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(54) **ELECTRONIC COMPONENT, ELECTRONIC COMPONENT TERMINAL STRUCTURE, AND ELECTRONIC DEVICE**

(71) Applicant: **Tokyo Cosmos Electric Co., Ltd.**, Kanagawa (JP)

(72) Inventor: **Hajime FUKUSHIMA**, Kanagawa (JP)

(73) Assignee: **Tokyo Cosmos Electric Co., Ltd.**, Kanagawa (JP)

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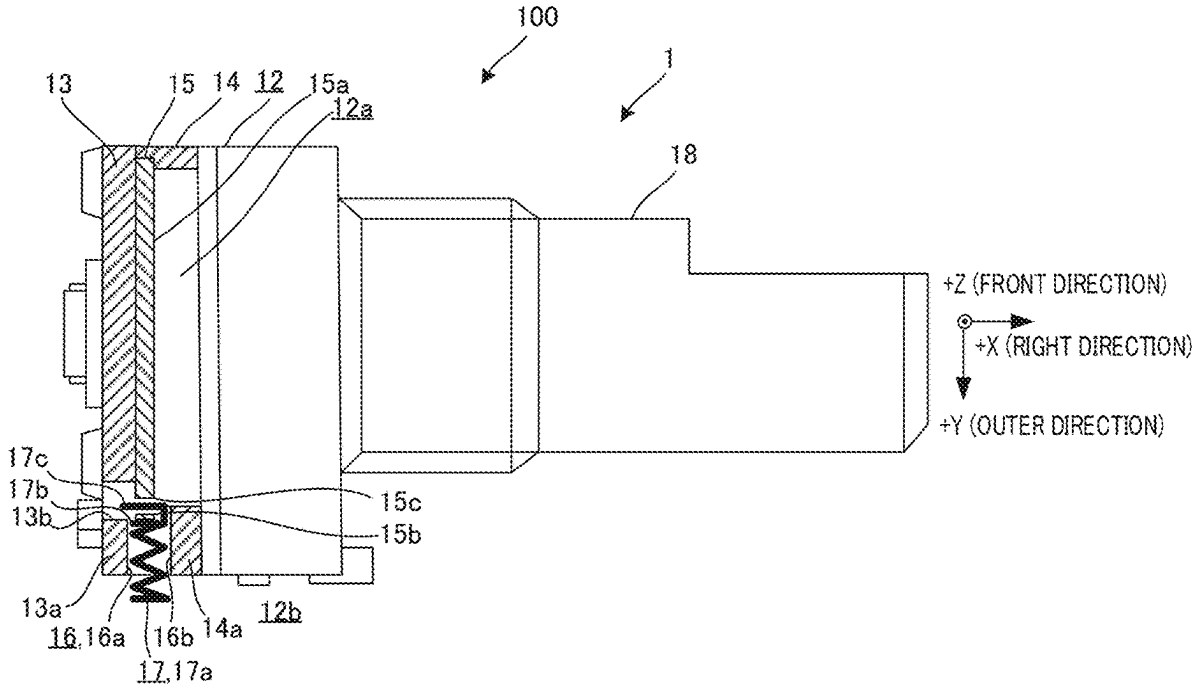
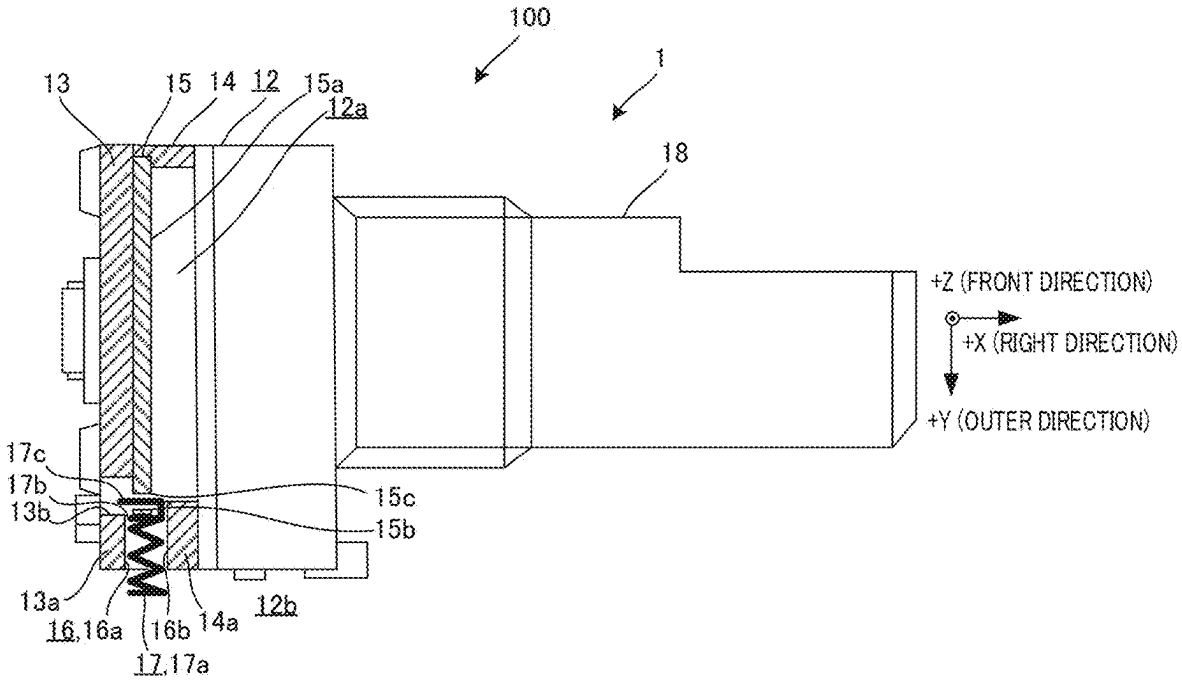
(57) **ABSTRACT**

This electronic component, electronic component terminal structure and electronic device do not use solder, and as a result, make it possible to prevent an environmental impact, reduce assembly cost and reduce the burden on an electrical connecting section. An electronic component equipped with an electronic component main body and a conductive terminal, wherein the terminal is a coil spring which is expandably fitted into a guide groove provided to the electronic component main body, and contacts a printed circuit board while in a compressed state. For example, the guide groove extends in a prescribed direction and connects the interior of the electronic component main body and the exterior thereof to one another, and the coil spring is supported so as not to fall to the exterior side of the electronic component main body from the guide groove.




100
1
13
15
14
12
15a
12a
18
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+X (RIGHT DIRECTION)
+Y (OUTER DIRECTION)
17c
17b
13b
15c
15b
13a
16,16a
16b
14a
12b
17,17a

