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(54) **SHOCK ABSORBING SHOES WITH IMPROVED ASSEMBLY AND OPERATIONAL PERFORMANCE**

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Description

[Technical Field]

[0001] The present invention relates to a shock absorbing shoe with improved assembly and operational performance, which is provided with a supporting member capable of preventing the removal or separation of an elastic member, thereby improving durability of the shock absorbing shoe, and in which an upper sole and a second support body of a support unit are provided with a guide portion and a guide part, respectively, so that when the elastic member is compressed and reverts back to its original shape after being compressed and the supporting member moves upward and downward during walking, it is possible to guide the movement of the supporting member, thereby realizing improved operational reliability of both the elastic member and the supporting member, and in which the elastic member and the support unit that supports the upper and lower ends of the elastic member can be easily and simply assembled thanks to the supporting member so that the shock absorbing shoe of the present invention can be easily assembled and can reduce the shoe assembling time in comparison with conventional shock absorbing shoes, thereby increasing the productivity, and of which respective elements can be easily disassembled by disassembling only the supporting member so that the shoe of the present invention can be easily repaired and maintained, thereby improving work efficiency.

[Background Art]

[0002] Generally,shoes function to protect the feet of a user and to absorb shocks, thereby providing the feet with relief from fatigue. In recent years, a variety of functional shoes that have such foot protecting and shock absorbing functions have been proposed.

[0003] US 5 502 901 A discloses an article of footwear having an outsole with a cavity in the heel region in which a cushioning insert is installed to cushion impacts and provide added lift to the wearer. The heel region of the outsole projects outwardly beyond the periphery of the heel region of the shoe upper to form a projecting peripheral rim. The cavity has an upper wall and a lower wall and a plurality of springs extend between the upper and lower walls at spaced intervals around the peripheral rim. Opposing magnets are mounted in the upper and lower walls in a central region of the cavity with their like poles facing one another to provide a magnetic biassing force which augments the spring load.

[0004] US 1 261 488 A discloses a spring heel comprising an attaching plate, having a depending tube, a partition arranged intermediate the-ends of the tube, forming an upper chamber therein, a sleeve telescoping within the tube, a spring positioned between the sleeve and partition, a tensioning screw for the spring having journaled connection with the sleeve and adjustably threaded through the partition projecting into the said chamber, and a tread member upon the lower end of the sleeve.

[0005] Particularly, in shock absorbing shoes that have the specific function of absorbing shock, coil springs are assembled in various manners in an effort to realize easy repair and easy maintenance of the coil springs that are elastically deformed in order to absorb shocks.

[0006] In the prior art, to assemble a coil spring in a shock absorbing shoe, the coil spring may be embedded in the heel of the shoe or may be assembled in the shoe using a support unit and a bolt or may be assembled to the support unit by inserting the coil spring into the support unit.

[0007] However, the above-mentioned conventional manners for assembling the coil springs in the shock absorbing shoes cannot reliably support the coil springs.

[0008] Further, when the coil springs of the conventional shock absorbing shoes are loaded and compressed, the turns of each coil spring may come into contact with each other so that the coil springs may be broken by shocks.

[0009] The broken coil springs of the shoes must be repaired or replaced by new springs, thereby imposing a financial burden on users.

[0010] Further, due to the above-mentioned coil springs, the conventional shock absorbing shoes cannot realize reliability and cannot appeal to consumers.

[Disclosure]

[Technical Problem]

[0011] Accordingly, the present invention has been made keeping in mind the above problems occurring in the related art, and is intended to provide a shock absorbing shoe with improved assembly and operational performance, in which a supporting member is provided to prevent removal or separation of an elastic member, thereby improving durability of the shock absorbing shoe,
a guide portion and a guide part are provided in an upper sole and a second support body of a support unit, respectively, so that when the elastic member is compressed and reverts back to its original shape after being compressed and the

supporting member moves upward and downward during walking, it is possible to guide the movement of the supporting member, thereby realizing improved operational reliability of both the elastic member and the supporting member,

the elastic member and the support unit that supports the upper and lower ends of the elastic member can be easily and simply assembled by the supporting member so that the shock absorbing shoe of the present invention can be easily assembled and can reduce the shoe assembly time in comparison with conventional shock absorbing shoes, thereby increasing productivity, and

respective elements can be easily disassembled by disassembling only the supporting member so that the shoe of the present invention can be easily repaired and maintained, thereby improving work efficiency.

[0012] Further, the present invention provides a shock absorbing shoe with improved assembly and operational performance, in which

a holding means is provided both in a first holding body that is combined with the first support body of the support unit and in the lower end of the supporting member so that the present invention can prevent the supporting member from being released or loosened by vibrations or shocks that are applied to the shoe while walking, thereby improving reliability of the product, and

respective elements can be easily and simply assembled and disassembled by the holding means so that productivity and work efficiency of the present invention are improved during a process of assembling or disassembling the elements.

[0013] Further, the present invention provides a shock absorbing shoe with improved assembly and operational performance, in which a stopping means is provided both in the second holding body that is combined with the second support body of the support unit and in the upper end of the supporting member so that the present invention can prevent the second holding body and the supporting member from being unexpectedly separated from each other during upward and downward movement of the supporting member, thereby allowing a user to safely use the shoe.

[Technical Solution]

[0014] In an aspect, the present invention provides a shock absorbing shoe with improved assembly and operational performance, including: an outsole; an upper sole arranged on the outsole and having a guide portion; a support unit including: a first support body connected to the outsole; and a second support body connected to the upper sole and having a guide part corresponding to the guide portion; an elastic member arranged between the first and second support bodies of the support unit; and a supporting member connected to the first and second support bodies of the support unit, the supporting member being movable upward and downward along the guide portion and the guide part of the second support body.

[0015] In the present invention, the first and second support bodies of the support unit may include first and second holding bodies that are connected to the elastic member, and the first holding body and the supporting member are provided with a holding means and

a protruding spacer part is formed on the lower surface of a fitting protrusion of the second holding body so that, when the elastic member is compressed, the lower surface of the protruding spacer part comes into contact with the upper surface of the first holding body, or

a protruding spacer part is formed on the upper surface of a fitting protrusion of the first holding body so that, when the elastic member is compressed, the protruding spacer part comes into contact with the lower surface of the fitting protrusion of the second holding body.

[0016] Further, in the present invention, the holding means may include: a seat groove formed in a lower surface of the first holding body; an insert hole formed in a lower end of the supporting member so as to correspond to the seat groove; and a locking pin inserted through the insert hole and seated in the seat groove.

[0017] Further, in the present invention, the second holding body may be provided with a corresponding guide part that corresponds to the guide part of the second support body, and the corresponding guide part of the second holding body and the supporting member may be provided with a stopping means.

[Advantageous Effects]

[0018] As described above, the shock absorbing shoe with improved assembly and operational performance according to the present invention is advantageous in that it has a supporting member capable of preventing removal or separation of the elastic member so that the present invention can realize a shock absorbing shoe that has improved durability.

