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(54) CORRECTING AND BALANCING SHOES HAVING SPRINGS

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CHAUSSURES DE CORRECTION ET D'ÉQUILIBRAGE POSSÉDANT DES RESSORTS

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Description

Technical Field

[0001] The present invention relates to a shoe with a spring beneath a rear end of a shoe, and in particular to a spring shoe for a balance correction which facilitates the sole of a user to have a uniform elastic load while ensuring that noises do not occur when the spring is compressed in such a way that the upper side and the lower side of the spring are maintained horizontal eve when a vertical load is applied.

Background Art

[0002] A spring shoe is generally installed beneath a shoe and is configured to absorb the impacts from the ground when a user walks.

[0003] When a user uses a show with a spring, the user can have a powerful jumping force with the aid of an elastic force from the spring when the user walks. A lot of children use it for the purpose of entertainment; therefore when the same motions are repeatedly performed for a long time, the user can obtain quite exercise effects as compared to when the user uses an ordinary shoe, so the shoe with a sprig is widely used by an adult who lacks exercise time or by a person who does regularly exercise or is on diet.

[0004] In addition, the recent spring shoe is changing to different spring shoes with the aid of various ideas; however most of the newly developed spring shoes is configured in such a way that a spring is positioned between a sole of the shoe and a bottom plate of the shoe coming into direct contact with the ground, and it is fixed to beneath the sole of the sole or the bottom plate of the shoe by way of an engaging element such as a bolt, etc at the center of the spring. In this case, the spring shoe can be manufactured, but it is hard to repair the shoe when the spring is defective or it is needed to exchange the spring.

[0005] In other words, the fixing plate is detachably engaged using a screw to beneath the rear end or the bottom plate of the shoe so as to support the upper and lower end portions of the spring, and the end of the spring is inserted into the fixing plate by way of a snug fit method.

[0006] The spring shoe has a problem that the end of the spring might escape when the sole of the shoe and the bottom plate of the shoe are over distorted, so the spring shoe has a problem in safety. Since the upper and lower ends of the spring are fixedly engaged to the sole and the bottom plate, exchanging the spring and adjusting the spring balance to match with the physical status of the user are impossible.

[0007] In addition, since the spring disposed between the sole of the shoe and the bottom plate is always exposed to the outside, so impurities might be caught in the spring exposed when a compression force and a recovery force occur in the spring, so there might occur a dangerous situation due to the decreased compression force.

[0008] In addition, since the bottom plate supporting the spring is separate from the sole of the shoe, the bottom plate used to bend or used to wear easily when in use.

[0009] In order to improve the above mentioned problem, there is the Korean patent registration number 10-0947670 entitled "spring shoe" which is characterized in that the bottom plate supporting the sole of the shoe and the ground and fixing the spring can be stably engaged to the lower end of the shoe, and it is can be easily disengaged from the lower end of the shoe, so the user can easily exchange or repair. The bottom plate supporting the spring is detachably connected to the front side of the sole of the shoe, and it is rotatable from the front side of the sole of the shoe, so the spring comes to stably support the heel of the foot.

[0010] However, the above mentioned technology can obtain a good outer looking and an easier assembly and exchange work; however noises occurs from the operation portions when a user wears a spring shoe and walks.

Disclosure of Invention

[0011] Accordingly, the present invention is made to improve the above mentioned problems.

[0012] It is a first object of the present invention to provide a spring shoe for a balance correction which makes it possible to prevent noises from a connection portion of a spring when a user wears a spring shoe and walks.

[0013] It is a second object of the present invention to provide a spring shoe for a balance correction, which can have a stable elastic support force even though a repeated vertical load is generated, so that the upper side and the lower side of the spring have stable horizontality.

[0014] It is a third object of the present invention to provide a spring shoe for a balance correction which makes it possible to lower the unit cost with the aid of easier assembly and manufacture.

[0015] The above mentioned objects of the present invention are no limited thereto; and other objects belonging to the present invention can be obviously understood along with the descriptions below.