FIG. 1

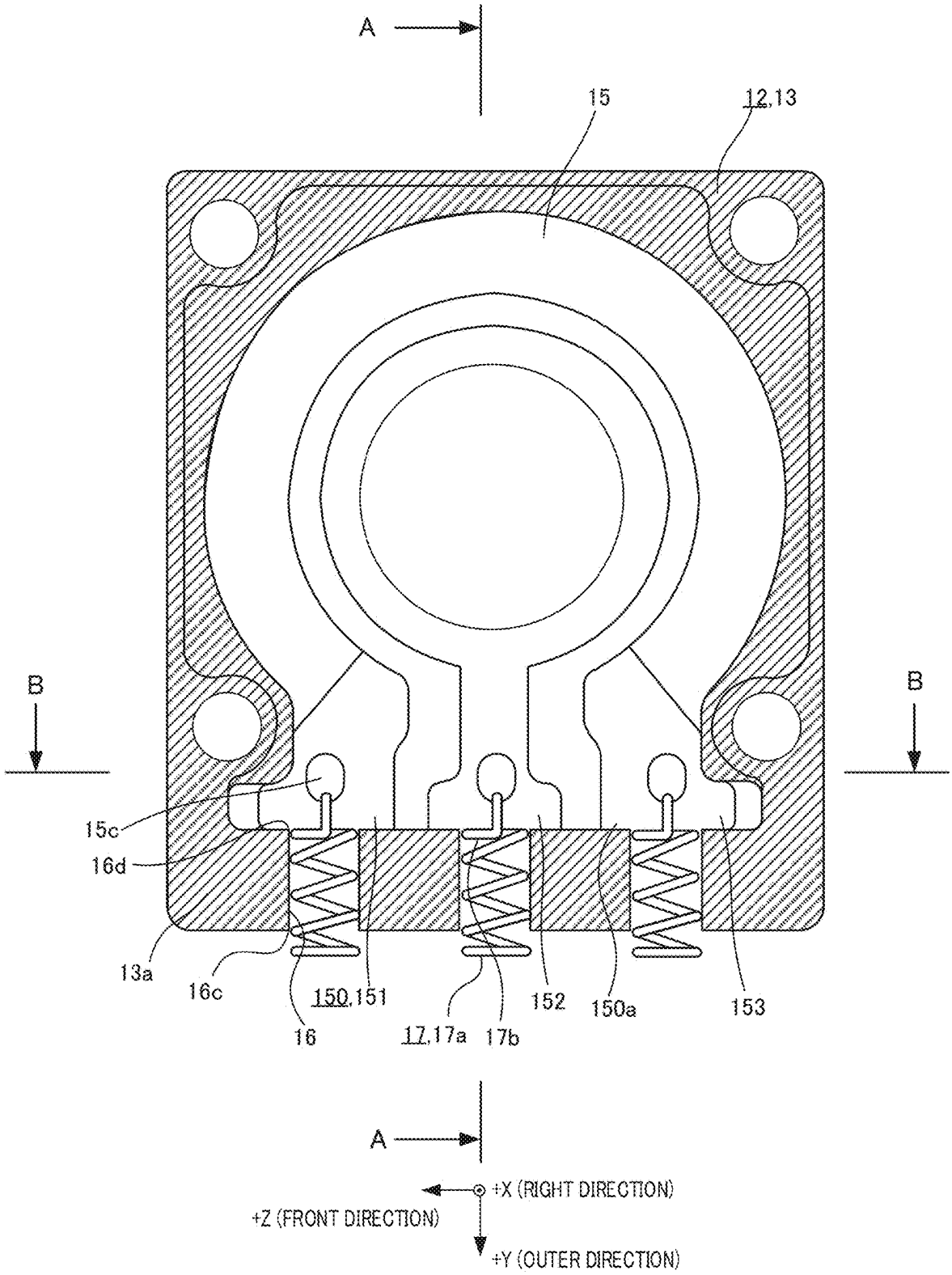

A
15
12,13
B
B
15c
16d
13a
16c
150,151
16
17,17a
17b
152
150a
153
A
+X (RIGHT DIRECTION)
+Z (FRONT DIRECTION)
+Y (OUTER DIRECTION)

FIG. 2

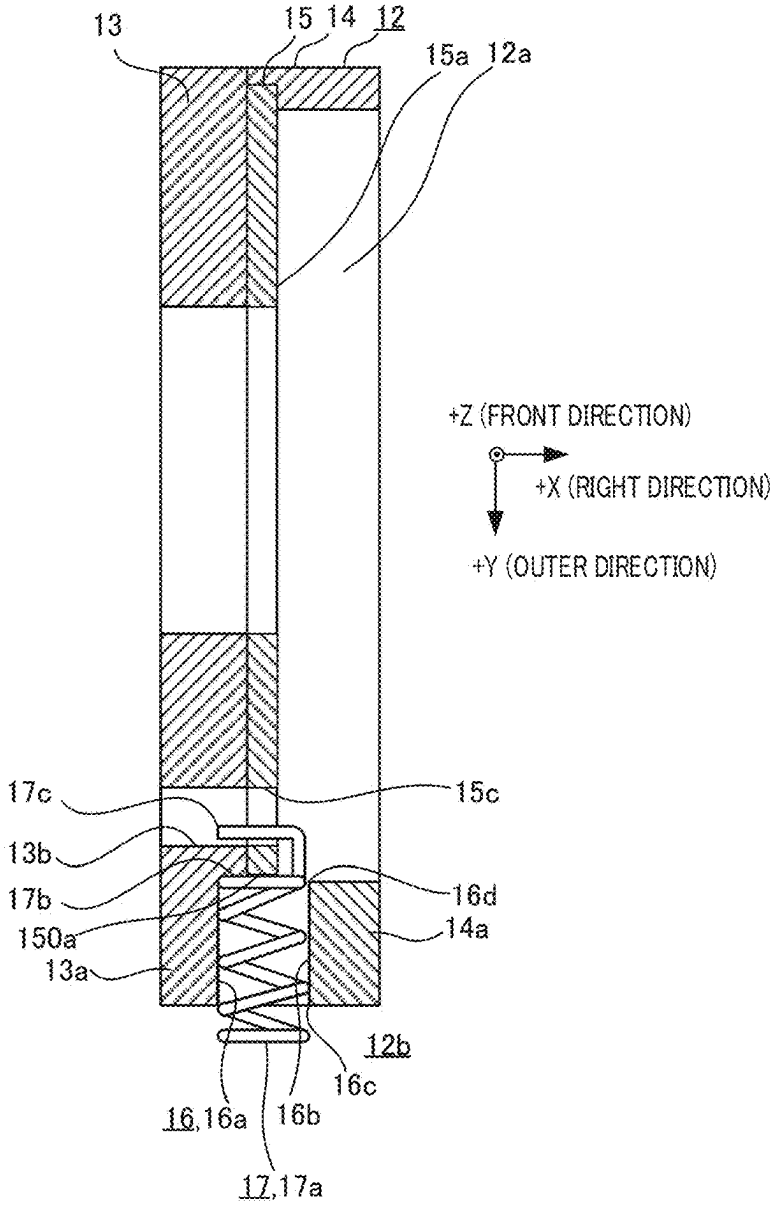
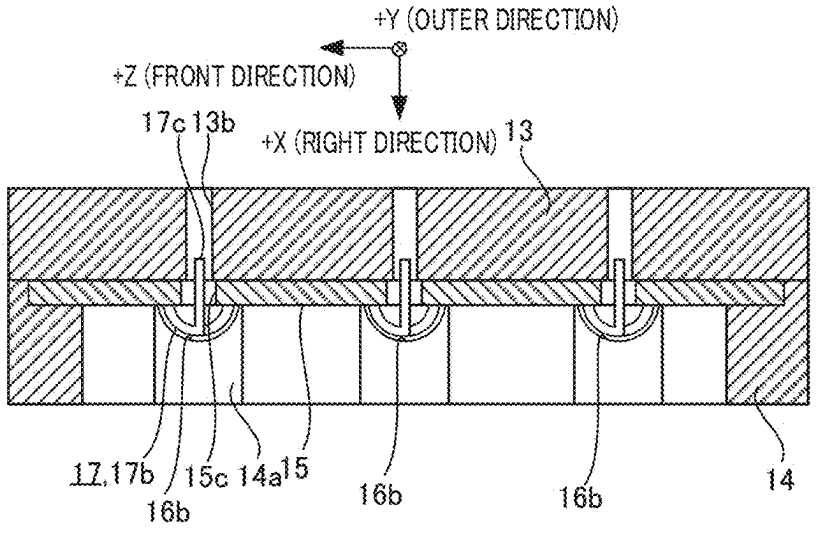

13
15
14
12
15a
12a
+Z (FRONT DIRECTION)
+X (RIGHT DIRECTION)
+Y (OUTER DIRECTION)
17c
15c
13b
17b
16d
150a
14a
13a
12b
16c
16,16a
16b
17,17a

FIG. 3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+Z (FRONT DIRECTION)
17c
13b
+X (RIGHT DIRECTION)
13
17,17b
15c
14a
15
16b
16b
14
16b