[0019] Further, the guide portion and the guide part are provided in the upper sole and the second support body of the support unit, respectively, so that when the elastic member is compressed and reverts back to its original shape after being compressed and the supporting member moves upward and downward during walking, the present invention can guide the movement of the supporting member, thereby realizing improved operational reliability of both the elastic member and the supporting member.

[0020] Further, the elastic member and the support unit that supports the upper and lower ends of the elastic member

can be easily and simply assembled by the supporting member so that the present invention can easily assemble the shoe and can reduce the shoe assembly time in comparison with conventional shock absorbing shoes, thereby increasing productivity.

[0021] Further, respective elements of the present invention can be easily disassembled by disassembling only the supporting member, thereby easily repairing and maintaining the shoe and, accordingly, improving work efficiency.

[0022] Further, in the present invention, the holding means is provided both in the first holding body that is combined with the first support body of the support unit and in the lower end of the supporting member, thereby preventing the supporting member from being released or loosened by vibrations or shocks that are applied to the shoe while walking and, accordingly, improving reliability of the product.

[0023] Further, the respective elements of the present invention can be easily and simply assembled and disassembled by the holding means, thereby improving productivity and work efficiency during a process of assembling or disassembling the elements.

[0024] Further, in the present invention, the stopping means is provided both in the second holding body that is combined with the second support body of the support unit and in the upper end of the supporting member so that the present invention can prevent the second holding body and the supporting member from being unexpectedly separated from each other during upward and downward movement of the supporting member, thereby allowing a user to safely use the shoe.

[Description of Drawings]

[0025]

Fig. 1 is a perspective view illustrating a shock absorbing shoe with improved assembly and operational performance according to the present invention;

Fig. 2 is an exploded perspective view illustrating the shock absorbing shoe with improved assembly and operational performance according to the present invention;

Fig. 3 is a sectional view illustrating the shock absorbing shoe shown as an exemplary embodiment which does not fall under the scope of the present invention;

Fig. 4 is a side view illustrating the shock absorbing shoe according to the present invention;

Fig. 5 is a side view illustrating holding bodies, an elastic member and a supporting member of the shock absorbing shoe according to the present invention;

Fig. 6 is an exploded perspective view illustrating a holding means and a stopping means of the shock absorbing shoe according to the present invention; and

Fig. 7 is an exploded perspective view illustrating a modification of the holding means of the shock absorbing shoe according to the present invention.

Description of reference characters of important parts

10: outsole	11: stud
20: upper sole	21: guide portion
30: support unit	30A: first support body
30B: second support body	31: depressed seat
32: annular protrusion	33: guide part
35: first holding body	35a: seat groove
35b: through hole	35f: internal thread
36: protruding spacer part	37: second holding body
37a: corresponding guide part	
37b: stopper	
35c, 37c: fitting protrusion	35d, 37d: rim
35e, 37e: seat depression	35f: internal thread
37f: shank passing hole	
40: elastic member	41: coil spring
50: supporting member	51: head
53: shank	55: locking part
55a: insert hole	55b: external thread
60: locking pin	

(continued)

FM: holding means SP: stopping means
SB: shoe body

[Best Mode]

[0026] Hereinbelow, a shock absorbing shoe with improved assembly and operational performance according to the present invention will be described in detail with reference to the accompanying drawings.

[0027] As shown in Figs. 1 through 7, the shock absorbing shoe with improved assembly and operational performance according to the present invention includes:
an outsole 10; an upper sole 20 which is arranged on top of the outsole 10 and has a guide portion 21; a support unit 30 which includes a first support body 30A that is connected to the outsole 10, and a second support body 30B that is connected to the upper sole 20 and has a guide part 33 corresponding to the guide portion 21; an elastic member 40 which is arranged between the first and second support bodies 30A and 30B of the support unit 30; and a supporting member 50 which is connected to the first and second support bodies 30A and 30B of the support unit 30 and moves upward and downward through both the guide portion 21 and the guide part 33 of the second support body 30B.

[0028] As shown in Figs. 1 through 4, in the shock absorbing shoe with improved assembly performance and improved operational performance according to the present invention, the outsole 10 is configured as follows.

[0029] The upper surface of the outsole 10 is firmly bonded to the lower surface of the first support body 30A of the support unit 30 using a bonding agent or a strong adhesive. This outsole 10 makes direct contact with the ground surface.

[0030] Here, the lower surface of the outsole 10 is a part that comes into direct contact with the ground surface so that, in order to absorb shocks and prevent slipping when the lower surface of the outsole is brought into contact with the ground surface. For this reason, it is preferred that the outsole be formed using an elastic material, such as elastomer, polyurethane or rubber.

[0031] Further, in order to improve the shock absorbing and slip prevention function, the outsole 10 is configured as follows using the above-mentioned elastic material.

[0032] That is, studs 11 are formed on the lower surface of the outsole in such a way that a plurality of protrusions or a plurality of prominences and depressions are formed on the lower surface of the outsole. Accordingly, the outsole has an improved shock absorbing function and an improved slip preventing function.

[0033] Further, the outsole 10 has an integrated structure in which the front sole and the heel of the outsole are integrated into a single structure.

[0034] The above-mentioned integrated structure of the outsole 10 can solve the problem that has been experienced with a separated outsole in which the front sole becomes separated from the heel so that a user may fall over a stone or a protruding object while walking.

[0035] Further, a stone or a protruding object may insert itself between the front sole and the heel of the separated outsole so that the stone or the protruding object causes the user discomfort while walking. However, the integrated structure of the outsole 10 of the present invention can solve the above-mentioned problem.

[0036] As shown in Figs. 1 through 4, in the shock absorbing shoe with improved assembly and operational performance according to the present invention, the upper sole 20 is configured as follows.

[0037] The upper sole is arranged on top of the outsole 10. The lower surface of the upper sole is firmly bonded to the upper surface of the second support body 30B of the support unit 30 using a bonding agent or a strong adhesive so that the sole of a user or an insole is laid on the upper surface of the upper sole.

[0038] Further, a shoe body SB is connected to the top of the upper sole 20 and covers the instep of the user, thereby safely protecting the instep of the user when the user walks or exercises.

[0039] In the upper sole 20 of the present invention, four guide portions 21 having a grooved shape are formed at four locations of a heel part at which four elastic members 40 are arranged.

[0040] Each of the four guide portions 21 is arranged inside an associated elastic member 40 so that, when the supporting member 50 that is combined with the first and second support bodies 30A and 30B of the support unit 30 moves upward and downward, the guide portion 21 functions to guide the upper portion of the supporting member 50.

[0041] In other words, when the user walks and the elastic member 40 is repeatedly compressed and reverts back to its original shape after being compressed, the guide portion 21 can guide the movement of the supporting member 50 that moves upward and downward relative to the elastic member 40, thereby realizing improved operational reliability of the supporting member 50.

[0042] As shown in Figs. 1 through 6, in the shock absorbing shoe with improved assembly and operational performance according to the present invention, the support unit 30 is configured as follows.

[0043] The support unit 30 is mounted to the upper surface of the outsole 10 and to the lower surface of the upper sole 20 and is combined with the elastic member 40, thereby supporting the elastic member 40 at a desired location.

