated in FIG. 7, when the upper contact surface is not wide and only one insertion portion is installed to protrude, the entire upper contact surface may be covered with the upper cover portion of the reinforcing frame.

[0071] As illustrated in FIGS. 8 and 9, when the upper contact surface is wide and multiple insertion portions are installed to protrude, only the peripheral edge portion of the upper contact surface of the upper contact surface may be covered with the upper cover portion of the reinforcing frame. Meanwhile, in the upper contact surface formed as the top surface of the heelpiece, the surface, which is not covered by the upper cover portion of the reinforcing frame, may protrude a distance equal to the thickness of the upper cover portion so as to match the height of the upper cover portion.

[0072] In the foregoing, specific embodiments have been illustrated and described in order to exemplify the technical idea of the present disclosure, but the present disclosure is not limited to the same configurations and actions as the specific embodiments described above, and various modifications can be made without departing from the scope of the present disclosure. Accordingly, such modifications should also be regarded as belonging to the scope of the present disclosure, and the scope of the present disclosure should be determined based on the accompanying claims.

Description of Reference Numerals

[0073]

1: upper 2: insole 3: outsole
10: reinforcing frame 11: upper cover portion
12: side cover portion
100: heel body 110: groove
111: lower space portion
112: throttle neck space portion
113: upper space portion 114: upper end step
115: lower end step 120: notch
200: detachable member 210: insertion portion
211: large-diameter portion 212: small-diameter portion 213: fixing step 214: slot 215: inner end step
216: bolt head seat step 217: inner space
220: upper contact surface 221: heel protection step
230: elastic member 231: compression spring
232: first shock-absorbing material
233: second shock-absorbing material
240: long bolt 241: bolt head 242: male thread
250: heelpiece 251: insert 260: guide protection tube
270: compression-spring-fixing-projection

Claims

1. A heel-reinforced shoe provided with a heel that comprises: a heel body fixed to a rear portion of a

bottom surface of the shoe, and having a groove formed in the bottom surface thereof; and a detachable member including an insertion portion inserted into and fixed to the groove in the heel body, and an upper contact surface formed around the insertion portion to be in close contact with a bottom surface of the heel body, so that the detachable member is replaceable, wherein the shoe further includes a reinforcing frame made of a metal material and interposed between the upper contact surface of the detachable member and the bottom surface of the heel body, the reinforcing frame includes a side cover portion bent to extend downwards from a peripheral edge of the upper contact surface so as to cover a side surface of the detachable member, and the side cover portion is formed to protrude outwards from a side surface of a lower portion of the heel body.

2. The heel-reinforced shoe of claim 1, wherein the detachable member includes a heelpiece mounted on a bottom portion thereof to be in contact with a ground such that the heelpiece is introduced into the detachable member like a piston so as to move up and down, and an elastic member is incorporated in the detachable member so as to buffer an impact applied to the heelpiece.

3. The heel-reinforced shoe of claim 2, wherein the elastic member includes one or multiple compression springs.

4. The heel-reinforced shoe of claim 3, wherein, when one compression spring is provided, a long bolt is provided so as to slide up and down inside the compression spring, and when multiple compression springs are provided, a long bolt is provided so as to slide up and down between the compression springs.

5. The heel-reinforced shoe of claim 4, wherein a notch is formed in a lower end of the heel body such that when a ring is inserted into the notch and pulled downward, the detachable member is separated from the heel body.

6. The heel-reinforced shoe of claim 4, further comprising a guide protection tube, to which the long bolt is fitted, in a case where multiple compression springs are provided.