FIG. 4

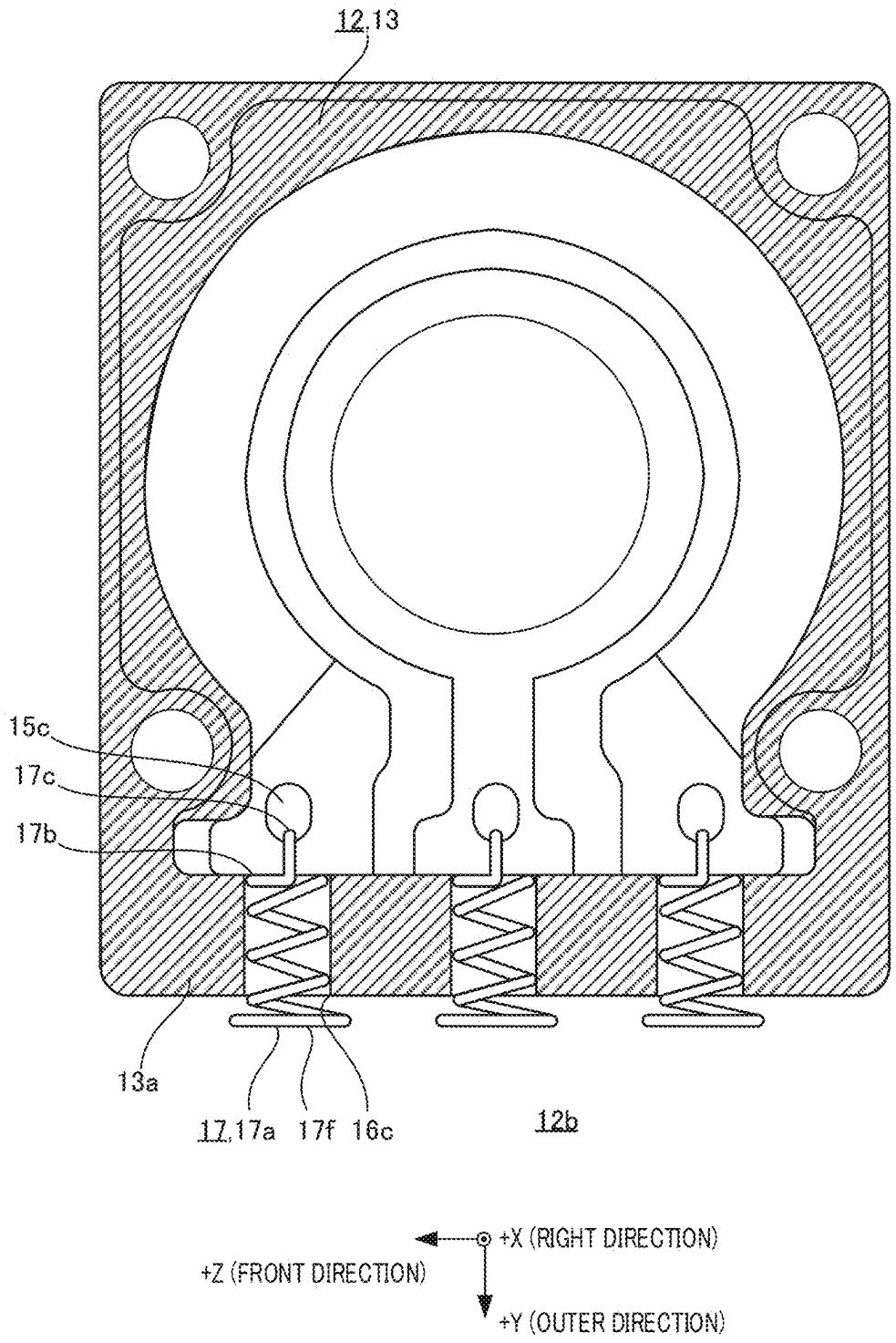

12,13
15c
17c
17b
13a
17,17a
17f
16c
12b
+X (RIGHT DIRECTION)
+Z (FRONT DIRECTION)
+Y (OUTER DIRECTION)

FIG. 5

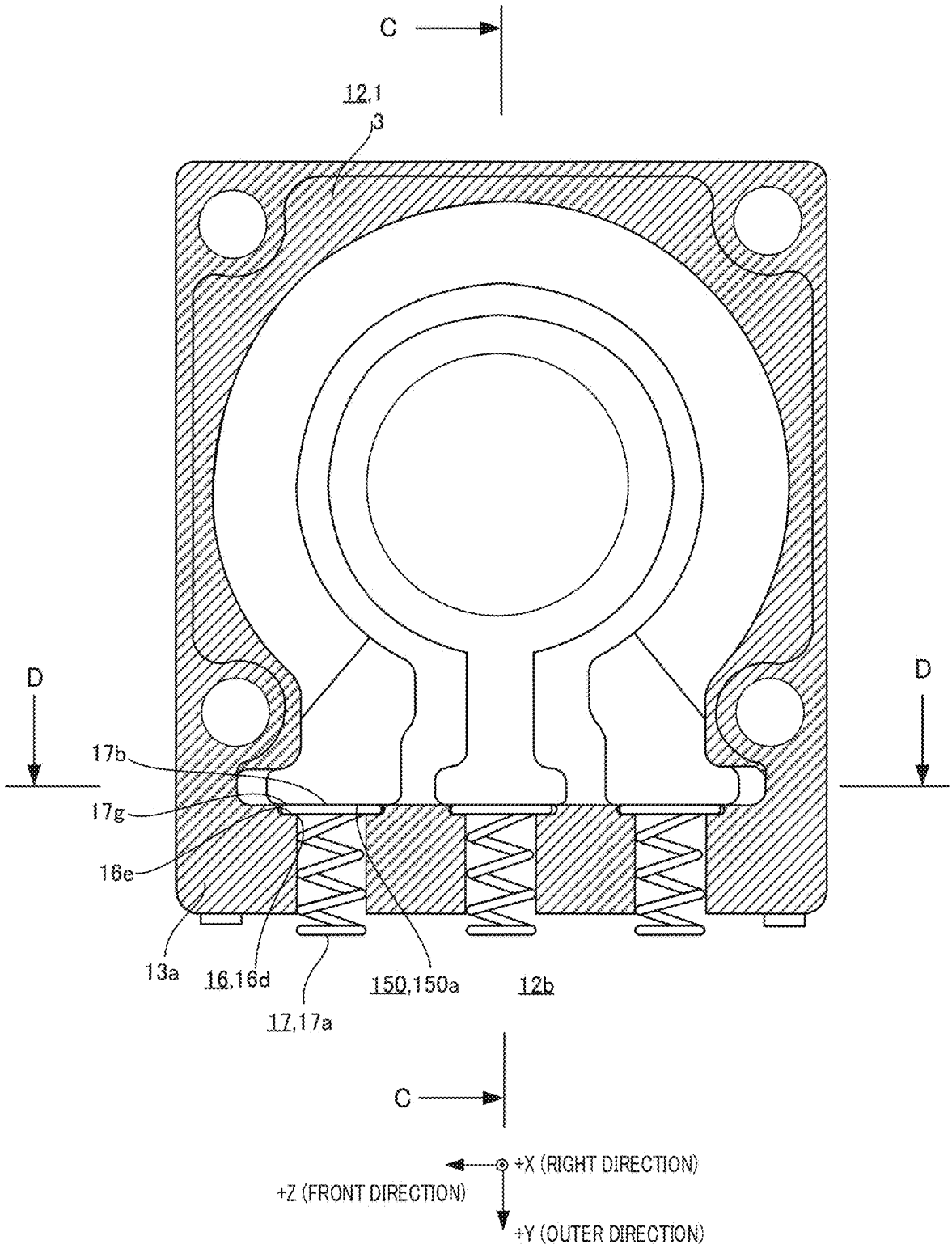

C
12,1
3
D
D
17b
17g
16e
13a
16,16d
17,17a
150,150a
12b
C
+X (RIGHT DIRECTION)
+Z (FRONT DIRECTION)
+Y (OUTER DIRECTION)

