

DESCRIPTION

DISSASSEMBLY JIG

5 Technical Field

[0001] The present disclosure relates to a disassembly jig.

Background Art

[0002] Among electronic devices, there are some electronic devices consisting
10 of an assembly of multiple joined parts. In such an electronic device, the
assembly may be reconstituted by removing at least one part and joining the
removed part to the assembly, or may be reconstituted by replacing the
removed part with new one and joining the new part to the assembly. Jigs
may be used to simplify the removal operation during the disassembling
15 operation of such electronic devices (for example, see Patent Document 1).

Prior Art Document

Patent Document

[0003] Patent Document 1: JP 2000-79577A

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Disclosure of the Invention

Problem to be Solved by the Invention

[0004] Patent Document 1 discloses a removal jig for removing an optical
connector plug from an optical module. In the above-described removal jig, an
25 insertion part with a leading end is inserted into a gap formed by a leading end
of the optical module and an engaging section of the optical connector plug.
The removal jig uses the leading end inserted into the gap to push and spread
a clamping part of the optical connector plug (clamping part for clamping the
optical module), thereby removing the optical connector plug from the optical
30 module. However, the leading end of the removal jig has a tapered shape
(with the sharp leading end) in a manner such that its width is gradually
reduced toward the leading end, and there is a risk that the leading end may
accidentally damage the optical module when inserting this leading end into
the gap. In addition, when an operator attempts to use the removal jig or
35 stores the removal jig, the stripped leading end may damage peripheral devices
placed around the optical module, equipment located in a storage area, or the

like, or the leading end itself may become damaged.

[0005] Accordingly, there is a demand for a disassembly jig capable of disassembling a disassembly target object while avoiding damage.

5 Means for Solving Problem

[0006] The characteristic configuration of a disassembly jig according to the present disclosure is directed to a disassembly jig configured to solve engagement between a body and a disassembly part of a disassembly target object, the body having at least one engaged section, and the disassembly part
10 being disposed on one side in a first direction relative to the body and having at least one engaging section engageable with the at least one engaged section through snap fit, the disassembly jig including: a base extending along a second direction orthogonal to the first direction with the disassembly jig attached to the disassembly target object; and an engagement control section including at
15 least one arm extending to another side in the first direction with the base serving as a base end, the engagement control section being configured to perform a separation operation to solve the engagement at at least one coupling position where the engaged section and the engaging section are engaged with each other, wherein the at least one arm is configured to be positioned
20 correspondingly to the at least one coupling position, each of the at least one arm includes: a leading end extending toward a center of the base in the second direction; and a locking section extending from the leading end toward the base, and the locking section is configured to be able to solve the engagement at the corresponding coupling position, by being located on the other side in the first
25 direction relative to the disassembly part, moving to the one side in the first direction to enter a space between the body and the disassembly part, and moving the engaging section to a side in the second direction to which the engaging section separates from the engaged section.

[0007] With this characteristic configuration, the locking section, which is
30 located at the leading end of the arm and extends toward the center of the base in the second direction, extends toward the base, allowing the disassembly target object to be disassembled while avoiding damage to the disassembly target object and peripheral devices.

[0008] Further, preferably, the at least one coupling position includes two
35 coupling positions and the at least one arm includes two arms respectively including two locking sections, and a spacing between the two locking sections

in the second direction is less than or equal to a spacing between the two coupling positions in the second direction.

[0009] With this characteristic configuration, each locking section reliably enters the gap between the engaging section and the engaged section to allow
5 the coupling at the coupling position to be solved.

[0010] In addition, preferably, the locking section has two claws spaced apart from each other in a third direction orthogonal to both the first direction and the second direction.

[0011] With this characteristic configuration, the disassembly jig can be
10 moved to move the engaging section outward from the body, while avoiding contact between the locking section (claws) and the engaged section of the body, and the disassembly part can be reliably removed from the body without damaging the engaged section.

[0012] In addition, preferably, the arm is configured to be positioned outside
15 the disassembly target object, and the leading end of the arm has a guide surface that is sloped to approach the base toward an inner side of the disassembly target object.

[0013] With this characteristic configuration, when the disassembly jig is brought close to the disassembly part and the leading end (guide surface) of
20 the arm is brought into contact with the disassembly part, an outward-oriented force acts on the leading end of the arm, so that the arm moves outward (spreads outward). This means that the operator does not need to use his or her fingers to move the arm outward (spread the arm), making the operation of attaching the disassembly jig easier.

[0014] Further, preferably, the disassembly jig further includes: a hook section into which a finger of an operator is to be inserted, the hook section being located on the other side in the first direction relative to the base.

[0015] With this characteristic configuration, the disassembling operation is made easier. In addition, since the hook section is positioned on the side closer
30 to the locking section than the base, the disassembly jig can be held stably, thereby improving the handling of the disassembly jig.

[0016] Further, preferably, the disassembly jig further includes: a restricting section configured to be positioned outside the disassembly part and having a dimension equal to a length of the disassembly part in the second direction.

[0017] With this characteristic configuration, it is possible to suppress the tilt
35 of the disassembly part in the first direction when removing the disassembly

part.

[0018] Furthermore, preferably, the disassembly jig further includes: an abutment surface against which an opposite surface of the disassembly part that is opposite to the body is configured to abut, wherein a length between a leading end of the locking section and the abutment surface is greater than or equal to a length of the disassembly part in the first direction.