Fig. 1

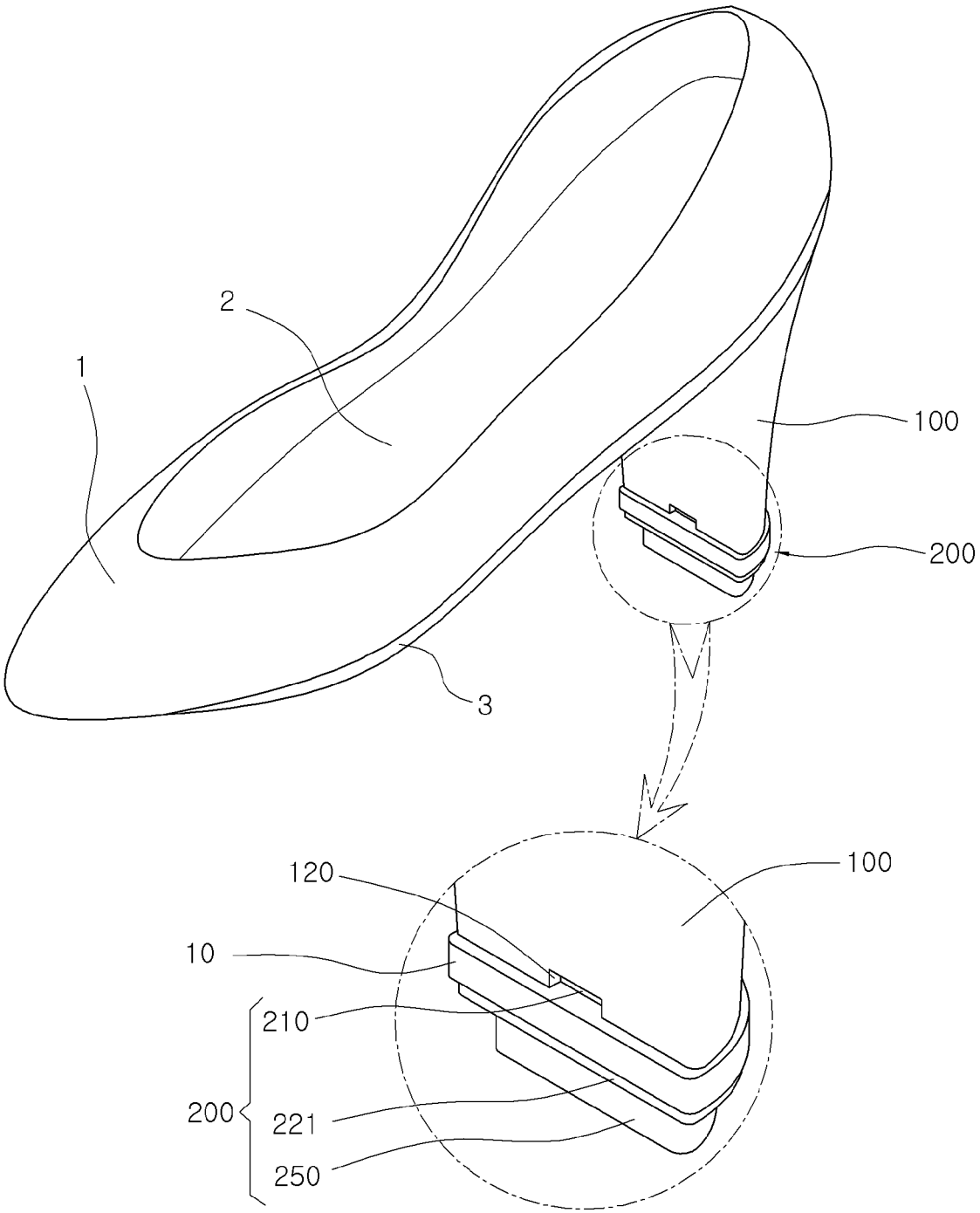

Fig. 2

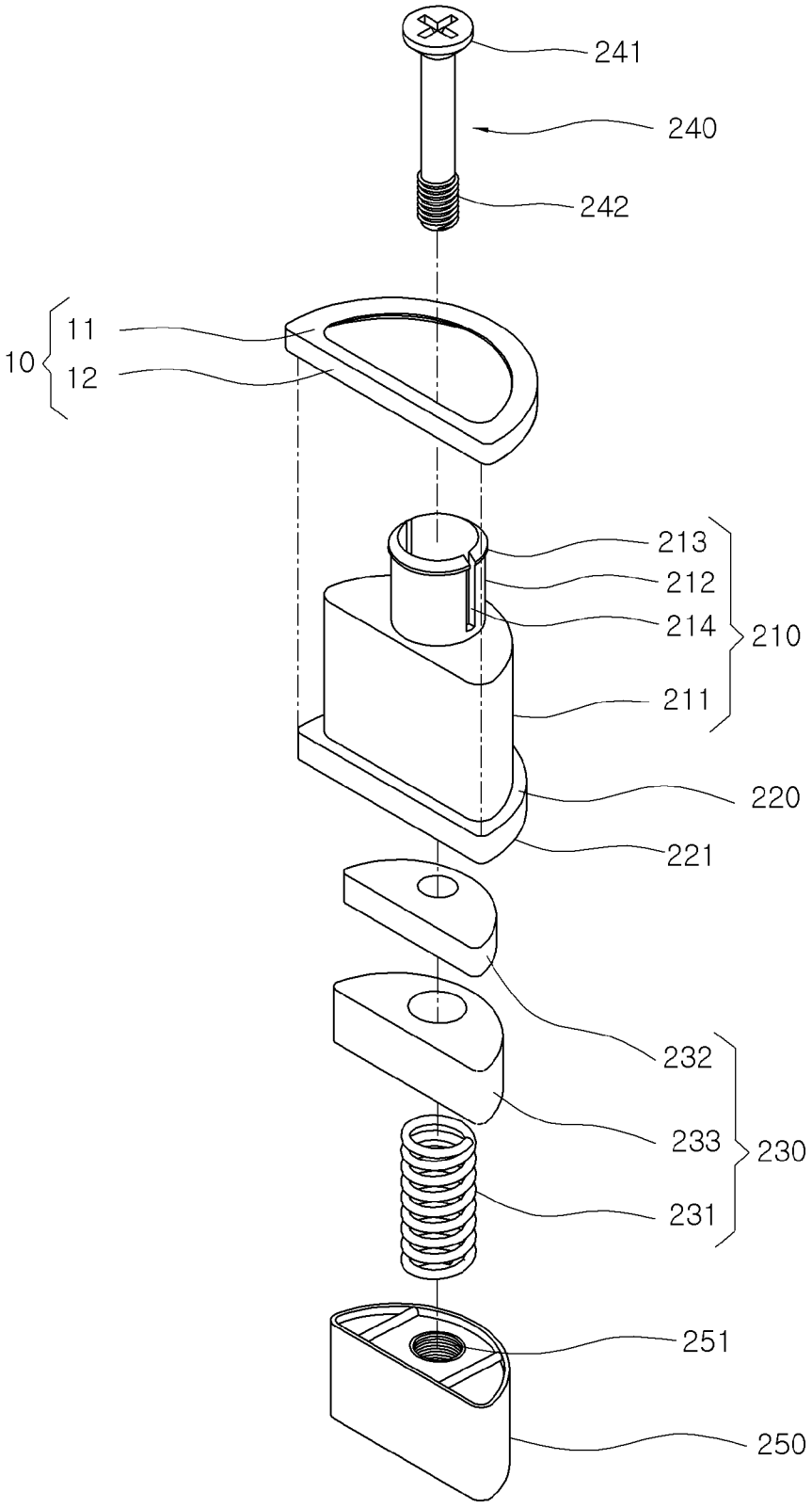
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Fig. 3