FIG. 6

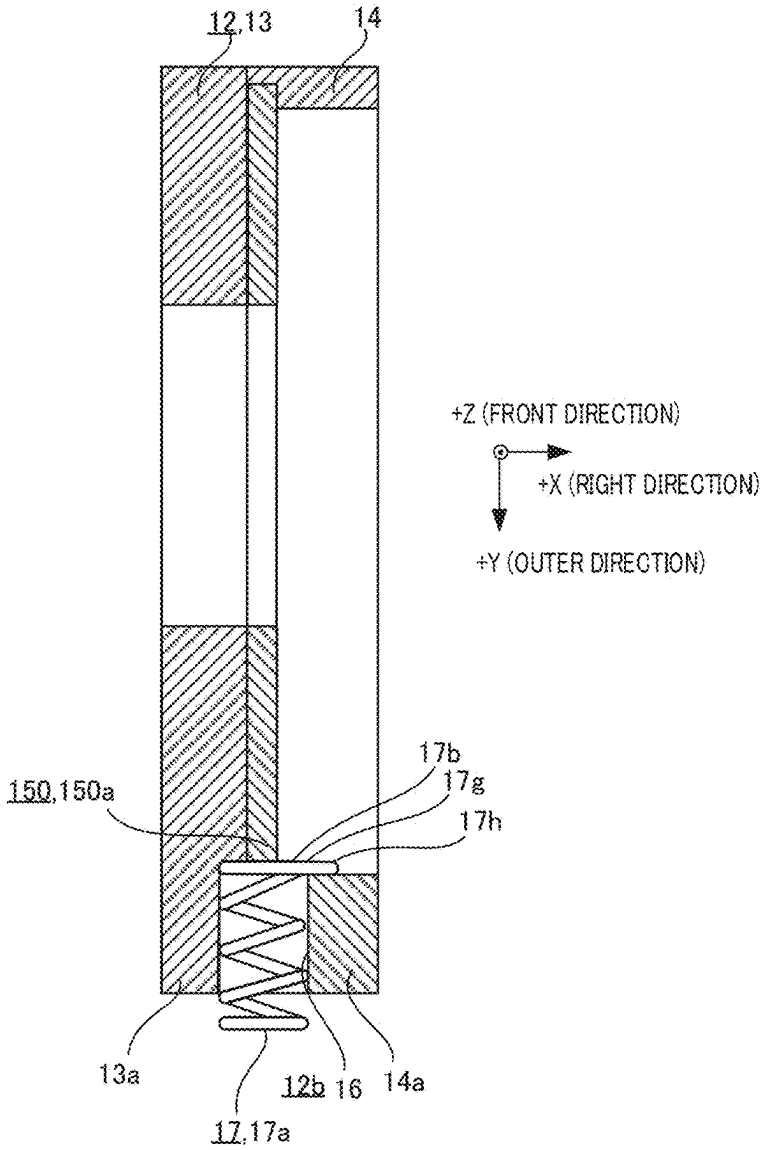

12,13
14
+Z (FRONT DIRECTION)
+X (RIGHT DIRECTION)
+Y (OUTER DIRECTION)
17b
17g
17h
150,150a
13a
12b
16
14a
17,17a

FIG. 7

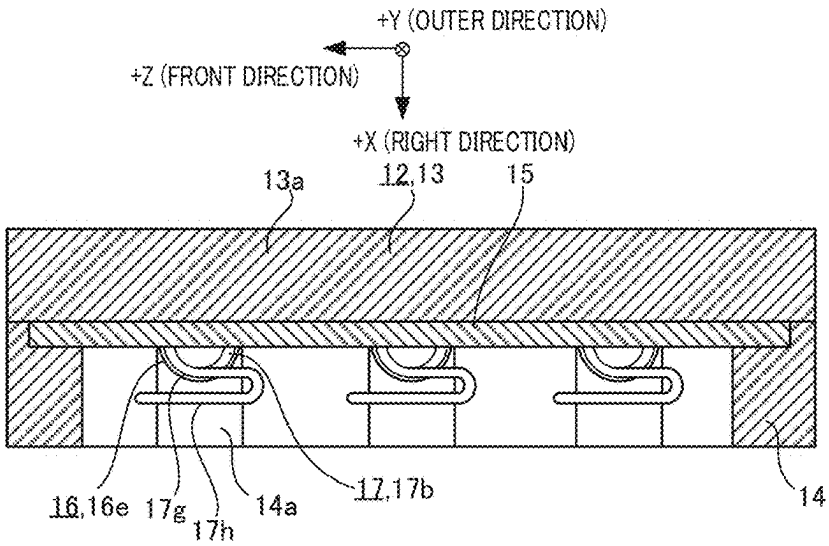

+Y (OUTER DIRECTION)
+Z (FRONT DIRECTION)
+X (RIGHT DIRECTION)
13a
12,13
15
16,16e
17g
17h
14a
17,17b
14

FIG. 8

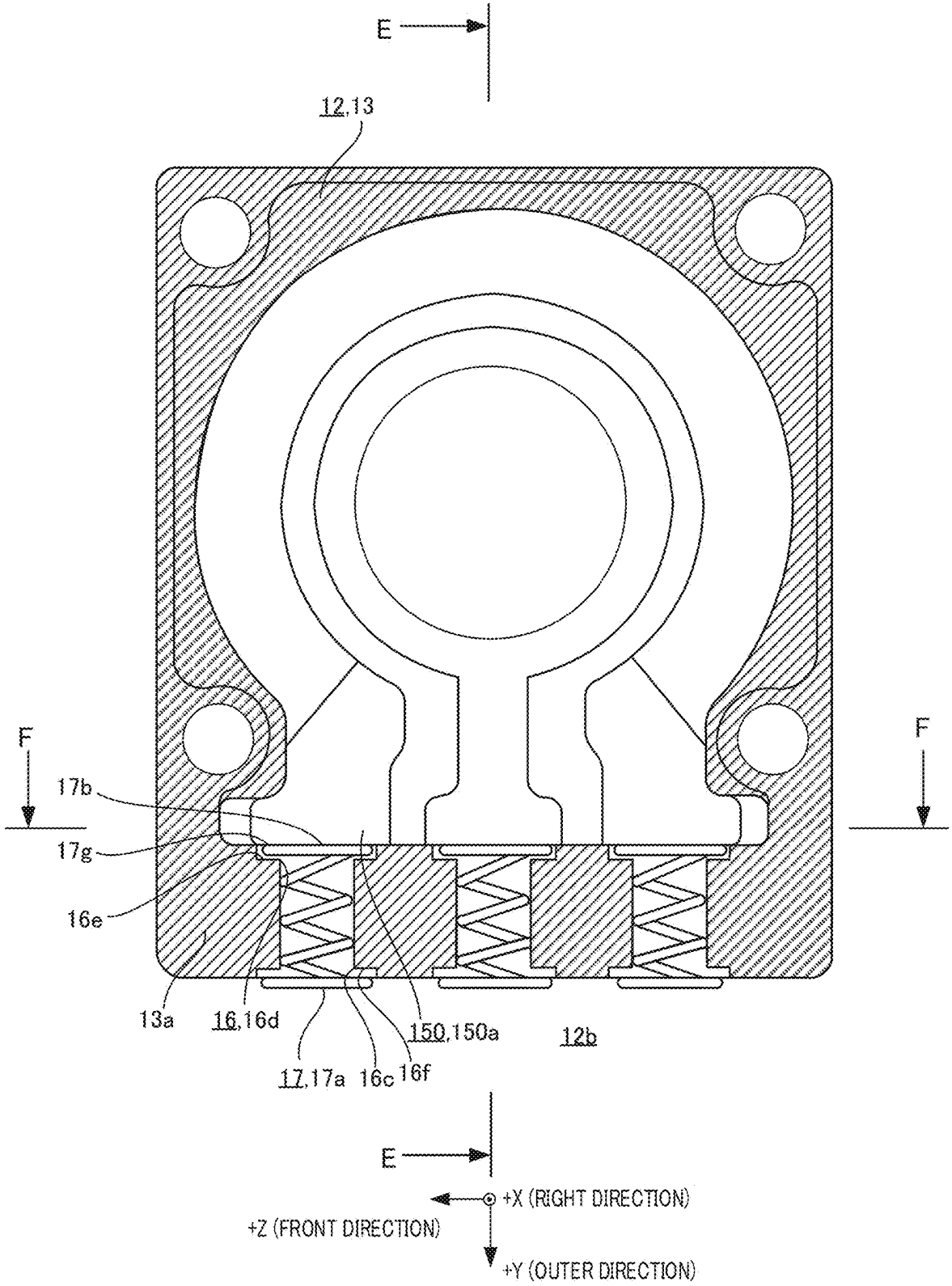

E
12,13
F
F
17b
17g
16e
13a
16,16d
17,17a
16c
16f
150,150a
12b
E
+X (RIGHT DIRECTION)
+Z (FRONT DIRECTION)
+Y (OUTER DIRECTION)