[0016] To achieve the above objects, there is provided a spring shoe for a balance correction, comprising a shoe rear side bottom plate which is made from a rigid synthetic resin material and is engaged to a rear side of a lower surface of a shoe outer leather and has an engaging groove which is downwardly open at a rear, lower surface; a shoe front side bottom plate which is engaged to a front side of a lower surface of the shoe outer leather in a shape that the rear side covers the front side of the shoe rear side bottom plate; a coil spring which is formed with its width being gradually reduced from a lower side to an upper side; an upper side holder plate which is integrally formed at an upper side of the coil spring and is inserted into the engaging groove in a state that it does not rotate; a spring holder which has an integrally formed

lower side holder plate in order for the lower side of the coil spring to be horizontal; an engaging part which sequentially passes through the shoe outer leather and the engaging groove and is inserted into the screw groove formed at the center of the upper side holder plate with its head being caught on the shoe outer leather; and a bottom plate which is made from a soft synthetic resin material and is detachably engaged to the shoe rear side bottom plate as a bent end is formed at one side, and the other side being integrally engaged to the lower surface of the lower side holder plate.

[0017] Here a cross groove is formed on the surface of the engaging groove, and a cross protrusion is formed on an upper surface of the holder plate of the upper side, so the rotations can be prevented when engaging them.

[0018] In addition, a protrusion-shaped intermediate key is protruded from a lower surface of a front side of the shoe rear side bottom plate, and a screw groove is formed at both sides about the intermediate key; and a key groove is formed at the bent end of the bottom plate, with the intermediate key being inserted into the key groove, and a bolt hole is formed at both sides for a bolt screw-engaged in the screw groove to pass.

Advantageous effects

[0019] The present invention is directed to provide a uniform elastic force when a vertical load occurs in such a way to integrally engage upper and lower holder plates to the upper and lower sides of a coil spring while adjusting the thicknesses of the upper and lower holder plates.

[0020] In addition, as the spring holder is provided, the assembly is easy, and the unit cost can be greatly reduced.

[0021] Noises do not occur in the middle of the compression of the spring thanks to the upper and lower holder plates engaged to the upper and lower sides of the spring.

Brief Description of Drawings

[0022]

Figure 1 is a perspective view illustrating a spring shoe for a balance correction according to the present invention.

Figure 2 is a side view of Figure 1.

Figure 3 is a separated perspective view of Figure 1 or Figure 2.

Figure 4 is a perspective view of a bottom surface of Figure 3.

Figure 5 is a bottom view of a bottom plate of a rear side of a shoe of Figure 4.

Figure 6 is a plane view illustrating an engaged state of a spring holder and a bottom plate of Figure 3 or Figure 4.

Best modes for carrying out the invention

[0023] The preferred embodiments of the present invention will be described with reference to the accompanying drawings. The matters deemed to make unclear the subject matters of the present invention will be omitted from the descriptions of the invention.

[0024] The detailed matters of the embodiments of the present invention are also illustrated in the descriptions and drawings, and it is obvious that the features of the present invention might be well understood along the embodiments to be described below.

[0025] As shown in Figures 1 to 6, the spring shoe of the present invention comprises a shoe upper leather 100, a shoe rear side bottom plate 200 engage to the bottom of a rear side of the shoe outer leather 100, a shoe front side bottom plate 300 engaged to the bottom of a front side of the shoe outer leather 100, a spring holder 400 engaged to the bottom of the shoe rear side bottom plate 200, an engaging part 500 engaging the spring holder 400 to the shoe rear side bottom plate 200, and a bottom plate 600 one end of which is engaged to one side of the shoe rear side bottom plate 200, and the other end of which is engaged to the bottom of the spring holder 400.

[0026] The shoe outer leather 100 represents a typical shoe accommodating a use's foot and protecting it and can be separated into a front side and a rear side about the center of the sole of the user.

[0027] The shoe rear side bottom plate 200 is made from a rigid synthetic resin material and is integrally engaged to the rear side of the bottom of the shoe outer leather 100 by a typical bonding method. In addition, an engaging grove 220 with a cross groove 222 is downwardly open on the bottom of the rear side of the shoe rear side bottom plate 200, and at its front side are formed an intermediate key 242 and a screw groove 252 at both sides about the intermediate key 252.

[0028] A bolt hole 260 through which the engaging part 500 passes is formed at the center of the engaging groove 220 defining the shoe rear side bottom plate 200.