[0019] With this characteristic configuration, the distance for which the disassembly part can separate from the locking section can be restricted. In addition, the disassembly jig can be easily positioned at a desired position (position where, during disassembly, the engaging section is moved so as to come into contact with the coupling position).

[0020] Furthermore, preferably, the disassembly jig further includes a holder that includes: a tubular holding wall with at least the other side in the first direction open; and an accommodation space defined by the holding wall and corresponding to an outer shape of the disassembly part when viewed along the first direction, the holder being configured to hold the disassembly part by accommodating at least portion of the disassembly part in the accommodation space.

[0021] With this characteristic configuration, the disassembly part that was disassembled from the body can be held. In addition, it is possible to prevent the movement of the disassembly part in the second direction and/or third direction. As a result, it is possible to prevent the falling of the disassembly part after disassembly and avoid the damage to the disassembly part.

[0022] Further, preferably, a length between the abutment surface and the holding wall is less than the length of the disassembly part in the first direction.

[0023] With this characteristic configuration, it is possible to prevent the disassembly part from falling from the holder, and to avoid the damage to the disassembly part.

[0024] Also, preferably, the disassembly jig is made only of an insulating material.

[0025] With this characteristic configuration, it is possible to prevent occurrence of sparks caused by contact with a metal device at the site of disassembling the disassembly target object, or prevent an air discharge (electrostatic discharge) of charge electrically charged to the operator who is holding the disassembly jig toward the metal device.

Brief Description of the Drawings

[0026] FIG. 1 is a perspective view showing a disassembly target object and a disassembly jig according to an embodiment.

FIG. 2 shows the disassembly target object disassembled by the
5 disassembly jig shown in FIG. 1.

FIG. 3 shows an exploded perspective view of the disassembly target object shown in FIG. 1.

FIG. 4 shows an exploded perspective view of the disassembly target object shown in FIG. 1.

10 FIG. 5 is an exploded perspective view of the disassembly jig shown in FIG. 1.

FIG. 6 is an exploded perspective view of the disassembly jig shown in FIG. 1.

15 FIG. 7 is a perspective view of the disassembly jig shown in FIG. 1.

FIG. 8 is a cross-sectional view of the disassembly target object and the disassembly jig, taken along the XZ plane.

FIG. 9 is a cross-sectional view of the disassembly target object and the disassembly jig, taken along the XZ plane.

20 FIG. 10 is an enlarged view of the vicinity of a claw shown in FIG. 9.

FIG. 11 shows the disassembly target object disassembled by the disassembly jig shown in FIG. 9.

FIG. 12 shows a disassembly jig according to another embodiment.

FIG. 13 shows a disassembly jig according to another embodiment.

FIG. 14 shows a disassembly jig according to another embodiment.

25 FIG. 15 shows a disassembly jig according to another embodiment.

Best Mode for Carrying out the Invention

[0027] The following describes a disassembly jig according to an embodiment of the present disclosure. Note that the constituent components of the
30 embodiments described below can be combined with each other as long as they are not contradictory with each other. In addition, the materials, shapes, dimensions, quantities, arrangements, and the like of constituent components of the aspects of the embodiments described below are examples, and may be appropriately modified and designed as long as they can achieve similar
35 functions.

[0028] [Overall Configuration]

FIG. 1 is a perspective view showing a disassembly jig G and a disassembly target object M, and FIG. 2 is a perspective view showing the disassembly target object M that was disassembled by the disassembly jig G. As shown in FIGS. 1 and 2, the disassembly jig G is used to disassemble the disassembly target object M that has a body 1 and a disassembly part 2 that can be disassembled from the body 1. In addition, the disassembly jig G can also be used to join (integrate) the disassembled disassembly target object M (namely, the body 1 and the disassembly part 2) together. The disassembly target object M is preferably a device smaller than the fingers, and further preferably a device whose volume is 10 cm³ or less. However, the dimension of the disassembly target object M is not specifically limited, and may be larger than the fingers. Note that, in the present embodiment, “disassembling” refers to removing the disassembly part 2 from the body 1 of the disassembly target object M, and “joining” refers to assembling the disassembly part 2 to the body 1 to form the disassembly target object M. In the following, a “Z direction” refers to the disassembly direction (an example of one side in the Z direction) in which the disassembly part 2 is disassembled from the body 1 and the joining direction (an example of another side in the Z direction) in which the disassembly part 2 is joined to the body 1. In addition, a “Z1 side” refers to the side on which the body 1 of the disassembly target object M is located relative to the disassembly part 2, and a “Z2 side” refers to the side opposite thereto. In the present embodiment, the disassembly jig G is used by being attached to the disassembly part 2 of the disassembly target object M. Note that the disassembly jig G and the disassembly target object M may be collectively referred to as a “disassembly jig unit U”.

[0029] [Disassembly Target Object]

The disassembly target object M is, for example, an electronic device that contains a primary battery, a sensor, and the like, and the disassembly target object M is disassembled into the body 1 and the disassembly part 2 if the need arises to replace the primary battery or to visually check the inner state, and the like. The disassembly target object M is fixed, for example, to a mounting surface F of a measurement target device to be measured by the electronic device.