FIG. 9

FIG. 10

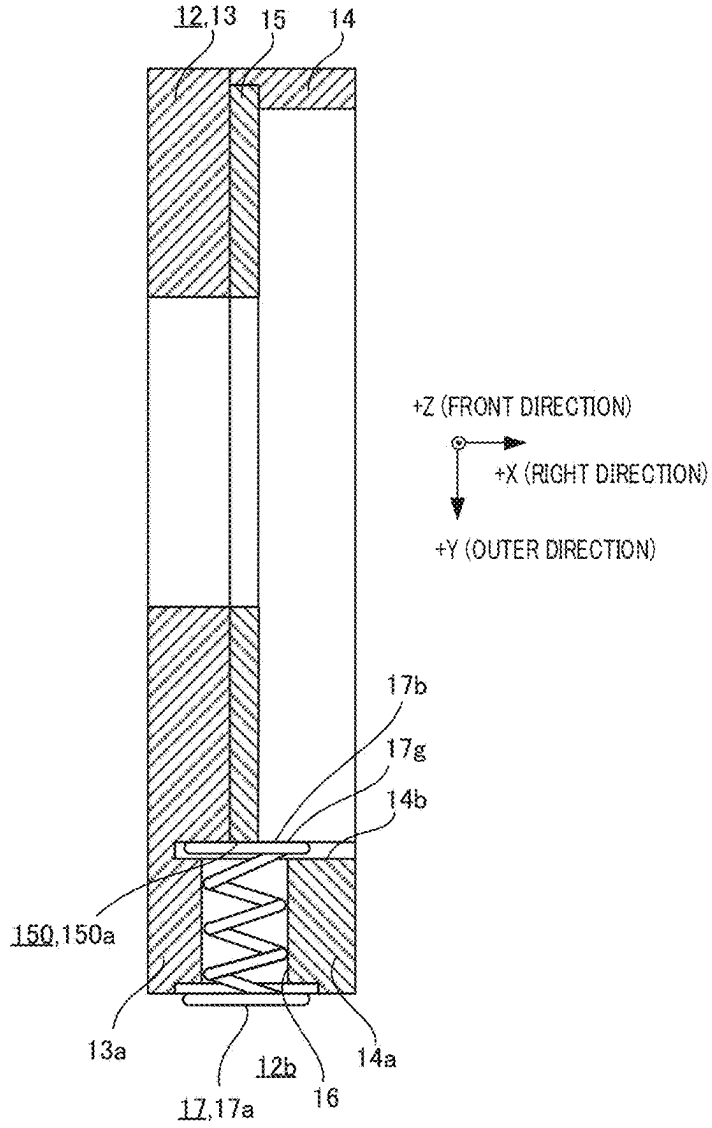
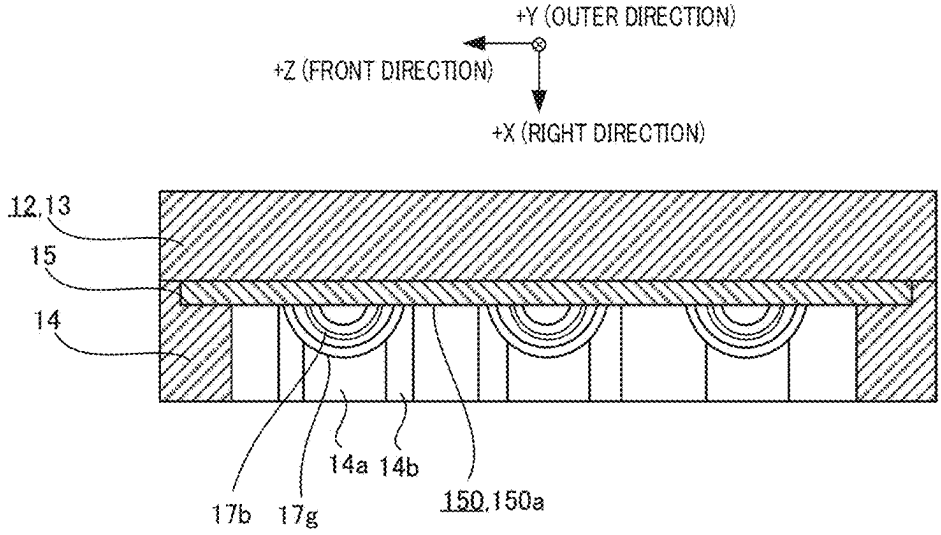

12,13
15
14
+Z (FRONT DIRECTION)
+X (RIGHT DIRECTION)
+Y (OUTER DIRECTION)
17b
17g
14b
150,150a
13a
12b
14a
17,17a
16

FIG. 11


+Y (OUTER DIRECTION)
+Z (FRONT DIRECTION)
+X (RIGHT DIRECTION)
12,13
15
14
14a
14b
17b
17g
150,150a

ELECTRONIC COMPONENT, ELECTRONIC COMPONENT TERMINAL STRUCTURE, AND ELECTRONIC DEVICE

TECHNICAL FIELD

[0001] The present invention relates to an electronic component, an electronic component terminal structure, and an electronic apparatus.

BACKGROUND ART

[0002] It has been known that soldering is performed to connect between a terminal of an electronic component and a printed circuit board.

[0003] In a case where the soldering is performed by a soldering robot, the facility cost increases. Further, in a case where the soldering is performed by an operator, the number of man-hours in the soldering work increases. For this reason, there is a problem of the high assembly cost. Further, there is also a problem in that an environmental load is generated by using solder.

[0004] Further, Patent Literature (hereinafter referred to as "PTL") 1 discloses an electronic apparatus including two contact members that are disposed to face each other and a coil spring that is disposed between the two contact members, in which end portions of the coil spring are welded respectively to the two contact members with a conductive adhesive.

CITATION LIST

Patent Literature

PTL 1

[0005] Japanese Patent Application Laid-Open No. 2000-243167

SUMMARY OF INVENTION

Technical Problem

[0006] In the electronic apparatus described in PTL 1, when the end portions of the coil spring are welded respectively to the contact members with the conductive adhesive, the coil spring is held in a predetermined position with, for example, a jig, and then the welding is performed, thus taking the man-hours as in the soldering work. This causes a problem of the high assembly cost.

[0007] Further, for example, application of an impact or the like to an electronic component causes a problem in that a load is applied to an electrical connection portion subjected to soldering or an electrical connection portion welded by a conductive adhesive.

[0008] An object of the present invention is to provide an electronic component, a terminal structure of an electronic component, and an electronic apparatus each capable of preventing an environmental load, reducing the assembly cost, and reducing a load on an electrical connection portion, by not using solder.

Solution to Problem

[0009] To achieve the above-described object, an electronic component according to the present invention includes: an electronic component main body; and a terminal that has conductivity, in which the terminal is a coil spring that is fitted to a guidance groove provided in the electronic component main body in a manner capable of expanding and contracting, and that is in contact with a printed circuit board in a compressed state.

[0010] An electronic component terminal structure according to the present invention is a terminal structure of an electronic component including an electronic component main body, the terminal structure including: a terminal that has conductivity, in which the terminal is fitted to a guidance groove provided in the electronic component main body in a manner capable of expanding and contracting, and that is in contact with a printed circuit board in a compressed state.

[0011] An electronic apparatus according to the present invention includes: the above-described electronic component; a case that houses the above-described electronic component; and a printed circuit board.