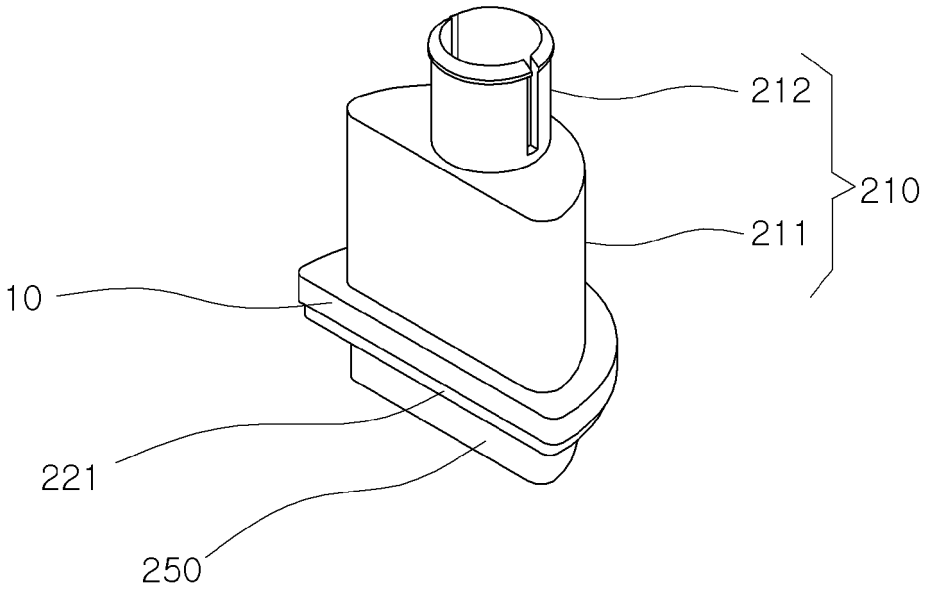
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Fig. 4

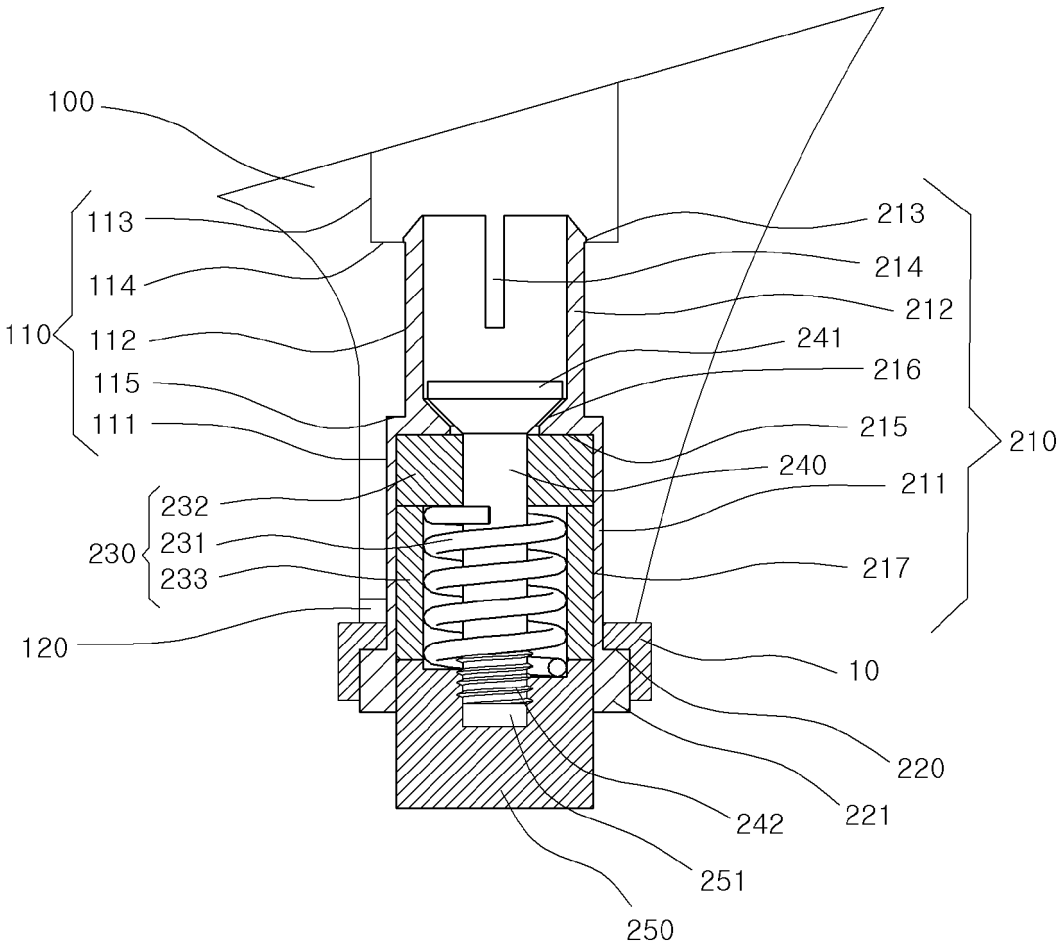
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Fig. 5