[0030] [Body]

FIGS. 3 and 4 are exploded perspective views of the disassembly target object M. When viewed along the Z direction, the body 1 has a first circular

portion 11, which is circular, and a first rectangular portion 12, which is rectangular. When, as shown in FIG. 4, a Z1-side surface (hereinafter, referred to as a “body bottom surface 1d”) of the first circular portion 11 and the first rectangular portion 12 is in contact with the mounting surface F and fixed to the mounting surface F (see FIG. 1), the disassembly target object M is mounted to the mounting surface F.

[0031] In addition, the body 1 has a body outer peripheral wall 1g that defines the inside of the body 1 from the outside. Portions of the body outer peripheral wall 1g are recessed inward. Hereinafter, the recessed portions of the body outer peripheral wall 1g are each referred to as a “recess 1k”. In the present embodiment, two recesses 1k are formed so as to oppose each other in a radial direction of the first circular portion 11. Hereinafter, a “X direction” refers to the direction in which the two recesses 1k oppose each other, with one side in the X direction referred to as a “X1 side” and the other side referred to as a “X2 side”. In addition, a “Y direction” refers to the direction orthogonal to the X direction and the Z direction, with one side in the Y direction referred to as a “Y1 side” and the other side referred to as a “Y2 side”.

[0032] The body 1 further includes two protrusions 1t (an example of engaged sections). The two protrusions 1t oppose each other in the X direction. Each of the protrusions 1t protrudes in a direction away from a recess bottom 1e of the corresponding recess 1k (radially outward direction of the first circular portion 11), with the recess bottom 1e serving as the base end.

[0033] The protrusion 1t includes a protrusion slope 1s on the side opposite to the recess bottom 1e. The protrusion slope 1s is sloped such that it is away from the recess bottom 1e of the recess 1k (in the radially outward direction of the first circular portion 11) as it approaches the body bottom surface 1d along the Z direction.

[0034] [Disassembly Part]

The disassembly part 2 has the same outer shape as the body 1 when viewed along the Z direction. In detail, the disassembly part 2 includes a second circular portion 21, which is circular, and a second rectangular portion 22, which is rectangular.

[0035] In addition, the disassembly part 2 further includes two extension sections 23 (an example of engaging sections). Each of the extension sections 23 extends along the Z direction (toward the Z1 side) with a disassembly part outer peripheral wall 2g of the second circular portion 21 serving as the base

end. The dimension of the extension sections 23 is not particularly limited, and for example, its length in the Z direction is 1 cm and its arc length (or its size in the Y direction) is 1 cm or less. When the disassembly part 2 is joined to the body 1, the extension sections 23 are positioned in the respective recesses 1k. In detail, the extension sections 23 are respectively positioned at positions corresponding to the recesses 1k when viewed along the Z direction, and in the present embodiment, the two extension sections 23 oppose each other in the X direction. Hereinafter, surfaces of the extension sections 23 that oppose to each other are referred to as “extension opposing surfaces 23m” (see FIG. 4).

[0036] Each of the extension sections 23 has an engaging hole 23h into which the corresponding protrusion 1t can engage (fit). The engaging hole 23h has a shape and size (area) corresponding to the protrusion 1t. Note that, in the present embodiment, the engaging hole 23h passes through the extension section 23 in the X direction. In a state where the extension sections 23 are positioned in the recesses 1k in the body 1, the protrusions 1t are fitted into the respective engaging holes 23h.

[0037] In detail, when moving the disassembly part 2 (extension sections 23) toward the Z1 side in order to attach it to the body 1, the extension section 23 rides over the protrusion slope 1s of the protrusions 1t (see FIG. 3), and then the protrusions 1t is fitted into the engaging hole 23h. With this, the protrusions 1t and the extension section 23 are engaged (joined) with each other. In other words, the extension section 23 (engaging hole 23h) and the protrusions 1t can be engaged (joined) with each other through snap fit.

[0038] Hereinafter, the state where the protrusion 1t and the engaging hole 23h are engaged with each other is referred to as an “engaged state”, and the position where the engaging hole 23h of the extension section 23 and the protrusion 1t in the engaged state are positioned is referred to as a “coupling position”. In the present embodiment, the disassembly target object M has two coupling positions. Note that the coupling positions according to the present embodiment have a size that is smaller than a finger of the operator (person) and makes it difficult for the operator to solve the engagement at the coupling position (solve the engagement between the body 1 and the disassembly part 2 through snap fit), using the finger.

[0039] An extension leading end 23a of each extension section 23 is formed so that the length of the extension section 23 in the X direction (hereinafter referred to as a “first thickness d1”) is reduced from the Z2 side to the Z1 side

(see also FIG. 10). In detail, the outer surface of the extension leading end 23a is a flat surface formed so as to be coplanar with the body outer peripheral wall 1g when the body 1 and the disassembly part 2 are joined to each other, and the inner surface of the extension leading end 23a (end portion on the Z1 side) is sloped so as to approach the outer surface toward the Z1 side. In other words, the inner surface of the extension leading end 23a includes a tapered surface 23t (hereinafter, referred to as an “extension section tapered surface 23t”).

[0040] [Disassembly Jig]

Next, the disassembly jig G is described with reference to FIGS. 5 and 6. FIGS. 5 and 6 are exploded perspective views of the disassembly jig G. In the present embodiment, the disassembly jig G is made only of an insulating material (for example, resin). However, the disassembly jig G may be made of a conductive material such as a metal. Alternatively, the disassembly jig G may be made of a combination of an insulating material and a conductive material.