Advantageous Effects of Invention

[0012] According to the present invention, it is possible to reduce the assembly cost and to reduce the load on an electrical connection portion.

BRIEF DESCRIPTION OF DRAWINGS

[0013] FIG. **1** is an overall view of an electronic component according to an embodiment of the present invention, illustrating a part of the electronic component in cross section;

[0014] FIG. **2** is a front view of a terminal structure of the electronic component;

[0015] FIG. **3** is a cross-sectional view taken along line A-A of FIG. **2**;

[0016] FIG. **4** is a cross-sectional view taken along line B-B of FIG. **2**;

[0017] FIG. **5** is a front view of a terminal structure of an electronic component according to Variation 1;

[0018] FIG. **6** is a front view of a terminal structure of an electronic component according to Variation 2;

[0019] FIG. **7** is a cross-sectional view taken along line C-C of FIG. **6**;

[0020] FIG. **8** is a cross-sectional view taken along line D-D of FIG. **6**;

[0021] FIG. **9** illustrates a variation of the terminal structure of the electronic component;

[0022] FIG. **10** is a cross-sectional view taken along line E-E of FIG. **9**; and

[0023] FIG. **11** is a cross-sectional view taken along line F-F of FIG. **9**.

DESCRIPTION OF EMBODIMENTS

[0024] Hereinafter, an embodiment of the present invention will be described with reference to the drawings. FIG. **1** is an overall view of an electronic component according to an embodiment of the present invention, illustrating a part of the electronic component in cross section. FIG. **1** illustrates X, Y, and Z axes. In FIG. **1**, a right-left direction will be referred to as an X direction, a right direction will be referred to as a right side or a "+X direction," and a left direction will be referred to as a left side or "−X direction." Further, an up-down direction in FIG. **1** is referred to as a Y direction, and a direction moving away from the X axis along the Y axis is referred to as an outer side, an outside, an outer direction, or a "+Y direction," and a direction approaching

the X axis along the Y axis is referred to as an inner side, an inside, an inner direction, or a "−Y direction." Further, a direction orthogonal to the plane in FIG. **1** is referred to as a Z direction, a front direction is referred to as a "+Z direction," and a rear direction is referred to as a "−Z direction."

[0025] Electronic apparatus **100** in the present embodiment includes electronic component **1**, a case (not illustrated), and a printed circuit board (not illustrated). In the present embodiment, electronic component **1** is a potentiometer that outputs a voltage corresponding to a mechanical displacement amount of the rotation of an input shaft, or a rotary encoder that converts the mechanical displacement amount of the rotation of the input shaft into a digital amount.

[0026] As illustrated in FIG. **1**, electronic component **1** includes electronic component main body **12** and coil spring **17**. Electronic component main body **12** includes a shaft bearing (not illustrated) that rotatably supports input shaft **18**.

[0027] Electronic component main body **12** includes first main body portion **13**, second main body portion **14**, resistance substrate **15**, and guidance groove **16**. First main body portion **13** is disposed on the left side (−X direction) relative to second main body portion **14**. Resistance substrate **15** is disposed between first main body portion **13** and second main body portion **14**.

[0028] First main body portion **13** includes a rectangular-shaped frame portion. First groove portion **16***a* is disposed on a right-side wall surface of lower-side edge portion **13***a* of the frame portion. First groove portion **16***a* has a shape matching with an outer peripheral shape of coil spring **17**. For example, first groove portion **16***a* has an arc-shaped cross-sectional shape. Note that first groove portion **16***a* may have a U-shaped cross-sectional shape.

[0029] Second main body portion **14** includes a rectangular frame portion. Second groove portion **16***b* is disposed on a left side wall surface of lower-side edge portion **14***a* of the frame portion. Second groove portion **16***b* has a shape matching with an outer peripheral shape of coil spring **17**. For example, second groove portion **16***b* has an arc-shaped cross-sectional shape. Note that second groove portion **16***b* may have a U-shaped cross-sectional shape.

[0030] Each of a plurality of electrode patterns **150** is fixed to right-side wall surface **15***a* of resistance substrate **15**. Note that each of the plurality of electrode patterns **150** is formed to extend to a lower end portion of resistance substrate **15**. FIG. **2** is a front view of a terminal structure of electronic component **1**. As illustrated in FIG. **2**, each of the plurality of electrode patterns **150** includes input electrode pattern **151**, output electrode pattern **152**, and ground electrode pattern **153**. Locking hole **15***c* is disposed on the position of each of outer end portions **150***a* (lower end portions illustrated in FIG. **3**) of the plurality of electrode patterns **150**. Locking hole **15***c* penetrates in the X direction. Locking hole **15***c* is a long hole with the up-down direction (Y direction) as a longitudinal direction thereof.

[0031] FIG. **3** is a cross-sectional view taken along line A-A of FIG. **2**. FIG. **4** is a cross-sectional view taken along line B-B of FIG. **2**. As illustrated in FIGS. **3** and **4**, locking hole **13***b* is disposed on first main body portion **13**. Locking hole **13***b* penetrates in the X direction. Locking hole **13***b* is disposed correspondingly to each of locking holes **15***c* in the X direction, and is a long hole with the up-down direction (Y direction) as a longitudinal direction thereof, as with locking hole **15***c*.

[0032] Three guidance grooves **16** are disposed respectively to outer end portions **150***a* (lower end portions illustrated in FIG. **3**) of the plurality of electrode patterns **150**. Three guidance grooves **16** have the same configuration as each other.

[0033] Guidance groove **16** extends in the Y direction and communicates between inner portion **12***a* and outer portion **12***b* of electronic component main body **12**. Guidance groove **16** is formed into an approximately circular cross-sectional shape by arranging first groove portion **16***a* having an arc-shaped cross-sectional shape disposed on lower-side edge portion **13***a* and second groove portion **16***b* having an arc-shaped cross-sectional shape disposed on lower-side edge portion **14***a* to face each other in the X direction. Outer groove opening **16***c* is located in an outer end of guidance groove **16**. Inner groove opening **16***d* is located in an inner end of guidance groove **16**. Coil spring **17** is fitted to guidance groove **16** in a manner capable of expanding and contracting.

[0034] Coil spring **17** fitted to each of the three guidance grooves has the same configuration as each other. An outer diameter of coil spring **17** is smaller than an inner diameter of guidance groove **16**. Coil spring **17** is a terminal having conductivity. At the time of assembly of electronic apparatus **100**, outer end portion **17***a* of coil spring **17** (lower end portion in FIG. **3**) comes into contact with the printed circuit board (not illustrated). Coil spring **17** is thus brought into a contracted state.

[0035] In a case where coil spring **17** is in the compressed state, inner end portion **17***b* (upper end portion in FIG. **3**) of coil spring **17** comes into contact with outer end portion **150***a* (lower end portion in FIG. **3**) of each of electrode patterns **150**.

[0036] Coil spring **17** is supported such that coil spring **17** does not come off guidance groove **16** to a side of outer portion **12***b* of electronic component main body **12**. Specifically, coil spring **17** includes locking portion **17***c* (corresponding to "first locking portion" of the present invention) that locks to locking hole **15***c*. Locking portion **17***c* extends inward (−Y direction) from inner end portion **17***b*, is bent to a left side (−X direction) at a position corresponding to locking hole **15***c*, and is fitted to each of locking hole **15***c* and locking hole **13***b*. As described above, locking hole **15***c* (locking hole **13***b*) is a long hole with the up-down direction (Y direction) as the longitudinal direction thereof. A positional relationship in the up-down direction between locking hole **15***c* (locking hole **13***b*) and locking portion **17***c* is a relation in which, in the assembly of electronic apparatus **100**, inner end portion **17***b* of coil spring **17** can be brought into contact with outer end portion **150***a* of electrode pattern **150** by coil spring **17** moving in the up-down direction within guidance groove **16**.

[0037] Next, an example of an method of assembling of electronic apparatus **100** will be described briefly. First, a description will be given of an assembly direction of electronic component **1**. Note that, at the time of assembly of electronic apparatus **100**, a case (not illustrated) is disposed in the upward direction in FIG. **1** of electronic component **1**, and a printed circuit board (not illustrated) is disposed in the downward direction in FIG. **1** of electronic component **1**.