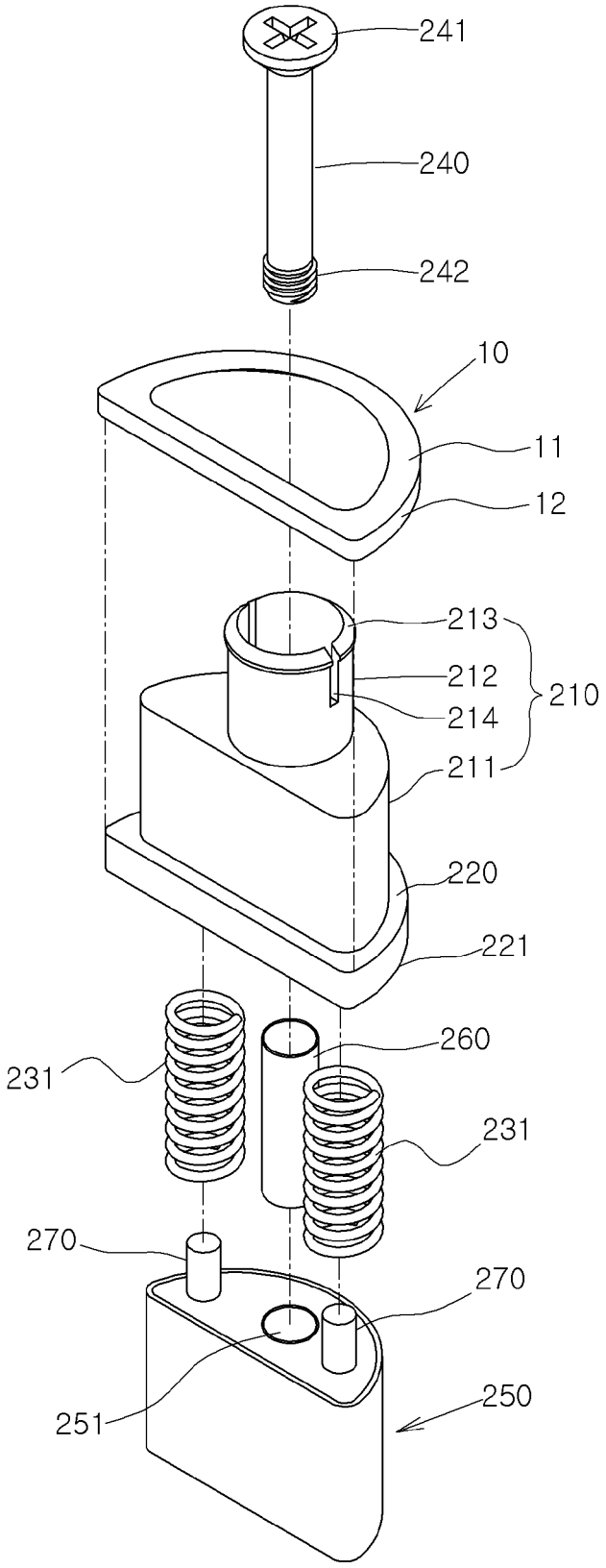
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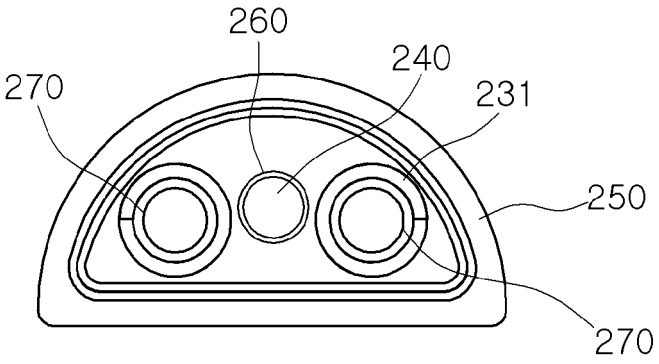
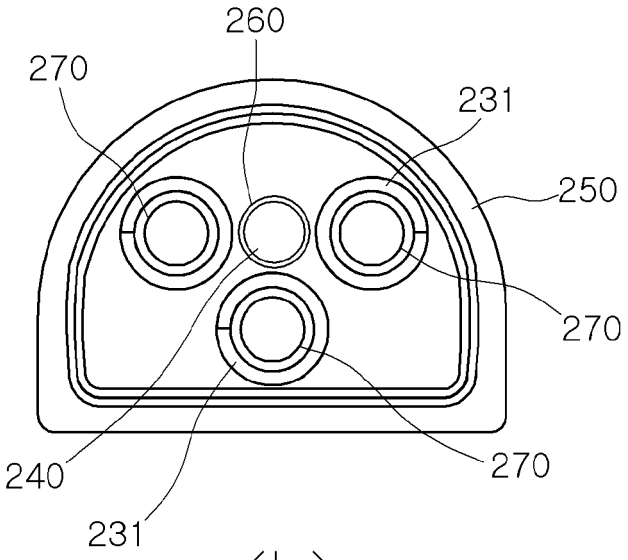
Fig. 6