[0029] The shoe front side bottom plate 300 is made from a synthetic resin material and is integrally engaged to the front side of the bottom of the shoe outer leather 100 in a typical bonding method with its rear side covering the front side of the shoe rear side bottom plate 200.

[0030] The spring holder 400 is configured to provide an elastic force to a wearer and comprises a coil spring 420 the width of which is gradually reduced from its lower side to an upper side, an upper side holder plate 440 which is integrally formed at the top of the coil spring 420 and has on its upper surface a cross protrusion 442 inserted into the engaging groove 220 and inserted into the cross groove 222, and a lower side holder plate 460 which is integrally formed for the lower side of the coil spring 420 to be horizontal.

[0031] The lower side holder plate 460 and the upper side holder plate 440 are placed in parallel upward and

downward and are integrally engaged to the upper and lower sides of the coil spring 420.

[0032] The upper and lower side holder plates 440 and 460 are preferably formed along with the coil spring 420 during the formation process.

[0033] The cross groove 222 means a quadrangle groove 222a or four long grooves 22b outwardly prolonged from the corners or sides of the quadrangle groove 222a, and the cross protrusion 442 means a quadrangle groove 442a or four protrusions 442b prolonged from the corners or sides of the quadrangle groove 442a.

[0034] As the quadrangle protrusion 442a of the cross protrusion 442 fits the quadrangle groove 222a of the cross groove 222, the four protrusions 442b are inserted into the four long grooves 222b, thus preventing the rotations.

[0035] The above described construction is provided for obtaining a stable fixing force and a fixing force in an easier way.

[0036] The engaging part 500 sequentially passes through the shoe outer leather 100 and the cross groove 222 and is inserted into the screw groove 444 formed at the center of the cross protrusion 442 with the head part of it being caught on the bottom surface of the shoe outer leather 100.

[0037] The bottom plate 600 is made of a rigid or soft synthetic resin material and features in that one side is bent for thereby forming a bent end 620, and a key groove 662 is protruded from the bent end 620 for an insertion into the intermediate key 242, and a bolt hole 624 is formed at both side in order for the bolt 660 inserted into the screw groove 252 to pass, and the other side is integrally engaged to the lower surface of the lower side holder plate 460. Here, the bent end 620 is preferably made from a smooth material.

[0038] The assembling procedure of the spring shoe for a balance correction according to the present invention will be described with reference to the accompanying drawings.

[0039] When assembling, as shown in Figure 2 or 3, the upper side holder plate 440 is engaged at the upper side of the coil spring 420, and the lower side holder plate460 is engaged to the lower side, so they are integrally engaged.

[0040] At this time, the thicknesses of the upper and lower side holder plates 440 and 460 are adjusted and formed so that the load can be uniformly applied to the coil spring 420 when a vertical load is applied to the upper side holder plate 40.

[0041] In other words, the portion where greater load is applied is made to get gradually thicker, and the portion where smaller load is applied is made to get gradually thinner, so when the load generates at the upper and lower side surfaces, the coil spring 420 can be always uniformly compressed and recovered.

[0042] The bottom plate 600 is integrally bonded to the lower surface of the lower side holder plate 460 forming the spring holder 400.

[0043] Afterward, the shoe rear side bottom plate 200 is engaged to the lower surface of the shoe outer leather 100, and the shoe front side bottom plate 300 is engaged to the lower surface of the shoe outer leather 100, so the rear end of the shoe front side bottom palate 300 is engaged as if it covers the front end of the shoe rear side bottom plate 200.

[0044] Continuously, the upper side holder plate 440 disposed at the upper side of the spring holder 400 is positioned at the engaging groove 220 of the shoe rear side bottom plate 200 and is pushed while matching the cross protrusion 422 with the cross groove 222.

[0045] The spring holder 400 is tightened and engaged to the shoe rear side bottom plate 200 by way of the engaging part 500.

[0046] Continuously, the key groove 622 formed at the bent end 620 of the bottom plate 600 is fixedly engaged with the intermediate key 242 positioned at the bottom of the front side of the shoe rear side bottom plate 200, and the bolt 660 is tightened at both sides, so the bottom plate 600 is engaged to the shoe rear side bottom plate 200, thus completing the assembly as shown in Figure 1 or 2.