[0044] The support unit 30 of the present invention includes the first and second support bodies 30A and 30B.

[0045] The first support body 30A is held in the upper surface of the outsole 10. The second support body 30B is held in the lower surface of the upper sole 20.

[0046] Further, the guide part 33 having a hole shape is formed in the second support body 30B so that the guide part 33 corresponds to the guide portion 21 of the upper sole 20.

[0047] When the supporting member 50 moves upward and downward, the guide part 33 guides the movement of the supporting member 50, thereby realizing the improved operational reliability of the supporting member 50.

[0048] Further, in each of the first and second support bodies 30A and 30B, the annular protrusions 32 are formed at locations at which the elastic members 40 are arranged. A depressed seat 31 is formed inside each of the annular protrusions 32 so as to hold the elastic member 40 therein.

[0049] Further, in the support unit 30 of the present invention, first and second holding bodies 35 and 37 having a disc shape are mounted to the depressed seats 31 of the first and second support bodies 30A and 30B by fitting or bonding.

[0050] The first holding body 35 is combined with the lower end of the elastic member 40 and the second holding body 37 is combined with the upper end of the elastic member 40.

[0051] Respective annular rims 35d and 37d are formed along the edges of the first and second holding bodies 35 and 37, and respective seat depressions 35e and 37e are formed inside the rims 35d and 37d.

[0052] Further, fitting protrusions 35c and 37c are formed in the centers of the respective seat depressions 35e and 37e so that the elastic member 40 can be held by the first and second holding bodies 35 and 37 as follows.

[0053] When the opposite ends of the elastic member 40 are fitted into the respective seat depressions 35e and 37e, the outer circumferential surfaces of the opposite ends of the elastic member 40 come into contact with the inner circumferential surfaces of the rims 35d 37d.

[0054] Further, the inner circumferential surfaces of the opposite ends of the elastic member 40 come into contact with the outer circumferential surfaces of the fitting protrusions 35c and 37c. Accordingly, the upper and lower ends of the elastic member 40 can be firmly held by the rims 35d and 37d, the seat depressions 35e and 37e, and the fitting protrusions 35c and 37c so that it is possible to prevent the elements from being removed or separated from each other.

[0055] Here, the elastic member 40 may be combined with the first and second holding bodies 35 and 37 through fitting or bonding.

[0056] However, to realize easy assembly of the elements based on the structural characteristics of the first and second holding bodies 35 and 37, it is preferred that the elastic member 40 be fitted into the first and second holding bodies 35 and 37.

[0057] Further, a protruding spacer part 36 is formed on the lower surface of the fitting protrusion 37c of the second holding body 37 so that, when the elastic member 40 is compressed, the lower surface of the protruding spacer part 36 comes into contact with the upper surface of the first holding body 35.

[0058] The protruding spacer part 36 in the above state can space the first and second holding bodies 35 and 37 away from each other by a predetermined gap so that it is possible to prevent the turns of a coil spring 41 that is used as the elastic member 40 from coming into contact with each other or from striking each other when the user walks, thereby preventing the elastic member 40 from being broken by shocks.

[0059] In Figs. 2, 3 and 6, the protruding spacer part 36 is formed on the lower surface of the fitting protrusion 37c of the second holding body 37.

[0060] However, it should be understood that although it is not shown in the accompanying drawings, the protruding spacer part 36 may be formed on the upper surface of the fitting protrusion 35c of the first holding body 35 so that, when the elastic member is compressed, the protruding spacer part 36 comes into contact with the lower surface of the fitting protrusion of the second holding body 37 and spaces the first and second holding bodies 35 and 37 away from each other by a predetermined gap, thereby performing the same operational function as that described above.

[0061] Further, the second holding body 37 has a corresponding guide part 37a, which is formed in the second holding body 37 in such a way that the corresponding guide part 37a is defined inside the protruding spacer part 36 of the second holding body 37.

[0062] In other words, the corresponding guide part 37a is formed inside the protruding spacer part 36 so as to correspond to the guide part 33 of the second support body 30B so that, when the supporting member 50 moves upward and downward, the corresponding guide part 37a can guide the movement of the supporting member 50, thereby realizing improved operational reliability of the supporting member 50.

[0063] Here, the guide portion 21 of the upper sole 20, the guide part 33 of the second support body 30B and the corresponding guide part 37a of the second holding body 37 communicate with each other so that the supporting member 50 can move upward and downward thanks to the above-mentioned elements which are all in communication with each other.

[0064] In the above state, the guide portion 21, the guide part 33 and the corresponding guide part 37a allow the supporting member 50 to reliably move without interfering with the other elements.

[0065] As shown in Figs. 1 through 6, in the shock absorbing shoe with improved assembly and operational performance

according to the present invention, the configuration of the elastic member 40 is as follows.

[0066] The elastic member is placed between the first and second support bodies 30A and 30B of the support unit 30 so that the elastic element can absorb and attenuate shocks that are applied to the heel of the user when the user walks, thereby relieving the feet of the user from fatigue and allowing the user to walk in comfort.

[0067] Here, a coil spring 41 is used as the elastic member 40 of the present invention, in which the lower and upper ends of the coil spring 41 are combined with the first and second holding bodies 35 and 37, respectively.

[0068] In the above state, the coil spring 41 is firmly held by the inner circumferential surfaces of the rims 35d and 37d of the respective holding bodies 35 and 37, and by the seat depressions 35e and 37e, and by the fitting protrusions 35c and 37c.

[0069] Accordingly, when a user wearing the shoes having the coil springs 41 walks, exercises or is working, the coil springs perform their functions as follows.

[0070] When a load formed by the weight of the user is applied to the ground surface through the shoes, a reactive shock is applied upward from the ground surface to the user. In the above state, the coil springs 41 elastically absorb and attenuate the shock.

[0071] Accordingly, even when the user continuously walks, exercises or is working for a lengthy period of time, the coil springs can efficiently absorb and attenuate the shocks that are applied to the feet and body of the user, thereby relieving the feet and the body from fatigue and realizing the healthful function of the shoes and allowing the user to feel comfortable.

[0072] Further, it is preferred that the coil springs 41 have a square cross-section.

[0073] When the coil springs 41 are compressed by the load of the user, the coil springs that are arranged in the shoe may strike each other.

[0074] Here, when coil springs 41 having a circular cross-section are used, the outer circumferential surfaces of the coil springs 41 may come into contact with each other, so that their striking each other may cause them to easily break.

[0075] However, when the coil springs 41 having a square cross-section are used in the shoe and are compressed by the load, the springs 41 come into contact with each other along the flat surfaces thereof, thereby minimizing the breakage of the springs even should the springs strike each other.

[0076] As shown in Figs. 1 through 6, in the shock absorbing shoe with improved assembly and operational performance according to the present invention, the supporting member 50 is configured as follows.

[0077] The supporting member is connected to the first and second support bodies 30A and 30B of the support unit 30 at a location between the two support bodies so that, when the elastic member 40 repeats elastic deformation when the user walks, the supporting member can prevent removal or separation of the elastic member 40.

[0078] In other words, the supporting member 50 of the present invention is coupled to the first and second holding bodies 35 and 37 that are combined with the first and second support bodies 30A and 30B, respectively.