(a)



(b)

Fig. 7

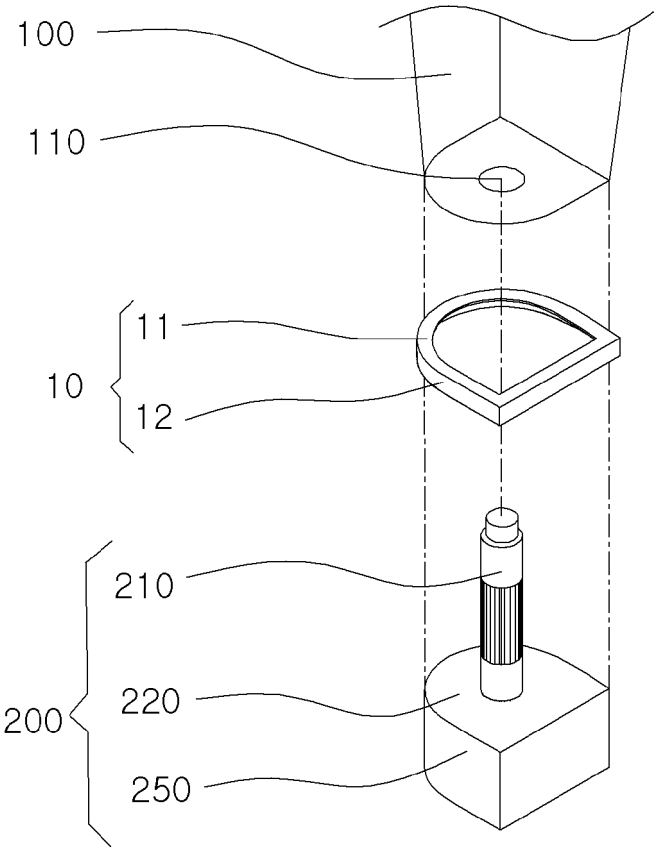


Fig. 8