Claims

1. A spring shoe for a balance correction, comprising:

a shoe rear side bottom plate (200) which is made from a rigid synthetic resin material and is engaged to a rear side of a lower surface of a shoe outer leather (100) and has an engaging groove (220) which is downwardly open at a rear, lower surface;

a shoe front side bottom plate (300) which is engaged to a front side of a lower surface of the shoe outer leather (100) in a shape that the rear side covers the front side of the shoe rear side bottom plate (200) a coil spring (420) which is formed with its width being gradually reduced from a lower side to an upper side;

an upper side holder plate (440) which is integrally formed at an upper side of the coil spring (420) and is inserted into the engaging groove (220) in a state that it does not rotate;

a spring holder (400) which has an integrally formed lower side holder plate (460) in order for the lower side of the coil spring (420) to be horizontal;

an engaging part (500) which sequentially passes through the shoe outer leather (100) and the engaging groove (220) and is inserted into the screw groove (444) formed at the center of the upper side holder plate (440) with its head being caught on the shoe outer leather (100); and

a bottom plate (600) which is made from a soft

synthetic resin material and is detachably engaged to the shoe rear side bottom plate (200) as a bent end (620) is formed at one side, and the other side being integrally engaged to the lower surface of the lower side holder plate (460), wherein a protrusion-shaped intermediate key (242) is protruded from a lower surface of a front side of the shoe rear side bottom plate (200), and a screw groove (252) is formed at both sides about the intermediate key (242); and a key groove (622) is formed at the bent end (620) of the bottom plate (600), with the intermediate key (242) being inserted into the key groove (622), and a bolt hole (624) is formed at both sides for a bolt (660) screw-engaged in the screw groove (252) to pass.

Patentansprüche

1. Federschuh für die Gleichgewichtskorrektur, welcher umfasst:

eine Schuhrückseiten-Bodenplatte (200), welche aus einem starren Kunstharz gefertigt ist und an der Rückseite einer unteren Fläche des Schuhaußenleders (100) angebracht ist und eine Verbindungsnut (220) aufweist, die an einer hinteren unteren Fläche nach unten hin offen ist;
eine Schuhvorderseiten-Bodenplatte (300), welche an der Vorderseite der unteren Fläche des Schuhaußenleders (100) dergestalt angebracht ist, dass die Rückseite die Vorderseite der Schuhrückseiten-Bodenplatte (200) bedeckt;
eine Schraubenfeder (420), welche so geformt ist, dass ihre Breite von der unteren Seite zur oberen Seite allmählich abnimmt;
eine obere Halteplatte (440), welche als fester Bestandteil an der Oberseite der Schraubenfeder (420) ausgebildet und in die Verbindungsnut (220) dergestalt eingesetzt ist, dass sie sich nicht dreht;
eine Federhalterung (400), welche eine als festen Bestandteil ausgebildete untere Seitenhalterungsplatte (460) aufweist, damit die untere Seite der Schraubenfeder (420) horizontal verläuft;
ein Verbindungsteil (500), welches nacheinander durch das Schuhaußenleder (100) und die Verbindungsnut (220) führt und in die Schraubennut (444) eingesetzt ist, die in der Mitte der oberen Seitenhalterungsplatte (440) so ausgebildet ist, dass ihr Kopf auf dem Schuhaußenleder aufgenommen wird; und
eine Bodenplatte (600), welche aus einem weichen Kunstharzmaterial gefertigt ist und auf lösbare Weise mit der Schuhrückseiten-Bodenplatte (200) verbunden ist, während ein gebogenes Ende (620) auf einer Seite ausgebildet ist und die andere Seite fest mit der unteren Fläche der unteren Seitenhalterungsplatte (460) verbunden ist, wobei ein als Vorsprung ausgebildetes Zwischenstück (242) von der unteren Fläche der Vorderseite der Schuhrückseiten-Bodenplatte (200) absteht und eine Schraubennut (252) auf beiden Seiten um das Zwischenstück (242) herum ausgebildet ist und eine Keilnut (622) an dem gebogenen Ende (620) der Bodenplatte (600) ausgebildet ist, wobei das Zwischenstück (242) in die Keilnut (622) eingesetzt ist und auf beiden Seiten ein Schraubenloch (624) ausgebildet ist, damit eine Schraube (660) hindurch führt, die in die Schraubennut (252) geschraubt ist.