[0079] In the above state, the lower end of the supporting member 50 is combined with the first holding body 35.

[0080] The upper end of the supporting member 50 is combined with the second holding body 37 so that the supporting member can repeatedly move upward and downward when the user walks.

[0081] Described in detail, the supporting member 50 includes a head 51 that is formed in the upper end of the supporting member, a shank 53 that extends downward from the lower surface of the head 51, and a locking part 55 that is formed in the lower end of the shank 53.

[0082] Here, the locking part 55 is connected to the first holding body 35 by a holding means FM.

[0083] The head 51 is seated in the corresponding guide part 37a of the second holding body 37 so that, when the elastic member 40 performs an elastic action, the head 51 can prevent the removal or separation of the supporting member 50 from the second holding body 37. In the above state, the head 51 cooperates with a stopping means SP.

[0084] The construction for combining the supporting member 50 and the first holding body 35 with each other using the holding means FM will be described hereinbelow with reference to Figs. 2 through 6.

[0085] A through hole 35b is formed through the center of the first holding body 35.

[0086] Further, seat grooves 35a are symmetrically formed in the lower surface of the first holding body on opposite sides of the through hole 35b.

[0087] Further, an insert hole 55a is formed in the locking part 55 that is provided in the lower end of the supporting member 50.

[0088] Further, a locking pin 60 is provided. To combine the supporting member and the first holding body with each other, the locking pin 60 is inserted into the insert hole 55a after the supporting member 50 is inserted into the through hole 35b. Thereafter, the locking pin 60 is seated in the seat grooves 35a.

[0089] When the lower end of the supporting member 50 is combined with the first holding body 35, the holding means FM performs the following function.

[0090] The holding means FM can more easily and efficiently combine the supporting member 50 and the first holding body 35 with each other.

[0091] Further, the assembled holding means can prevent the supporting member 50 and the first holding body 35

from being released from each other by vibrations or shocks that may be applied both to the supporting member and to the first holding body when a user wearing the shoes walks.

[0092] To realize the above-mentioned function of the holding means FM, the locking pin 60 of the holding means FM is seated in the seat grooves 35a of the first holding body 35 after the locking pin 60 has been inserted into the insert hole 55a of the supporting member 50 so that the locking pin 60 can hold and prevent rotation of the supporting member 50 irrespective of vibrations or shocks that are applied to the supporting member.

[0093] Fig. 7 illustrates a modification of the holding means FM.

[0094] In the modification, an internal thread 35f is formed on the inner circumferential surface of the through hole 35b of the first holding body 35, and an external thread 55b is formed around the outer circumferential surface of the locking part 55 of the supporting member 50 so that the supporting member 50 can be tightened to the holding body 35 by rotating the supporting member relative to the holding body.

[0095] In the above state, it is preferred that the upper surface of the head 51 of the supporting member 50 be recessed to form a straight recess, a cross recess or a combined recess so that the supporting member and the first holding body can be easily assembled and disassembled using a tool.

[0096] Hereinbelow, the structure for combining the supporting member 50 with the second holding body 37 using the stopping means SP will be described with reference to Figs. 2 through 7.

[0097] A stopper 37b is formed in the lower part of the corresponding guide part 37a of the second holding body 37.

[0098] That is, the stopper 37b is formed on the lower surface of the protruding spacer part 36 of the second holding body 37.

[0099] Further, a shank passing hole 37f is formed through the center of the protruding spacer part 36. Here, the diameter of the shank passing hole 37f is less than inner diameter of the corresponding guide part 37a but is greater than that of the shank 53.

[0100] The stopper 37b is formed in the shape of a step at an area around the shank passing hole 37f.

[0101] Accordingly, when the shank 53 of the supporting member 50 passes through the shank passing hole 37f, the shank 53 can move through the shank passing hole 37f when the elastic member 40 is compressed and reverts back to its original shape after having been compressed.

[0102] Further, when the elastic member 40 fully extends and completely reverts back to its original shape, the head 51 that is connected to the upper end of the shank 53 of the supporting member 50 can be caught and held by the stopper 37b.

[0103] Therefore, it is possible to prevent removal or separation of the supporting member 50 from the second holding body 37.

[0104] Although the shock absorbing shoe with improved assembly and operational performance of the present invention has been disclosed based on specific shapes and directions in the above description, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope of the invention as disclosed in the accompanying claims.

Claims

1. A shock absorbing shoe with improved assembly and operational performance, comprising:

an outsole (10);
an upper sole (20) arranged on the outsole (10) and having a guide portion;
a support unit (30) including:

a first support body (30A) connected to the outsole (10); and
a second support body (30B) connected to the upper sole (20) and having a guide part corresponding to the guide portion;

an elastic member (40) arranged between the first and second support bodies of the support unit (30); and
a supporting member (50) connected to the first and second support bodies of the support unit (30), the supporting member (50) being movable upward and downward along the guide portion and the guide part of the second support body (30B),
the first and second support bodies of the support unit (30) including first and second holding bodies that are connected to the elastic member (40), and the first holding body (35) and the supporting member (50) being provided with a holding means and **characterised in that**
a protruding spacer part (36) is formed on the lower surface of a fitting protrusion (37c) of the second holding body (37) so that, when the elastic member (40) is compressed, the lower surface of the protruding spacer part

(36) comes into contact with the upper surface of the first holding body (35),
or
a protruding spacer part (36) is formed on the upper surface of a fitting protrusion (35c) of the first holding body (35) so that, when the elastic member (40) is compressed, the protruding spacer part (36) comes into contact with the lower surface of the fitting protrusion of the second holding body (37).

2. The shock absorbing shoe with improved assembly and operational performance as set forth in claim 1, wherein the holding means comprises:

a seat groove (35a) formed in a lower surface of the first holding body (35);
an insert hole (55a) formed in a lower end of the supporting member (50) so as to correspond to the seat groove (35a); and
a locking pin (60) inserted through the insert hole (55a) and seated in the seat groove (35a).

3. The shock absorbing shoe with improved assembly and operational performance as set forth in claim 1 or 2, wherein the second holding body is provided with a corresponding guide part that corresponds to the guide part of the second support body (30B), and
the corresponding guide part of the second holding body and the supporting member (50) are provided with a stopping means (SP).