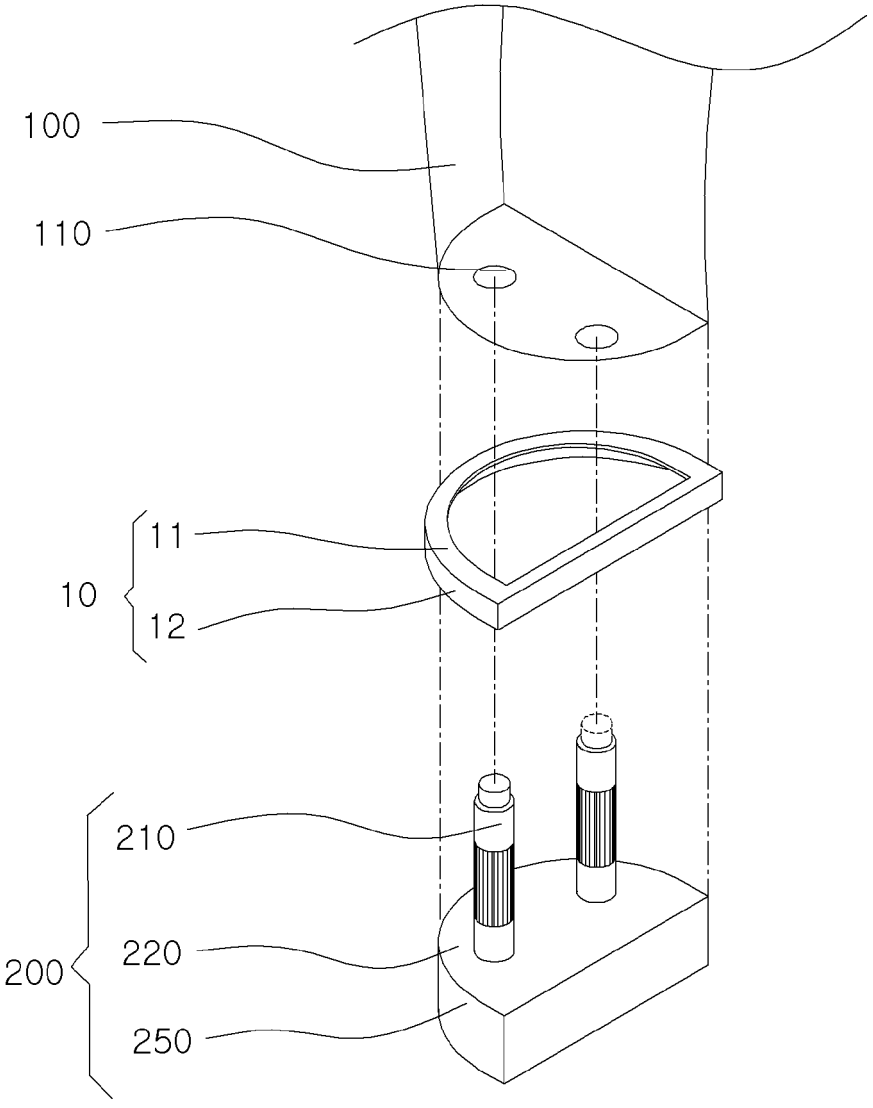
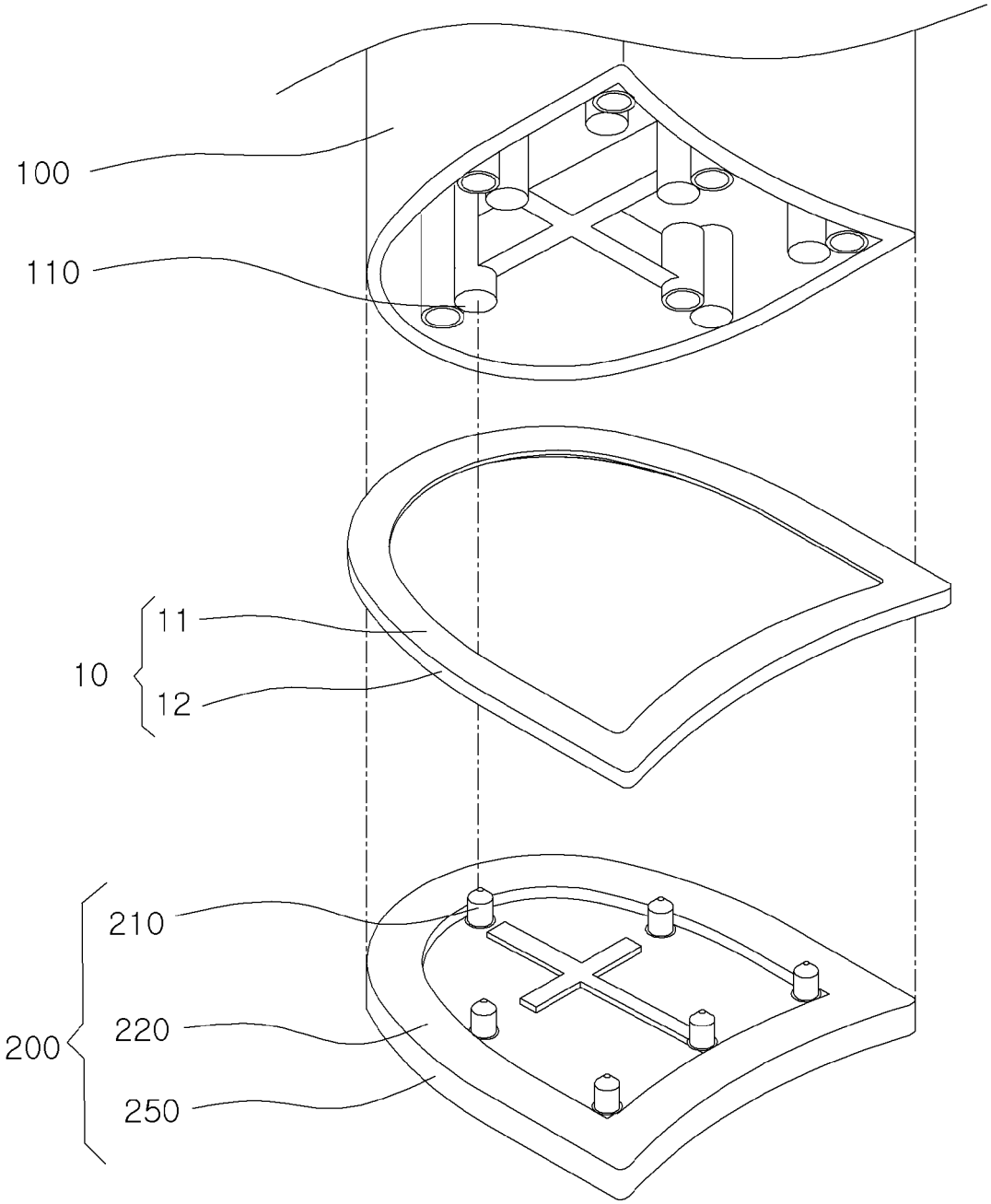