Revendications

1. Chaussure à ressort pour une correction d'équilibrage comprenant :

une plaque côté inférieur arrière de chaussure (200) qui est réalisée à partir d'un matériau de résine synthétique rigide et est engagé avec un côté arrière d'une surface inférieure d'un cuir extérieur de chaussure (100) et a une rainure d'engagement (220) qui est ouverte vers le bas au niveau d'une surface inférieure arrière ;
une plaque côté inférieur avant de chaussure (300) qui est engagée sur un côté avant d'une surface inférieure du cuir extérieur de chaussure (100) avec un profil faisant que le côté arrière couvre le côté avant de la plaque côté inférieur arrière de chaussure (200) ;
un ressort hélicoïdal (420) qui est formé avec sa largeur qui est progressivement réduite d'un côté inférieur à un côté supérieur ;
une plaque de support côté supérieur (440) qui est formée intégralement au niveau d'un côté supérieur du ressort hélicoïdal (420) et est insérée dans la rainure d'engagement (220) dans un état dans lequel elle ne tourne pas ;
un support de ressort (400) qui a une plaque de support côté inférieur formée intégralement (460) de manière que le côté inférieur du ressort hélicoïdal (420) soit horizontal ;
une partie d'engagement (500) qui passe séquentiellement à travers le cuir extérieur de chaussure (100) et la rainure d'engagement (220) et est insérée dans la rainure de vis (444) formée au centre de la plaque de support côté supérieur (440) avec sa tête qui est accrochée sur le cuir extérieur de chaussure (100) ; et
une plaque inférieure (600) qui est réalisée à partir d'un matériau de résine synthétique mou

et est engagée de manière amovible avec la plaque côté inférieur arrière de chaussure (200) du fait qu'une extrémité pliée (620) est formée sur un côté, et l'autre côté étant engagé solidairement avec la surface inférieure de la plaque de support côté inférieur (460),
dans lequel un ergot intermédiaire en forme de saillie (242) fait saillie à partir d'une surface inférieure d'un côté avant de la plaque côté inférieur arrière de chaussure (200), et une rainure de vis (252) est formé des deux côtés autour de l'ergot intermédiaire (242) ;
et une rainure d'ergot (622) est formée au niveau de l'extrémité pliée (620) de la plaque inférieure (600), avec l'ergot intermédiaire (242) qui est inséré dans la rainure d'ergot (622), et un trou de boulon (624) est formé des deux côtés pour un boulon (660) engagé par vissage dans la rainure de vis (252) pour traverser.