[0041] As shown in FIGS. 5 and 6, the disassembly jig G includes a base 5, an engagement control section 6, a hook section 7, a restricting section 8, and a holder 9. Note that in the present embodiment, the base 5, the engagement control section 6, the hook section 7, and the restricting section 8 are formed in one piece, and the holder 9 is separate from the base 5, the engagement control section 6, the hook section 7, and the restricting section 8. The disassembly jig G is used to disassemble the disassembly part 2 from the body 1 of the disassembly target object M by being attached to the disassembly target object M such that the engagement control section 6 is located at the coupling positions of the disassembly target object M.

[0042] [Base]

When the disassembly jig G is attached to the disassembly target object M, the base 5 extends along the X direction (in which the recesses 1k oppose each other). Hereinafter, each end of the base 5 in the extension direction thereof is referred to as a “base end portion 5a”.

[0043] [Engagement Control Section]

The engagement control section 6 can control the engagement state of the disassembly target object M (between engagement and disengagement). The engagement control section 6 has a set of arms 61 extending away from the base 5 (along the Z direction) with the respective base end portions 5a

serving as the base ends.

[0044] [Arm]

The number of arms 61 constituting a set of arms 61 corresponds to the number of coupling positions of the disassembly target object M as described with reference to FIGS. 3 and 4, that is, the number of protrusions 1t or
 5 engaging holes 23h. In the present embodiment, the number of arms 61 constituting the set of arms 61 is two.

[0045] The positions where the arms 61 constituting the set of arms 61 are located correspond to the coupling positions, and when the disassembly jig G
 10 is attached to the disassembly target object M, the two arms 61 oppose each other in the X direction. Note that the two arms 61 are distanced from and oppose each other in the X direction.

[0046] The arms 61 are elastically deformable in a direction (X direction) in which they move away from each other and approach each other.

[0047] The two arms 61 are bent toward the inner side of the disassembly jig G (center of the virtual line connecting the arms 61) so that their respective leading ends 61a (hereinafter referred to as “arm leading ends 61a”) approach each other. In other words, the two arms 61 extend toward the center of the base 5 in the X direction. As shown in FIGS. 5 and 6, each arm leading end
 15 61a has a rectangular shape partially cut off when viewed along the Z direction. In other words, the arm leading end 61a has a bifurcated structure.

[0048] As shown in FIG. 6, the arm leading end 61a includes guide surfaces 61k that are sloped to the Z1 side (opposite to the base 5) in a manner such that they approach the Z2 side (approach the base 5) toward the inner side
 20 (inward) of the disassembly jig G. Hereinafter, the sloped surface of the arm leading end 61a is referred to as a “guide surface 61k” (see also FIG. 10).

[0049] Also, each arm 61 includes a locking section 62, protruding wall portions 63, and a projection 64.

[0050] [Locking Section]

The locking section 62 is configured to be able to solve the engagement at the coupling position of the disassembly target object M. The locking section 62 extends toward the Z2 side (on which it approaches the base 5) with the arm leading end 61a serving as the base end. In detail, the locking section 62 includes two claws 621 that extend toward the Z2 side with the bifurcated part of the arm leading end 61a serving as the base end. The two claws 621
 30 are spaced apart from each other in the Y direction.

[0051] Each claw 621 is formed so that its length in the X direction (hereinafter referred to as a “second thickness d2”) is reduced from the Z1 side to the Z2 side. In detail, as shown in FIG. 10, locking section opposing surfaces 62m of the two locking sections 62 (claws 621) opposing in the X direction are flat surface formed to follow the respective recess bottoms 1e, and a surface opposite to each locking section opposing surface 62m in the X direction is sloped outward as it approaches the Z1 side. In other words, the locking section 62 includes, on its outer surface, a tapered surface 62t (hereinafter, “locking section tapered surface 62t”). The locking section tapered surface 62t is sloped correspondingly to the extension section tapered surface 23t, and is parallel (including substantially parallel) to the extension section tapered surface 23t. The second thickness d2, which is the length in the X direction of the base end side (Z1 side) of the locking section tapered surface 62t of the locking section 62, is preferably greater than a maximum protrusion amount d3 of the protrusion 1t (see FIG. 11).

[0052] As shown in FIGS. 9 and 10, the locking sections 62 (arm leading ends 61a of the arms 61) are configured so as to be positioned on the Z1 side relative to the extension sections 23 of the disassembly part 2, when the disassembly jig G is attached to the disassembly target object M and a later-described top surface 2s and an abutment surface 71s are in contact with each other. That is to say, when viewed along the Z direction, the locking sections 62 are positioned so as to overlap the respective extension leading ends 23a of the extension sections 23 of the disassembly part 2.

[0053] In addition, as shown in FIG. 11, a first spacing w1, where two locking sections 62 facing each other in the X direction are arranged, corresponds to a second spacing w2 of the two coupling positions (between the extension opposing surfaces 23m of the disassembly part 2), and in the present embodiment, the first spacing w1 of the locking sections 62 is less than or equal to the second spacing w2. Preferably, the first spacing w1 is slightly smaller than the second spacing w2 (by 2 mm or less).