Patentansprüche

1. Stoßabsorbierender Schuh mit verbessertem Aufbau und Arbeitsleistung, umfassend:

eine Außensohle (10);
eine obere Sohle (20), die auf derAußensohle (10) angeordnet ist und einen Führungsbereich hat;
eine Stützeinheit (30), umfassend:

einen ersten Stützkörper (30A), der mit der Außensohle (10) verbunden ist; und
einen zweiten Stützkörper (30B), der mit der oberen Sohle (20) verbunden ist und einen Führungsteil entsprechend dem Führungsbereich hat;

ein elastisches Element (40), das zwischen dem ersten und dem zweiten Stützkörper der Stützeinheit (30) angeordnet ist; und
ein Stützelement (50), das mit dem ersten und dem zweiten Stützkörper der Stützeinheit (30) verbunden ist, wobei das Stützelement (50) aufwärts und abwärts entlang des Führungsbereichs und des Führungsteils des zweiten Stützkörpers (30B) bewegbar ist,
wobei der erste und der zweite Stützkörper der Stützeinheit (30) erste und zweite Haltekörper enthalten, die mit dem elastischen Element (40) verbunden sind, und wobei der erste Haltekörper (35) und das Stützelement (50) mit einer Halteeinrichtung versehen sind, und **dadurch gekennzeichnet, dass**
ein vorstehendes Abstandshalterteil (36) an der unteren Oberfläche eines Passvorsprungs (37c) des zweiten Haltekörpers (37) derart gebildet ist, dass dann, wenn das elastische Element (40) komprimiert wird, die untere Oberfläche des vorstehenden Abstandshalterteils (36) in Kontakt mit der oberen Oberfläche des ersten Haltekörpers (35) gelangt,
oder
ein vorstehendes Abstandshalterteil (36) an der oberen Oberfläche eines Passvorsprungs (35c) des ersten Haltekörpers (35) derart gebildet ist, dass dann, wenn das elastische Element (40) komprimiert wird, das vorstehende Abstandshalterteil (36) in Kontakt mit der unteren Oberfläche des Passvorsprungs des zweiten Haltekörpers (37) gelangt.

2. Stoßabsorbierender Schuh mit verbessertem Aufbau und Arbeitsleistung nach Anspruch 1, wobei die Halteeinrichtung Folgendes umfasst:

eine Sitzrille (35a), die in einer unteren Oberfläche des ersten Haltekörpers (35) gebildet ist;
ein Einsetzloch (55a), das in einem unteren Ende des Stützelements (50) derart gebildet ist, dass es der Sitzrille (35a) entspricht; und
einen Verriegelungsstift (60), der durch das Einsetzloch (55a) eingesetzt ist und in der Sitzrille (35a) sitzt.

3. Stoßabsorbierender Schuh mit verbessertem Aufbau und Arbeitsleistung nach Anspruch 1 oder 2, wobei
der zweite Haltekörper mit einem entsprechenden Führungsteil versehen ist, der dem Führungsteil des zweiten Stützkörpers (30b) entspricht, und
der entsprechende Führungsteil des zweiten Haltekörpers und das Stützelement (50) mit einer Stoppeinrichtung (SP) versehen sind.

Revendications

1. Chaussure amortissant les chocs à efficacité d'assemblage et de fonctionnement améliorée, comprenant :

une semelle extérieure (10) ;
une semelle supérieure (20) agencée sur la semelle extérieure (10) et ayant une portion de guidage ;
une unité de support (30) comprenant :

un premier corps de support (30A) raccordé à la semelle extérieure (10) ; et
un second corps de support (30B) raccordé à la semelle supérieure (20) et ayant une partie de guidage correspondant à la portion de guidage ;

un élément élastique (40) agencé entre les premier et second corps de support de l'unité de support (30) ; et
un élément de support (50) raccordé aux premier et second corps de support de l'unité de support (30), l'élément de support (50) étant mobile vers le haut et vers le bas le long de la portion de guidage et la partie de guidage du second corps de support (30B),
les premier et second corps de support de l'unité de support (30) comprenant :
des premier et second corps de maintien qui sont raccordés à l'élément élastique (40) et le premier corps de maintien (35) et l'élément de support (50) étant prévus avec un moyen de maintien et **caractérisée en ce que** :

une partie d'espacement en saillie (36) est formée sur la surface inférieure d'une saillie de montage (37c) du second corps de maintien (37) de sorte que, lorsque l'élément élastique (40) est comprimé, la surface inférieure de la partie d'espacement en saillie (36) vient en contact avec la surface supérieure du premier corps de maintien (35),
ou bien
une partie d'espacement en saillie (36) est formée sur la surface supérieure d'une saillie de montage (35c) du premier corps de maintien (35) de sorte que, lorsque l'élément élastique (40) est comprimé, la partie d'espacement en saillie (36) vient en contact avec la surface inférieure de la saillie de montage du second corps de maintien (37).

2. Chaussure amortissant les chocs à efficacité d'assemblage et de fonctionnement améliorée selon la revendication 1, dans laquelle le moyen de maintien comprend :

une rainure de siège (35a) formée dans une surface inférieure du premier corps de maintien (35) ;
un trou d'insert (55a) formé dans une extrémité inférieure de l'élément de support (50) afin de correspondre à la rainure de siège (35a) ; et
une broche de blocage (60) insérée à travers le trou d'insert (55a) et installée dans la rainure de siège (35a).

3. Chaussure amortissant les chocs à efficacité d'assemblage et de fonctionnement améliorée selon la revendication 1 ou 2, dans laquelle :

le second corps de maintien est prévu avec une partie de guidage correspondante qui correspond à la partie de guidage du second corps de support (30B), et
la partie de guidage correspondante du second corps de maintien et l'élément de support (50) sont prévus avec un moyen d'arrêt (SP).