Figure 1

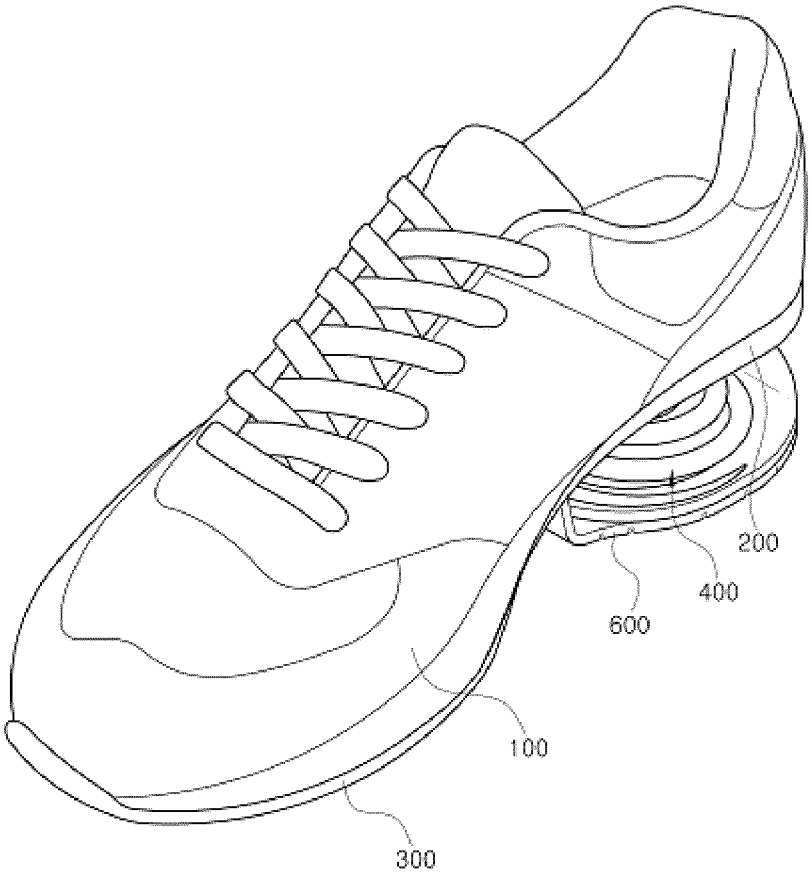


Figure 2

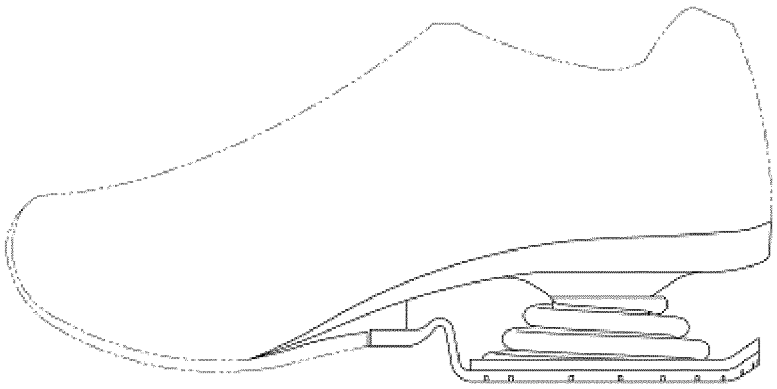


Figure 3

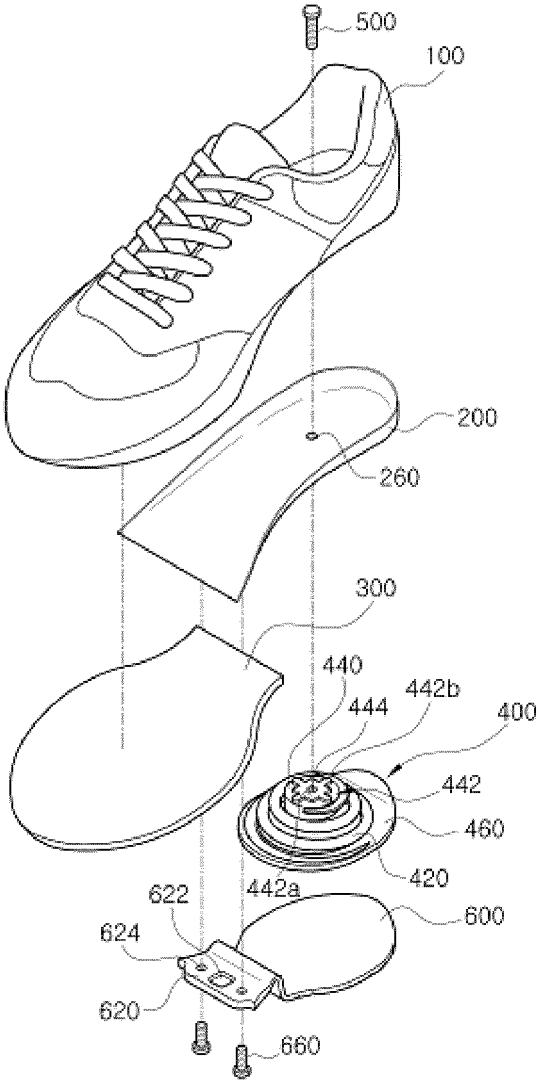

500
100
200
260