[0054] [Protruding Wall Portion]

As shown in FIGS. 6 and 7, the protruding wall portions 63 are configured to be able to hold the holder 9. The protruding wall portions 63 of each arm 61 include a first protruding wall 63a, a second protruding wall 63b, a third protruding wall 63c, and a fourth protruding wall 63d. In the present embodiment, the first protruding wall 63a, the second protruding wall 63b, the

third protruding wall 63c, and the fourth protruding wall 63d extend in the Y direction (toward the Y1 or Y2 side).

[0055] The first protruding wall 63a and the second protruding wall 63b extend toward the Y1 side with the arm 61 serving as the base end. The first protruding wall 63a is spaced apart from the second protruding wall 63b toward the Z1 side.

[0056] The third protruding wall 63c and the fourth protruding wall 63d extend toward the Y2 side with the arm 61 serving as the base end. The third protruding wall 63c and the first protruding wall 63a are located at the same positions in the Z direction, and the third protruding wall 63c opposes the first protruding wall 63a in the Y direction with the arm 61 interposed therebetween. Similarly, the fourth protruding wall 63d and the second protruding wall 63b are located at the same positions in the Z direction, and the fourth protruding wall 63d opposes the second protruding wall 63b in the Y direction with the arm 61 interposed therebetween.

[0057] In other words, the distance between the first protruding wall 63a and the second protruding wall 63b is equal to or substantially equal to the distance between the third protruding wall 63c and the fourth protruding wall 63d. Hereinafter, the distance between the first protruding wall 63a and the second protruding wall 63b, and the distance between the third protruding wall 63c and the fourth protruding wall 63d are collectively referred to as a “first length h1” (see FIG. 6). Later-described guide wall portions 92 of the holder 9 are respectively placed between the first protruding wall 63a and the second protruding wall 63b, and between the third protruding wall 63c and the fourth protruding wall 63d, as shown in FIG. 7.

[0058] [Projection]

As shown in FIGS. 5 and 6, each projection 64 is configured to support the operator's finger. When the operator's finger is inserted into the later-described hook section 7, the operator can place his or her finger other than the inserted finger on the projection 64. In the present embodiment, the projection 64 extends outward of the disassembly jig G (to the X1 or X2 side) with the corresponding arm 61 serving as the base end.

[0059] [Hook Section]

The hook section 7 is configured to allow the operator's finger to be inserted (hooked) therein. In the present embodiment, the hook section 7 is located on the Z1 side (side closer to the locking section 62 than the base 5).

In detail, the hook section 7 includes a hook wall portion 71 that extends along the extension direction of the arms 61, with the base 5 serving as the base end. Note that the hook wall portion 71 is formed in one piece with the base 5.

[0060] The hook wall portion 71 has a rectangular shape having a hook aperture 71h formed in the center thereof, and includes a plane orthogonal to the Y direction when the disassembly jig G is attached to the disassembly part 2. Note that in the present embodiment, the hook aperture 71h passes through the hook wall portion 71.

[0061] An operator's finger is inserted into the hook aperture 71h. When the finger is inserted into the hook aperture 71h, the operator can grasp the disassembly jig G for easier operation.

[0062] In addition, the hook section 7 (portion of the hook wall portion 71) also has the function of restricting the movement of the disassembly part 2 to the Z2 side. In detail, as shown in FIG. 9, the hook wall portion 71 located on the Z1 side relative to the hook aperture 71h is configured to be able to come into contact with the top surface 2s on the Z2 side of the disassembly part 2 (an example of the opposite surface opposite to the body 1). Hereinafter, the wall on the Z1 side that constitutes the hook aperture 71h is referred to as an "abutment wall 71t" and the wall surface on the Z1 side of the abutment wall 71t is referred to as an "abutment surface 71s". The abutment surface 71s is a XY plane.

[0063] The top surface 2s of the disassembly part 2 can abut against the abutment surface 71s, and the abutment surface 71s restricts the movement of the disassembly part 2 to the Z2 side with the disassembly jig G attached to the disassembly target object M. Note that if the top surface 2s of the disassembly part 2 has a protrusion, the abutment surface 71s may abut against the protrusion.

[0064] In the present embodiment, a second length h2 between the leading ends (ends on the Z2 side) of the locking sections 62 (claws 621) and the abutment surface 71s is equal to a third length h3 of the disassembly part 2 in the Z direction (see FIG. 8). Note that, as shown in FIG. 9, the second length h2 may be greater than the third length h3 as long as the second length h2 is equal to a seventh length h7, which is the overall height of the disassembly target object M in the Z direction, or smaller than the seventh length h7.

[0065] [Restricting Section]

The restricting section 8 is positioned outside the disassembly part 2

and restricts the tilt of the disassembly part 2 in the Z direction. The restricting section 8 has two restriction pieces 81 extending toward the Z1 side with respective abutment ends 71a of the abutment wall 71t in the X direction serving as the base ends. The two restriction pieces 81 are spaced apart from each other, and placed parallel to each other in the X direction.

[0066] As shown in FIG. 11, the third spacing w3 of the two restriction pieces 81 in the X direction is the length of the disassembly part 2 in the X direction, and is slightly larger than a fourth spacing w4 of the disassembly part outer peripheral wall 2g in the X direction. However, the third spacing w3 may be equal to the fourth spacing w4. Preferably, the third spacing w3 is slightly larger than the fourth spacing w4 (by 1 mm or less).