Fig. 9



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2015/008701

A. CLASSIFICATION OF SUBJECT MATTER

A43B 21/24(2006.01)i, A43B 21/02(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)

A43B 21/24; A43B 21/42; A43B 21/26; A43B 7/32; A43B 21/30; A43B 21/02

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: shoes, heel, insertion part, upper contact surface, attachment/detachment module, side surface cover part, reinforcing rim, abrasion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-1079709 B1 (MSZONE CO., LTD.) 03 November 2011 See abstract; claims 1-3; and figures 1-4.	1-6
A	KR 20-0169388 Y1 (ILSUNG INTERNATIONAL CO,. LTD.) 15 February 2000 See claims 1-3; and figures 1-4.	1-6
A	KR 10-1009577 B1 (GO, Jong - Taek) 20 January 2011 See claims 1-3; and figures 1-5.	1-6
A	KR 10-1019153 B1 (GO, Jong - Taek) 03 March 2011 See claims 1-5; and figures 1-7.	1-6
A	KR 10-1201844 B1 (GO, Jong - Taek) 15 November 2012 See abstract; claims 1-4; and figures 1-5.	1-6

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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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
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"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
17 MAY 2016 (17.05.2016)	**18 MAY 2016 (18.05.2016)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2015/008701

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KR 10-1079709 B1	03/11/2011	KR 10-2010-0025051 A	09/03/2010
KR 20-0169388 Y1	15/02/2000	NONE	
KR 10-1009577 B1	20/01/2011	NONE	
KR 10-1019153 B1	03/03/2011	NONE	
KR 10-1201844 B1	15/11/2012	NONE	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 101017789 **[0003] [0007] [0008] [0065] [0068]**
- KR 101201844 **[0007] [0008]**
- KR 101017789 B1 **[0010]**
- KR 101201844 B1 **[0010]**