FIG. 1

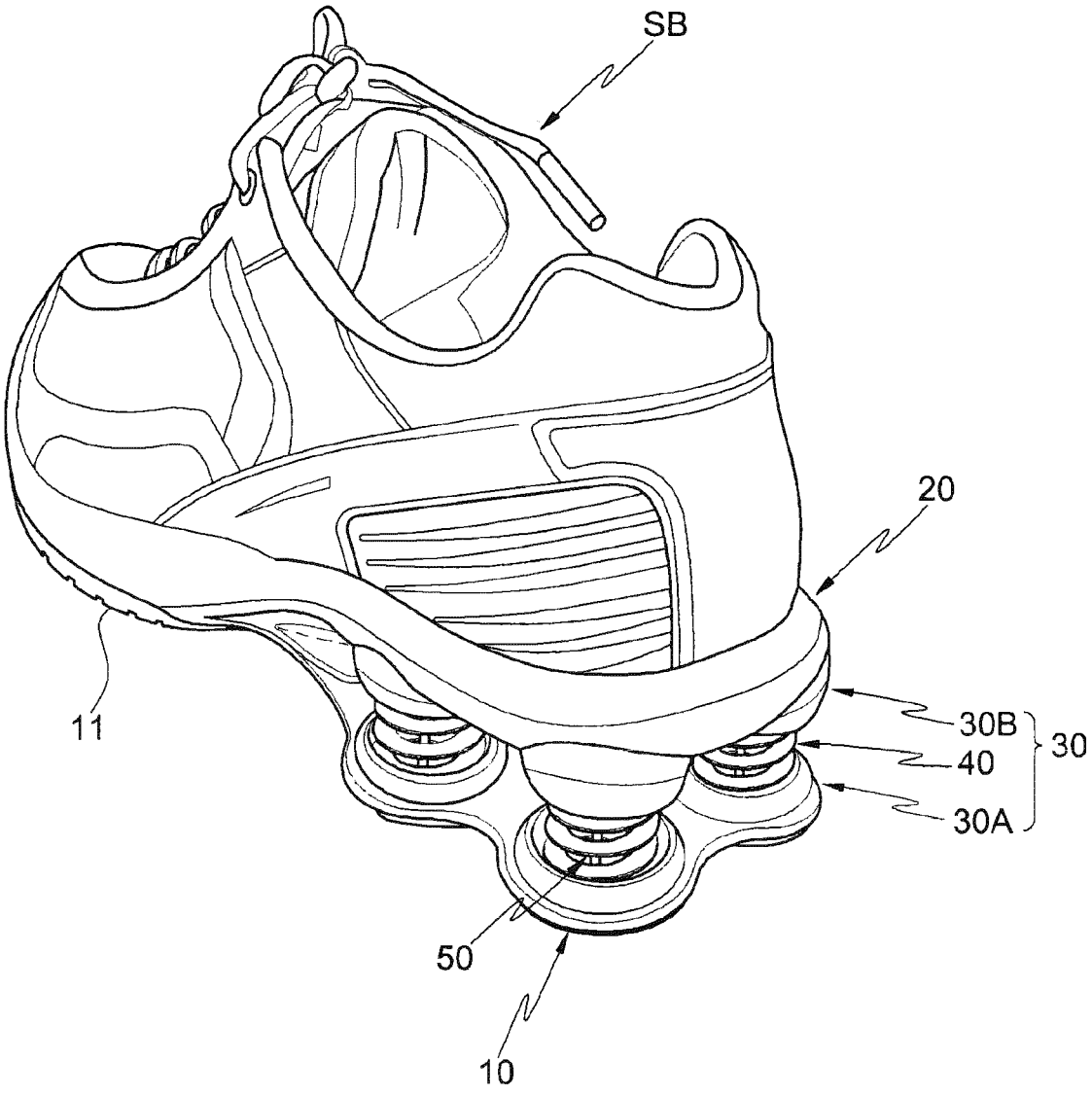
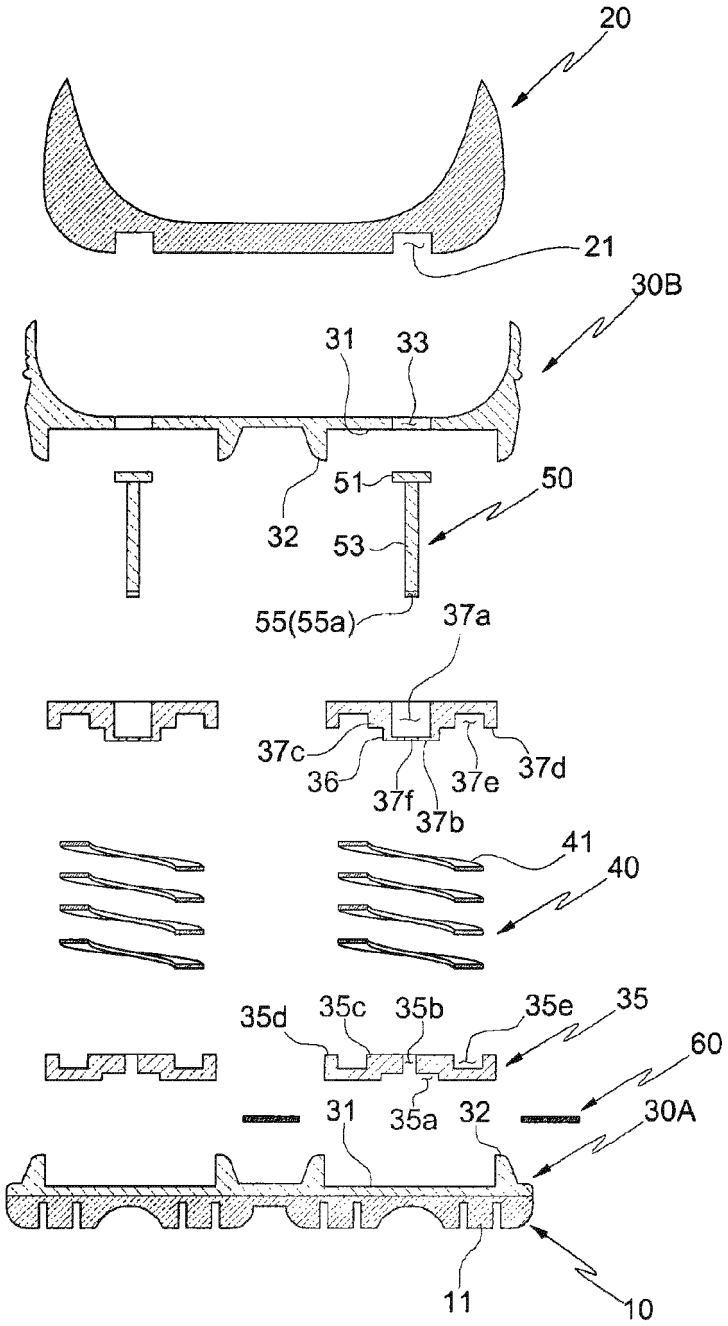


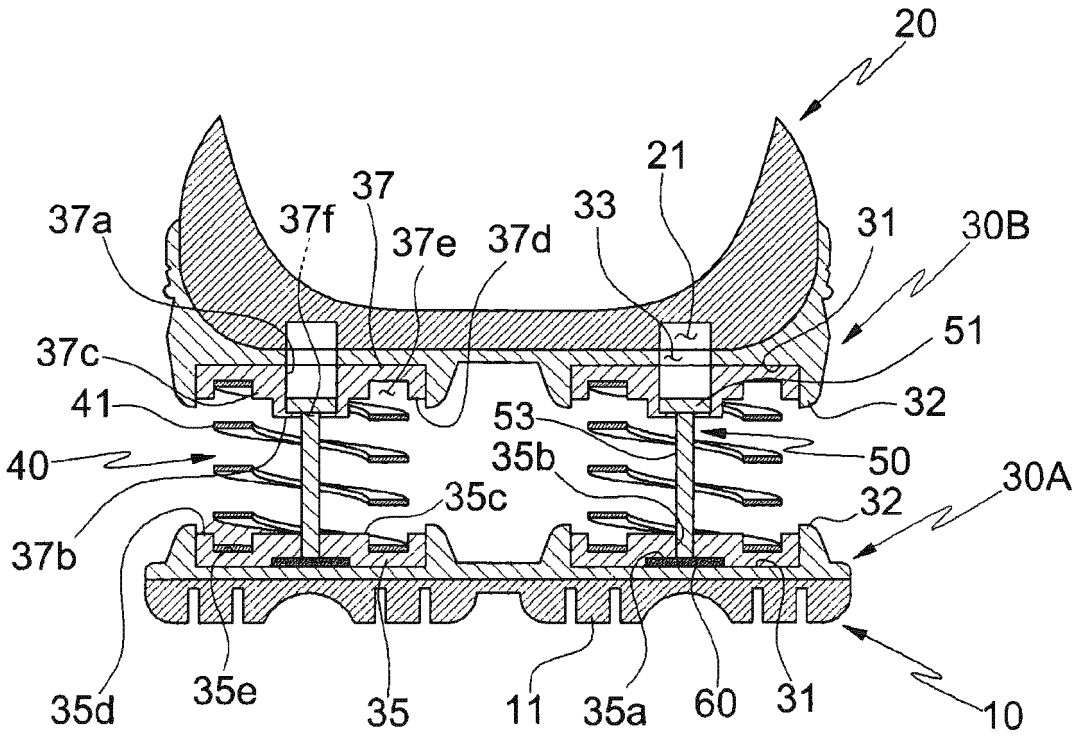
FIG. 2



FM : [35a, 55, 60]