[0067] [Holder]

As shown in FIG. 2, the holder 9 is configured to be able to hold the disassembly part 2 that was disassembled. As shown in FIGS. 5 and 6, the holder 9 includes a holding wall 91, guide wall portions 92, and an accommodation space 91S.

[0068] Note that in the present embodiment, as described above, the base 5, the engagement control section 6, the hook section 7, and the restricting section 8 are formed in one piece, and the holder 9 is separate from the base 5, the engagement control section 6, the hook section 7, and the restricting section 8. By being held by the arms 61, the holder 9 is attached to an integral part constituted by the base 5, the engagement control section 6, the hook section 7, and the restricting section 8.

[0069] [Holding Wall]

The holding wall 91, assembled to the integral part, extends in a tubular shape along the Z direction and is open to both sides of the Z direction. The holding wall 91 separates the interior (accommodation space 91S) from the outside of the holder 9. As shown in FIG. 2, the accommodation space 91S, which is defined by the holding wall 91, has a shape corresponding to the outer shape of the disassembly part 2 when viewed along the Z direction. As shown in FIGS. 9 and 11, the holder 9 can hold the disassembly part 2 by the holding wall 91 externally fitting to the disassembly part 2 and at least portion of the disassembly part 2 being accommodated in the accommodation space 91S.

[0070] As shown in FIG. 9, a fourth length h4 of the holding wall 91 in the Z direction is shorter than the third length h3 of the disassembly part 2 in the Z direction. A fifth length h5 between a holding wall end 91a on the Z2 side of

the holding wall 91 and the abutment surface 71s is also shorter than the third length h3. In addition, the total length of the fifth length h5 and the fourth length h4 is shorter than the second length h2.

[0071] [Guide Wall Portion]

5 As shown in FIG. 7, the guide wall portion 92 is located between the protruding wall portions 63 of the engagement control section 6 and restricts the relative movement of the engagement control section 6 and the holder 9. The guide wall portion 92 includes a first guide wall 92a, a second guide wall 92b (see FIG. 6), a third guide wall 92c, and a fourth guide wall 92d. The first
10 guide wall 92a, the second guide wall 92b, the third guide wall 92c, and the fourth guide wall 92d have each a rectangular shape with a plane orthogonal to the Y direction in a state where they are held by the arms 61.

[0072] As shown in FIG. 6, the first guide wall 92a and the second guide wall 92b extend toward the X2 side with the holding wall 91 serving as the base end.
15 The first guide wall 92a and the second guide wall 92b are spaced apart from each other in the Y direction. In detail, the first guide wall 92a is located on the Y1 side relative to the second guide wall 92b.

[0073] The third guide wall 92c and the fourth guide wall 92d extend toward the X1 side with the holding wall 91 serving as the base end. The third guide
20 wall 92c and the fourth guide wall 92d are spaced apart from each other in the Y direction. In detail, the third guide wall 92c is located on the Y1 side relative to the fourth guide wall 92d. In the present embodiment, the distance between the first guide wall 92a and the second guide wall 92b is equal (including, substantially equal) to the distance between the third guide wall
25 92c and the fourth guide wall 92d. Hereinafter, the dimension between the first guide wall 92a and the second guide wall 92b, and the dimension between the third guide wall 92c and the fourth guide wall 92d are collectively referred to as a “first dimension L1”. The first dimension L1 is greater than or equal to the dimension of the arms 61 in the Y direction (hereinafter, referred to as
30 “second dimension L2”). Preferably, the first dimension L1 is slightly larger than the second dimension L2 (by 1 mm or less).

[0074] Note that a sixth length h6, in the Z direction, of each of the first guide wall 92a, the second guide wall 92b, the third guide wall 92c, and the fourth
35 guide wall 92d shown in FIG. 6 is equal to the fourth length h4, in the Z direction, of the holding wall 91 (see FIGS. 8 and 9), and is less than or equal to the first length h1 in the present embodiment (see FIG. 6). Preferably, the

first length h1 is slightly larger than the sixth length h6 (by 1 mm or less).

[0075] [Disassembling Method]

The following describes the method of disassembling the disassembly target object M using the disassembly jig G. The method of disassembling the disassembly target object M is executed by an operator performing the steps described below. Note that the disassembly target object M is located on the Z2 side of the mounting surface F, and the body 1 is fixed to the mounting surface F.

[0076] In a preparation step (first step), the holder 9 of the disassembly jig G, which has been described with reference to FIGS. 5 and 6, is attached to the arms 61. In detail, the holder 9 is disposed between the arms 61, which oppose each other, so that the holder 9 is held between the arms 61. In more detail, the opposing arms 61 are displaced in the direction in which they separate from each other, and then the holder 9 with its opening oriented to the Z1 and Z2 sides is positioned between the arms 61. Specifically, the region between the first and second protruding walls 63a and 63b (between the third and fourth protruding walls 63c and 63d) of one arm 61 is disposed between the first guide wall 92a and the second guide wall 92b of the holder 9, and the region between the first and second protruding walls 63a and 63b (between the third and fourth protruding walls 63c and 63d) of the other arm 61 is disposed between the third guide wall 92c and the fourth guide wall 92d. After that, by returning the displacement of the arms 61 to the original positions, the holder 9 is assembled to the engagement control section 6 as shown in FIG. 7, and the preparation (preparation step) of the disassembly jig G is completed.