[0038] First, resistance substrate **15** is disposed at a predetermined position in first main body portion **13** from the right direction (+X direction).

[0039] Next, coil spring **17** is fitted into first groove portion **16***a* from the right direction (+X direction). Further, locking portion **17***c* of coil spring **17** is locked to each of locking hole **15***c* and locking hole **13***b*.

[0040] Next, second main body portion **14** is disposed to face the predetermined position in first main body portion **13** from the right direction (+X direction) and is assembled with first main body portion **13**. Note that second main body portion **14** and input shaft **18** are assembled in advance. Thus, electronic component **1** is assembled. Locking of locking portion **17***c* to locking hole **15***c* or the like prevents coil spring **17** from coming off from electronic component main body **12**, and thus, electronic component **1** can be easily handled.

[0041] Next, assembled electronic component **1** is disposed at a predetermined position in the case (not illustrated) from the downward direction in FIG. **1**.

[0042] Next, the printed circuit board (not illustrated) is disposed at a predetermined position in the case from the downward direction in FIG. **1**.

[0043] Next, the case and the printed circuit board are assembled by a joining member (for example, screw). Thus, electronic component **1** is held between the case and the printed circuit board, which leads to a state where coil spring **17** is compressed between the electrode pattern and the printed circuit board. In a state in which coil spring **17** is compressed, outer end portion **17***a* of coil spring **17** is in contact with the printed circuit board. Further, inner end portion **17***b* of coil spring **17** is in contact with outer end portion **150***a* of each of the plurality of electrode patterns **150**. The electrical connection portion connecting between outer end portion **17***a* of coil spring **17** and the printed circuit board is an electrical connection portion not subjected to soldering. Further, the electrical connection portion connecting between inner end portion **17***b* of coil spring **17** and outer end portion **150***a* of electrode pattern **150** is an electrical connection portion not subjected to soldering.

[0044] Electronic component **1** according to the above-described embodiment includes electronic component main body **12** and a terminal that has conductivity, in which the terminal is coil spring **17** that is fitted to guidance groove **16** provided in electronic component main body **12** in a manner capable of expanding and contracting, and that is in contact with a printed circuit board in a compressed state.

[0045] With the above configuration, when coil spring **17** comes into contact with the printed circuit board in the compressed state, an electrical connection portion connecting between coil spring **17** and the printed circuit board is formed, which eliminates the need for an electrical connection portion subjected to soldering, thereby reducing the assembly cost and reducing the load on the electrical connection portion.

[0046] Further, in electronic component **1** according to the above embodiment, guidance groove **16** extends in a predetermined direction (Y direction) and communicates between inner portion **12***a* and outer portion **12***b* of electronic component main body **12**, and coil spring **17** is supported so as not to come off from guidance groove **16** toward the side of outer portion **12***b* of electronic component main body **12**. Thus, since coil spring **17** does not come off from electronic component main body **12**, it is possible to easily handle electronic component **1** and to increase the transportability of electronic component **1**.

[0047] In addition, in electronic component **1** according to the above embodiment, inner portion **12***a* of electronic component main body **12** includes resistance substrate **15**, and coil spring **17** includes locking portion **17***c* that locks to resistance substrate **15** such that coil spring **17** does not come off from guidance groove **16** to the side of outer portion **12***b* of electronic component main body **12**. Locking of locking portion **17***c* to resistance substrate **15** makes it possible to increase the assembly property and the like of electronic component **1** because coil spring **17** does not come off from electronic component main body **12**.

(Variation 1)

[0048] Next, a variation of the terminal structure of electronic component **1** according to the present embodiment will be described. Note that, in the descriptions of the following variations, configurations different from those in the above embodiment will be mainly described, whereas the identical components are given the same reference numerals, and the descriptions thereof will be omitted.

[0049] First, a terminal structure of electronic component **1** according to Variation 1 will be described with reference to FIG. **5**. FIG. **5** is a front view of a terminal structure of electronic component **1** according to Variation 1.

[0050] As illustrated in FIGS. **2** and **3**, the outer diameter of coil spring **17** according to the above embodiment is smaller than the inner diameter of guidance groove **16**. Further, outer diameters of outer end portion **17***a*, inner end portion **17***b* of coil spring **17**, and a central portion between outer end portion **17***a* and inner end portion **17***b* are the same as each other.

[0051] In contrast, in Variation 1, an outer diameter of outer end portion **17***a* is larger than an outer diameter of inner end portion **17***b* and an outer diameter of a central portion, as illustrated in FIG. **5**. Outer end portion **17***a* includes locking portion **17***f* (corresponding to "third locking portion" of the present invention) locks to a peripheral edge portion of outer groove opening **16***c* of guidance groove **16** such that the outer end portion does not enter guidance groove **16** from a side of outer portion **12***b* of electronic component main body **12**. This makes it possible to prevent outer end portion **17***a* from entering guidance groove **16** from the side of outer portion **12***b* of electronic component main body **12** due to an erroneous operation or the like.

(Variation 2)

[0052] Next, a terminal structure of electronic component **1** according to Variation 2 will be described with reference to FIGS. **6**, **7**, and **8**. FIG. **6** is a front view of a terminal structure of electronic component **1** according to Variation 2. FIG. **7** is a cross-sectional view taken along line C-C of FIG. **6**. FIG. **8** is a cross-sectional view taken along line D-D of FIG. **6**.

[0053] In coil spring **17** according to the above embodiment described above, as illustrated in FIGS. **2** and **3**, outer diameters of outer end portion **17***a*, inner end portion **17***b* of coil spring **17**, and a central portion between outer end portion **17***a* and inner end portion **17***b* are the same as one another.

[0054] In contrast, in Variation 2, an outer diameter of inner end portion **17***b* of coil spring **17** is larger than the outer diameter of each of outer end portion **17***a* and a central portion, as illustrated in FIG. **6**. Thus, inner end portion **17***b* locks to a peripheral edge portion of inner groove opening **16***d* of guidance groove **16**. As a result, coil spring **17** does not come off from guidance groove **16** to a side of outer portion **12***b* of electronic component main body **12**. That is, coil spring **17** according to Variation 2 includes locking portion **17***g* (corresponding to "second locking portion" of the present invention) that locks to guidance groove **16**.

[0055] In electronic component **1** according to Variation 2, since coil spring **17** includes locking portion **17***g*, locking portion **17***g* locks to the peripheral edge portion of inner groove opening **16***d* even in a case where coil spring **17** is pulled outward (+Y direction) due to an erroneous operation, and thus, it is possible to prevent coil spring **17** from coming off from guidance groove **16** to the side of outer portion **12***b* of electronic component main body **12**. Since coil spring **17** does not come off from electronic component main body **12**, electronic component **1** can be easily handled.

[0056] Further, locking portion **17***g* according to Variation 2 extends from the peripheral edge portion of inner groove opening **16***d* rearward (−Z direction), is bent at 180 degrees, and further includes extension portion **17***h* that extends frontward (+Z direction), as illustrated in FIGS. **7** and **8**. Extension portion **17***h* locks to a central portion in the left-right direction on an upper surface of lower-side edge portion **14***a*. Thus, an area in which extension portion **17***h* locks to lower-side edge portion **14***a* increases, and thus, it is possible to surely prevent coil spring **17** from coming off from guidance groove **16** to the side of outer portion **12***b* of electronic component main body **12**.

[0057] Further, as illustrated in FIGS. **6** and **8** in Variation 2, fitting groove **16***e* is disposed in the peripheral edge portion of inner groove opening **16***d* of guidance groove **16**. When locking portion **17***g* is fitted to fitting groove **16***e*, movement in a radial direction of the inner end portion **17***b* of the coil spring **17** is limited, thereby increasing the contact stability of inner end portion **17***b* with outer end portion **150***a* of the electrode pattern **150**. Further, since the movement in the radial direction of inner end portion **17***b* is limited, the assembly property of coil spring **17** can be increased.