SP : [37b, 51]

FIG. 3


20
21
37
37a
37f
37e
37d
33
31
30B
51
37c
41
32
53
40
35b
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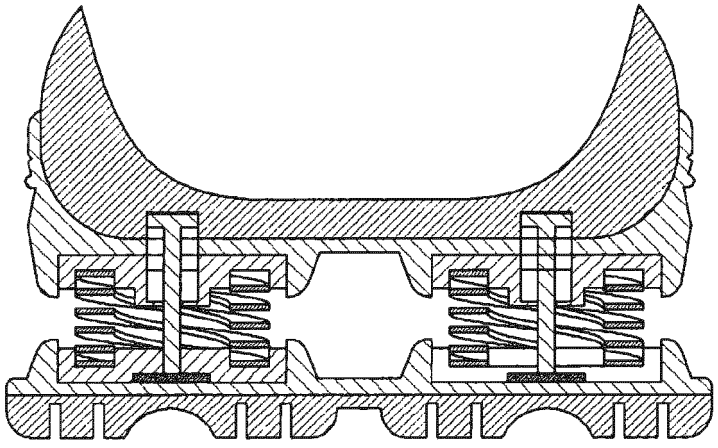
30A
35c
32
37b
35d
35e
35
11
35a
60
31
10

(A)



(B)