[0077] In an attaching step (second step), the disassembly jig G is attached to the disassembly part 2 as shown in FIGS. 8 and 9. In detail, the disassembly jig G held by the operator hooking his or her finger on the hook section 7 is moved from the Z2 side toward the Z1 side to approach the disassembly part 2 of the disassembly target object M. As shown in FIG. 8, when the guide surfaces 61k (sloped surfaces) located at the arm leading ends 61a of the arms 61 on the Z1 side come into contact with the top surface 2s of the disassembly part 2, the disassembly jig G is further moved toward the Z1 side. With this, the arm leading ends 61a of the arms 61 are displaced in the direction in which they separate from each other due to the force acting on the guide surfaces 61k (sloped surfaces). By further moving the disassembly jig G toward the Z1 side, the holding wall 91 is externally fitted to the disassembly part 2, as shown in

FIG. 9. In other words, the disassembly part 2 is accommodated in the accommodation space 91S of the holder 9 (see FIGS. 5 and 6). The disassembly jig G is further moved toward the Z1 side to the position where the top surface 2s of the disassembly part 2 accommodated in the accommodation space 91S of the holder 9 contacts the abutment surface 71s. When the top surface 2s of the disassembly part 2 reaches the position where it contacts the abutment surface 71s, attaching (attaching step) of the disassembly jig G to the disassembly part 2 is completed. Note that, at this time, the locking sections 62 is located on the Z1 side relative to the extension sections 23 of the disassembly part 2.

[0078] In a disassembling step (third step), the disassembly jig G held by the operator is moved toward the Z2 side so as to separate away from the disassembly part 2. With this, as shown in FIG. 10, the locking section 62 moves from the Z2 side toward the Z1 side until the position where it contacts the extension section 23, and the locking section tapered surface 62t of the locking section 62 and the extension section tapered surface 23t of the extension section 23 of the disassembly part 2 come into contact with each other in the Z direction. By being guided by the extension section tapered surface 23t of the extension section 23, the locking section 62 is fitted into a gap between the opposing surface (inner surface) 23m of the extension section 23 of the disassembly part 2 fixed to the body 1 and the recess bottom 1e of the recess 1k in the body 1. In this state, by further moving the disassembly jig G toward the Z2 side, the outward-oriented force acts on the extension section 23, and the extension section 23 moves in the direction (outward) of separating from the recess bottom 1e. As a result, the protrusions 1t are disengaged from the engaging holes 23h, and the engagement state between the body 1 and the disassembly part 2 (engagement at the coupling positions) is solved. This allows the disassembly part 2 to be separated from the body 1 as shown in FIG. 11. In other words, the disassembly target object M can be disassembled. As a result, the disassembling (disassembling step) of the disassembly target object M is completed. Note that, after the disassembly of the disassembly target object M, the body 1 remains fixed to the mounting surface F, and the disassembly part 2 remains held by the disassembly jig G (holder 9).

[0079] The disassembly jig G can also be used when joining (integrating) the disassembly part 2 to the body 1 of the disassembly target object M. In detail, by bringing the disassembly jig G in the state where the disassembly of the

disassembly target object M is complete, that is, the disassembly jig G that is holding the disassembly part 2, close to the body 1, it is possible to attach the disassembly part 2 to the body 1. In detail, by bringing (pushing) the disassembly jig G that is holding the disassembly part 2 close to the body 1 until the position where the body 1 and the disassembly part 2 are fitted to each other through snap fit, it is possible to attach the disassembly part 2 to the body 1.

[0080] According to the present embodiment, even if there are a plurality of engagement (fitting) positions (coupling positions) through snap fit, the disassembly target object M can be easily disassembled by simply holding the disassembly jig G with one hand. Also, after the disassembly, by holding the disassembly jig G with one hand in the state where the disassembly target object M is disassembled, that is, the disassembly jig G that is holding the disassembly part 2, the disassembly target object M can be attached again. In other words, the operator can perform the disassembly of the disassembly target object M and integration of the disassembly target object M in a series of motions (one-handed motion).

However, the operator can also attach the disassembly part 2 to the body 1 without using the disassembly jig G. In this case, the operator can attach the disassembly part 2 to the body 1 by bringing (pushing) the disassembly part 2 directly held by the operator close to the body 1 without using the disassembly jig G.

[0081] [Effects of Embodiment]

The disassembly jig G having the above-described configurations has the following effects.

[0082] (1) According to the above-described embodiment, the locking sections 62, which are located at the leading ends 61a of the arms 61 and extend toward the center of the base 5 in the X direction, extend toward the base 5, allowing the disassembly target object M to be disassembled while avoiding damage to the disassembly target object M and peripheral devices. Additionally, since the locking sections 62 are located on the inner side of the two arms 61, damage to the locking sections 62 can be suppressed even if the disassembly jig G is in contact with the peripheral devices or is fallen, for example. In addition, since the locking sections 62 extend from the arm leading ends 61a of the arms 61 toward the base 5, it is possible to perform a disassembling operation while the disassembly target object M is attached to the mounting surface F.

[0083] (2) According to the above-described embodiment, the first spacing w_1 is less than or equal to the second spacing w_2 , and at the end of the second step, the locking sections 62 are in contact with the recess bottoms 1e due to the elastic displacement of the arms 61. As a result, each locking section 62 can
5 reliably enter a space between the corresponding extension section 23 (engaging section) and the corresponding protrusion 1t (engaged section), and solve the coupling at the coupling position.