300
440
442b
444
400
442
460
420
442a
622
600
624
620
660

Figure 4

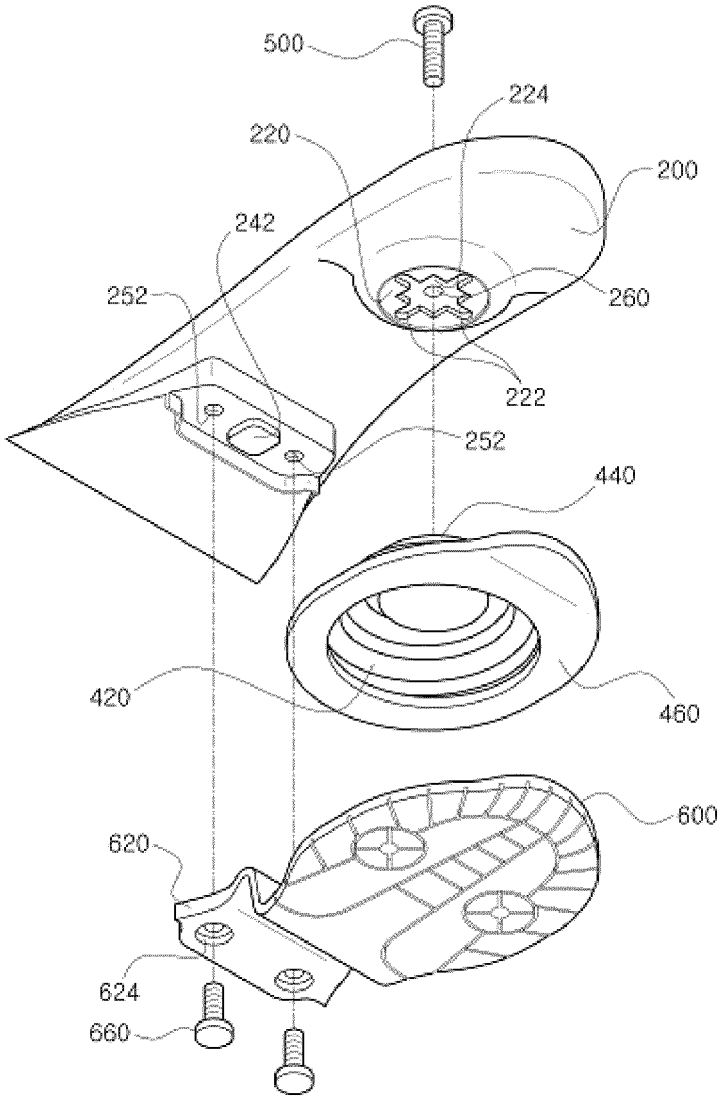


Figure 5

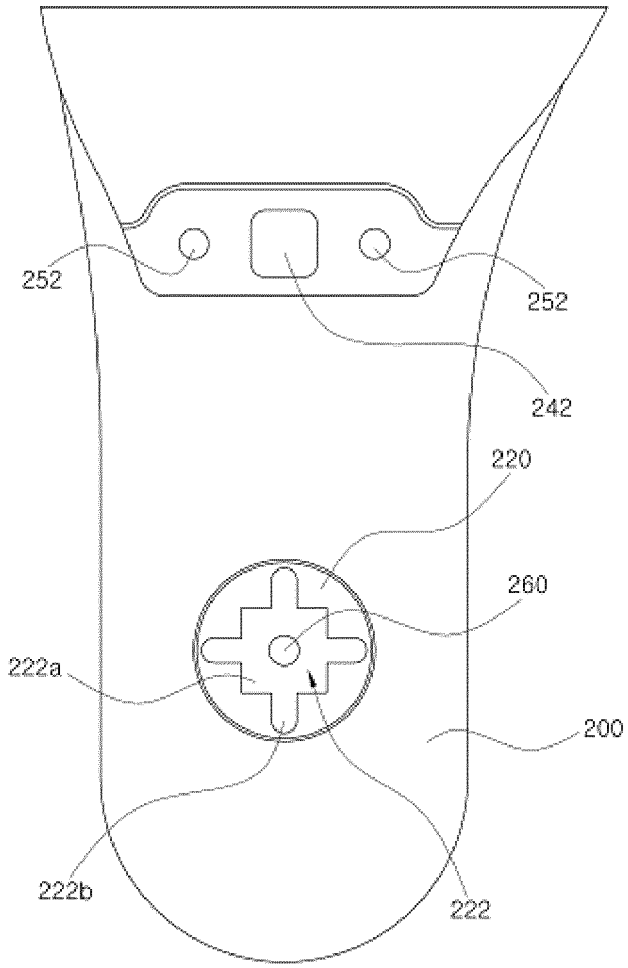


Figure 6