FIG. 4

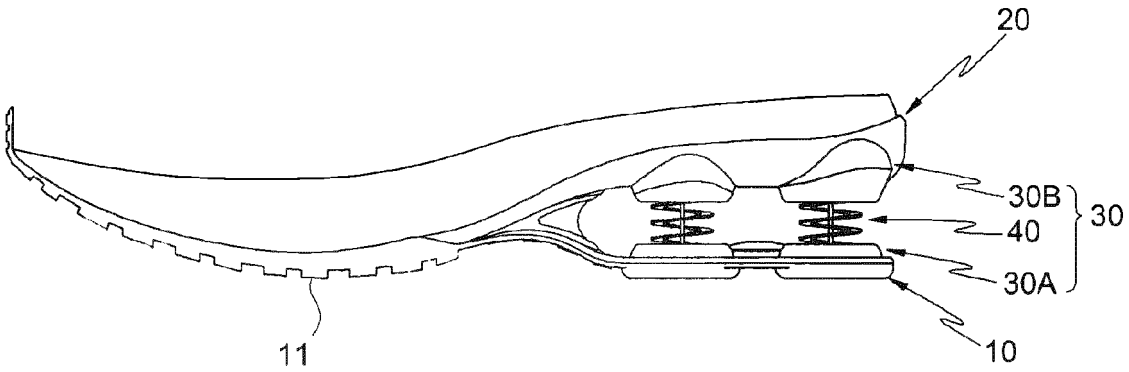


FIG. 5

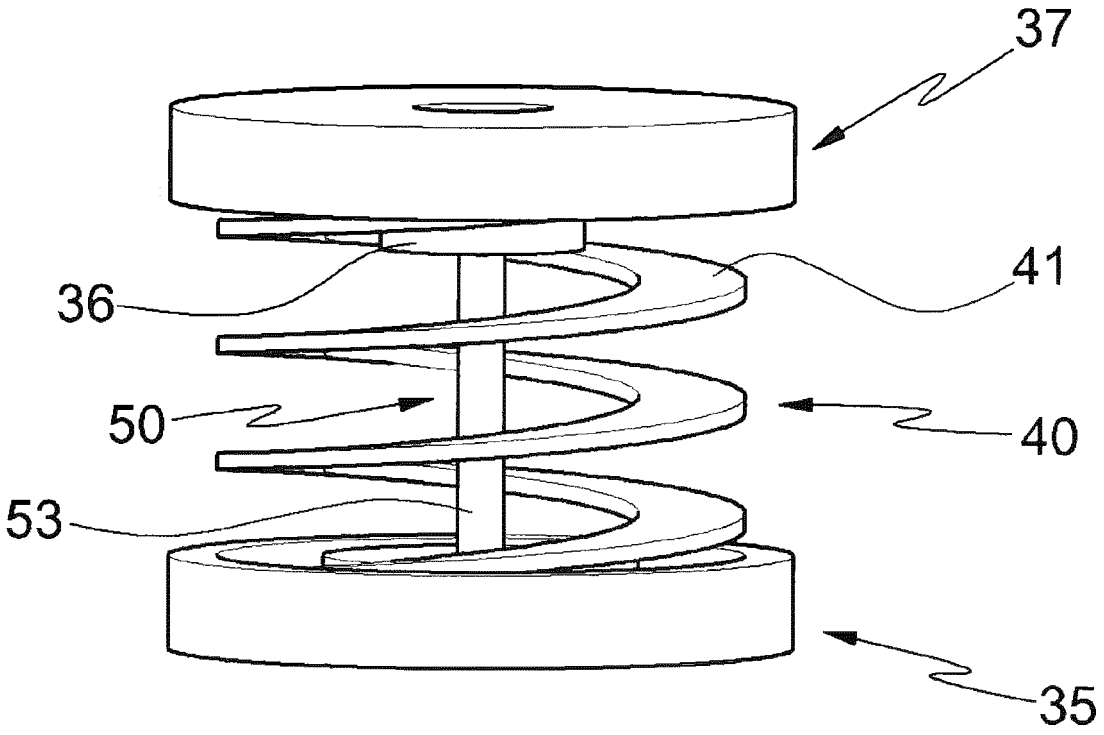


FIG. 6

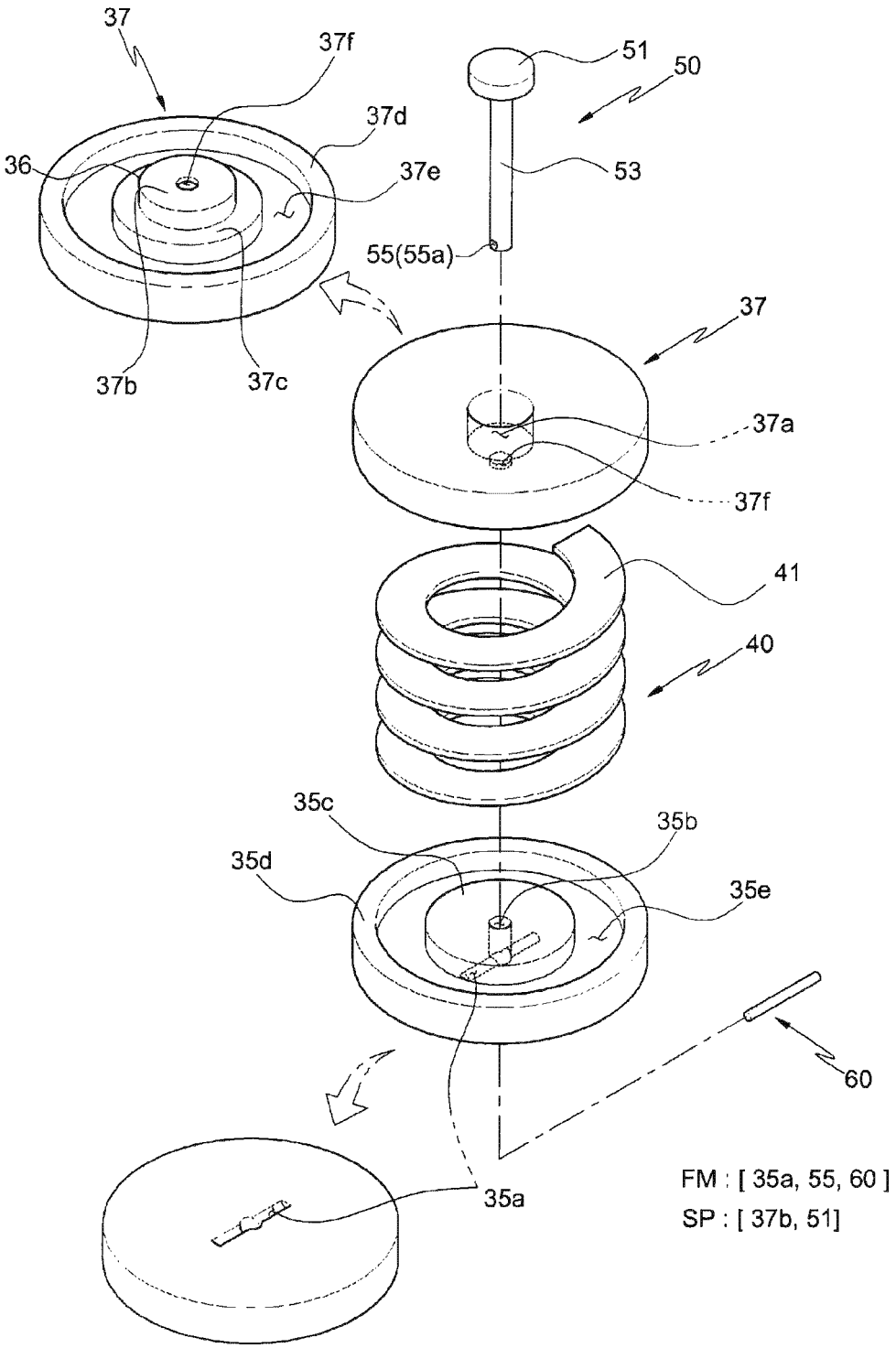
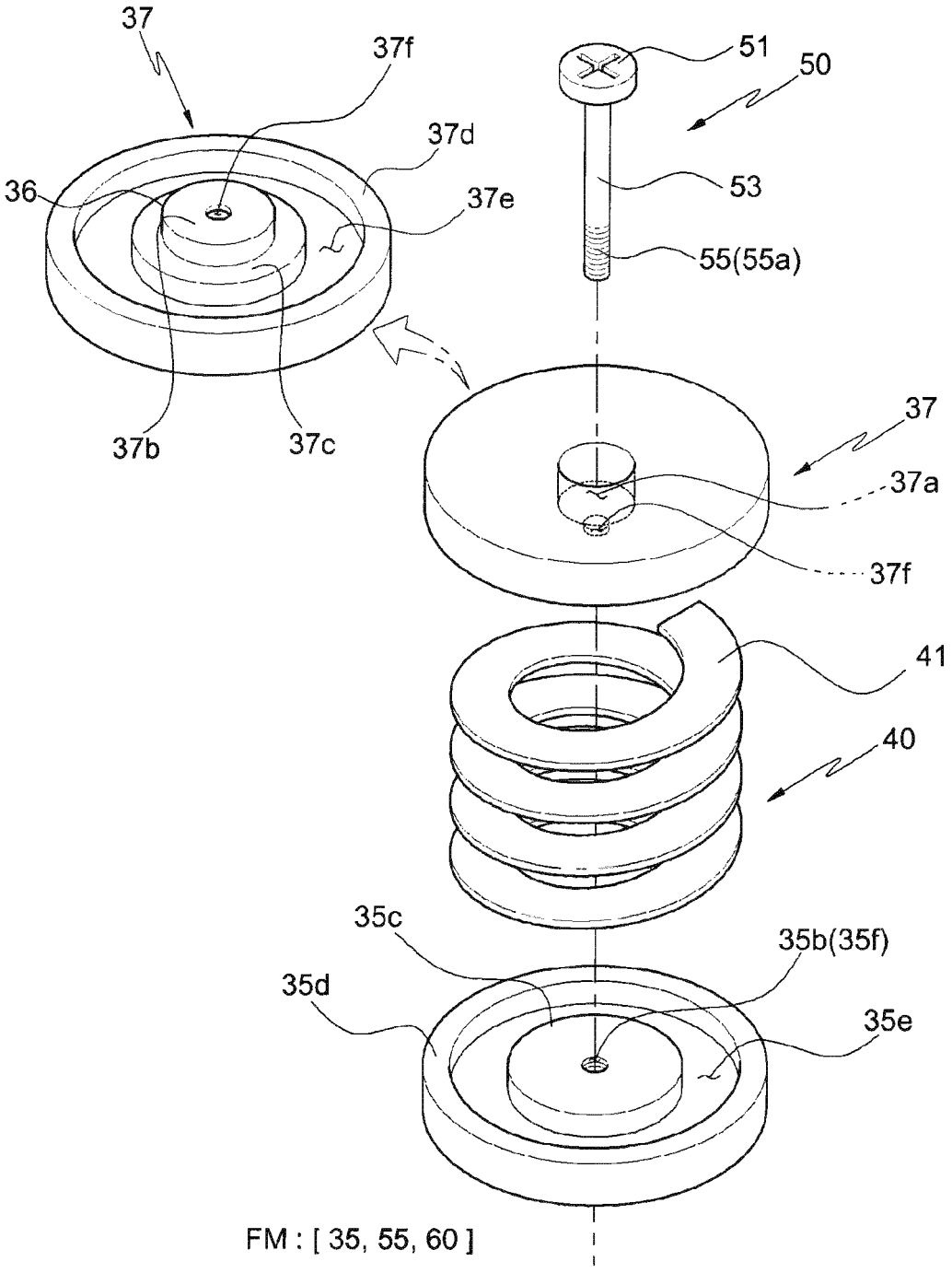

37
37f
51
50
37d
36
37e
53
55(55a)
37
37b
37c
37a
37f
41
40
35c
35b
35d
35e
60
35a
FM : [35a, 55, 60]
SP : [37b, 51]

FIG. 7


37
37f
51
50
37d
36
37e
53
55(55a)
37b
37c
37
37a
37f
41
40
35c
35b(35f)
35d
35e
FM : [35, 55, 60]
SP : [37b, 51]

REFERENCES CITED IN THE DESCRIPTION

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- US 1261488 A **[0004]**