(Variation 3)

[0058] Next, a terminal structure of electronic component **1** according to Variation 3 will be described with reference to FIGS. **9**, **10**, and **11**. FIG. **9** is a front view of a terminal structure of electronic component **1** according to Variation 3. FIG. **10** is a cross-sectional view taken along line E-E of FIG. **9**. FIG. **11** is a cross-sectional view taken along line F-F of FIG. **9**.

[0059] In coil spring **17** according to Variation 2, the outer diameter of inner end portion **17***b* of coil spring **17** is larger than the outer diameter of each of outer end portion **17***a* and the central portion, as illustrated in FIG. **6**.

[0060] In contrast, in coil spring **17** according to Variation 3, as in Variation 2, an outer diameter of inner end portion **17***b* of coil spring **17** is larger than an outer diameter of a central portion, as illustrated in FIG. **9**. That is, inner end portion **17***b* includes a locking portion that locks to a peripheral edge portion of inner groove opening **16***d*. Thus, as in Variation 2, even in a case where coil spring **17** is pulled outward (+Y direction) due to an erroneous operation, inner end portion **17***b* (locking portion) locks to the peripheral edge portion of inner groove opening **16***d*, and thus, it is possible to prevent coil spring **17** from coming off from guidance groove **16** to a side of outer portion **12***b* of electronic component main body **12**. Since coil spring **17** does not come off from electronic component main body **12**, electronic component **1** can be easily handled.

[0061] Further, in coil spring **17** according to Variation 3, an outer diameter of outer end portion **17***a* is larger than the outer diameter of the central portion. That is, outer end portion **17***a* includes a locking portion that locks to the peripheral edge portion of outer groove opening **16***c* of guidance groove **16** such that the outer end portion does not enter guidance groove **16** from the side of outer portion **12***b* of electronic component main body **12**. This makes it possible to prevent outer end portion **17***a* (locking portion) from entering guidance groove **16** from the side of outer portion **12***b* of electronic component main body **12** due to an erroneous operation or the like.

[0062] Further, in Variation 3, as in Variation 2, fitting groove **16***e* is disposed in the peripheral edge portion of inner groove opening **16***d* of guidance groove **16**. Further, in Variation 3, fitting groove **16***f* is disposed in the peripheral edge portion of outer groove opening **16***c* of guidance groove **16**. Thus, movement in a radial direction of outer end portion **17***a* of coil spring **17** is limited, thereby increasing the contact stability of outer end portion **17***a* with a printed circuit board (not illustrated).

[0063] Further, as illustrated in FIGS. **10** and **11**, guide groove **14***b* that guides inner end portion **17***b* in the left-right direction (X direction) is disposed in lower-side edge portion **14***a* according to Variation 3. A groove width of guide groove **14***b* is larger than a length of the outer diameter of inner end portion **17***b*. A right-side end of guide groove **14***b* extends to a right-side end of lower-side edge portion **14***a*. Further, a left-side end of guide groove **14***b* is connected to fitting groove **16***e*. Thus, at the time of assembly of electronic component **1**, when second main body portion **14** is assembled to first main body portion **13** after coil spring **17** is fitted to first groove portion **16***a*, inner end portion **17***b* is guided along the left-right direction (X direction) by guide groove **14***b*. In this manner, second main body portion **14** is positioned with respect to first main body portion **13** in the up-down direction (Y direction) and the depth direction (Z direction), and it is only necessary to move second main body portion **14** in the left direction (−X direction) with respect to first main body portion **13**, and thus, second main body portion **14** can be easily assembled to first main body portion **13**.

[0064] In the above-described embodiment, locking hole **13***b* is provided on first main body portion **13**, and locking hole **15***c* is provided on resistance substrate **15**, but the present invention is not limited to this. For example, a locking hole to which locking portion **17***c* locks may be provided on either first main body portion **13** or resistance substrate **15**.

[0065] The embodiment and variations described above are merely examples of specific implementation of the present invention, and the technical scope of the present invention should not be restrictively interpreted by these embodiments. That is, the present invention may be implemented in various forms without departing from the spirit thereof or the major features thereof.

[0066] This application is based on Japanese patent application No. 2022-071792, filed Apr. 25, 2022, the contents of which are incorporated herein by reference.

INDUSTRIAL APPLICABILITY

[0067] The present invention is suitably utilized in an electronic apparatus including an electronic component, which is required to reduce the assembly cost and to reduce the load on an electrical connection portion.

REFERENCE SIGNS LIST

[0068] **1** Electronic component
[0069] **12** Electronic component main body
[0070] **12***a* Inner portion
[0071] **12***b* Outer portion
[0072] **13** First main body portion
[0073] **13***a* Lower-side edge portion
[0074] **13***b* Locking hole
[0075] **14** Second main body portion
[0076] **14***a* Lower-side edge portion
[0077] **14***b* Guide groove
[0078] **15** Resistance substrate
[0079] **15***a* Right-side wall surface
[0080] **15***c* Locking hole
[0081] **150** Electrode pattern
[0082] **150***a* Outer end portion
[0083] **151** Input electrode pattern
[0084] **152** Output electrode pattern
[0085] **153** Ground electrode pattern
[0086] **16** Guidance groove
[0087] **16***a* First groove portion
[0088] **16***b* Second groove portion
[0089] **16***c* Outer groove opening
[0090] **16***d* Inner groove opening
[0091] **16***e* Fitting groove
[0092] **16***f* Fitting groove
[0093] **17** Coil spring
[0094] **17***a* Outer end portion
[0095] **17***b* Inner end portion
[0096] **17***c* Locking portion
[0097] **17***d* Locking portion
[0098] **17***e* Locking portion
[0099] **17***f* Locking portion
[0100] **17***g* Locking portion
[0101] **17***h* Extension portion
[0102] **18** Input shaft
[0103] **100** Electronic apparatus

1. An electronic component, comprising:
an electronic component main body; and
a terminal that has conductivity,
wherein the terminal is a coil spring that is fitted to a guidance groove provided in the electronic component main body in a manner capable of expanding and contracting, and that is in contact with a printed circuit board in a compressed state.

2. The electronic component according to claim **1**, wherein:
the guidance groove extends in a predetermined direction and communicates between an inner portion and an outer portion of the electronic component main body, and
the coil spring is supported such that the coil spring does not come off from the guidance groove to an outer side of the electronic component main body.

3. The electronic component according to claim **2**, wherein:
the inner portion of the electronic component main body is provided with a resistance substrate, and
the coil spring includes a first locking portion that locks to at least one of the electronic component main body and/or the resistance substrate such that the coil spring does not come off from the guidance groove to the outer side of the electronic component main body.

4. The electronic component according to claim **2**, wherein the coil spring includes a second locking portion that locks to the guidance groove such that the coil spring does not come off from the guidance groove to the outer side of the electronic component main body.

5. The electronic component according to claim **2**, wherein the coil spring includes a third locking portion that locks to a peripheral edge portion of an outer groove opening that is a groove opening on the outer side of the electronic component main body, such that an end portion located on the outer side of the electronic component main body in the coil spring does not enter the guidance groove from the outer portion of the electronic component main body.

6. The electronic component according to claim **3**, wherein:
at least one of the electronic component main body and/or the resistance substrate has a locking hole to which the first locking portion locks, and
the locking hole is a long hole with the predetermined direction as a longitudinal direction.

7. The electronic component according to claim **2**, wherein:
the electronic component main body includes a first main body portion and a second main body portion, and
the guidance groove is formed by arranging a first groove portion and a second groove portion to face each other in a direction orthogonal to the predetermined direction, the first groove portion being provided in the first main body portion, the second groove portion being provided in the second main body portion.

8. A terminal structure of an electronic component including an electronic component main body, the terminal structure comprising:
a terminal that has conductivity,
wherein the terminal is fitted to a guidance groove provided in the electronic component main body in a manner capable of expanding and contracting, and that is in contact with a printed circuit board in a compressed state.

9. An electronic apparatus, comprising:
the electronic component according to claim **1**;
a case that houses the electronic component; and
a printed circuit board.

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