[0084] (3) According to the above-described embodiment, the disassembly jig G can be moved toward the Z2 side to move the extension sections 23 outward
10 from the recess bottoms 1e of the recesses 1k, while avoiding contact with the locking sections 62 (claws 621) and the protrusions 1t, and the disassembly part 2 can be reliably removed from the body 1 without damaging the protrusions 1t. In addition, since the protrusions 1t prevent damage that may occur from contact with the locking sections 62, the disassembly part 2 can be
15 repeatedly attached to the body 1.

[0085] (4) According to the above-described embodiment, when the disassembly jig G is brought close to the disassembly part 2 and the arm leading ends 61a (guide surfaces 61k) of the arms 61 are brought into contact with the disassembly part 2, an outward-oriented force acts on the arm leading
20 ends 61a of the arms 61, so that the arms 61 move outward (spread outward). This means that the operator does not need to use his or her fingers to move the arms 61 outward (spread arm 61), making the operation of attaching the disassembly jig G easier. In addition, the holder 9 can be externally fitted smoothly to the disassembly part 2.

[0086] (5) According to the above-described embodiment, the hook section 7 into which a finger can be inserted is provided, thus making the disassembling operation easier. In addition, since the hook section 7 is positioned closer to the locking sections 62 than the base 5, the disassembly jig G can be held stably, thereby improving the handling of the disassembly jig G. For example, it is
30 possible to avoid such a situation that if holding the base 5 of disassembly jig G, it is necessary to hold it firmly to overcome resistance during disassembly, assembly, and the like. It is also possible to prevent such a situation that if holding the arms 61, the arms 61 approach each other and the gap between the locking sections 62 (claws 621) decreases, so that it is not able to attach the
35 disassembly jig G to the disassembly target object M.

[0087] (6) According to the above-described embodiment, it is possible to

suppress the tilt of the disassembly part 2 in the Z direction (first direction) when removing the disassembly part 2. In addition, it is possible to prevent plastic deformation, breakage, and the like due to an increase in displacement of the arms 61 in the direction in which they approach each other.

5 [0088] (7) According to the above-described embodiment, the distance for which the locking sections 62 can separate from the disassembly part 2 can be restricted. In addition, the disassembly jig G can be easily positioned at the desired position (the position where, during disassembly, the extension sections 23 (engaging sections) are moved so as to come into contact with the coupling
10 position). That is, it is possible to position the disassembly jig G at the desired position without relying on the operator's empirical sense.

[0089] (8) According to the above-described embodiment, the disassembly part 2 that was disassembled from the body 1 can be held. In addition, it is possible to prevent the movement of the disassembly part 2 in the X direction (second
15 direction) and/or Y direction (third direction). As a result, it is possible to prevent the falling of the disassembly part 2 after disassembly and avoid the damage to the disassembly part 2. Furthermore, since the disassembly jig G can hold the disassembly part 2 after disassembly without allowing it to fall, it is possible to prevent the disassembly part 2 from falling at the disassembly
20 site, entering the interior of a device to which the disassembly target object M is attached, and entering the space beneath the device or a gap around the device, for example, thereby avoiding failures such as accidents or line stoppages.

[0090] Also, when reassembling the disassembly part 2 to the body 1
25 immediately after disassembling, the operator can perform reassembling in a series of motions from the disassembling motion while holding the disassembly jig G. Thus, when releasing the held disassembly jig G from the hand and holding the disassembly part 2 with the hand, it is possible to prevent falling of the disassembly jig G or the disassembly part 2, and occurrence of breakage
30 and failures.

[0091] Furthermore, if the body 1 and the disassembly part 2 are also connector-connected to each other via a harness, the falling of the disassembly part 2 may result in the weight of the disassembly part 2 being applied to connector-connection portions or the harness wires, causing damage to the
35 connector, breakage of the wires, and the like. However, the disassembly part 2 is held by the disassembly jig G without falling. As a result, the hand other

than the hand holding the disassembly jig G can be used to disconnect the connector connection without applying the weight of the disassembly part 2 to the connector-connection portions or the wires, so there is no risk of damage to the connector, breakage of the wires, or the like.

5 [0092] By changing the design of the holding wall 91 to match the outer shape of the disassembly part 2, the disassembly jig G can be used to disassemble a disassembly target object M with a different outer shape. Also, if the holder 9 is a separate body without being formed in one piece with any of the base 5, the engagement control section 6, the hook section 7, the restricting section 8, 10 and the holder 9, the disassembly jig G can be used to disassemble a disassembly target object M with a different outer shape by replacing the holder 9 that matches the outer shape of the disassembly target object M. Therefore, the holder 9 need only be formed to correspond to the disassembly target object M with the different outer shape.

15 [0093] (9) According to the above-described embodiment, it is possible to prevent the disassembly part 2 from falling from the holder 9, and to avoid damage to the disassembly part 2.

[0094] (10) According to the above-described embodiment, it is possible to prevent occurrence of sparks caused by contact with a metal device at the site 20 of disassembling the disassembly target object M, or prevent an air discharge (electrostatic discharge) of charge electrically charged to the operator who is holding the disassembly jig G toward the metal device. For example, the disassembly target object M used in explosion-proof areas can be disassembled without having to move from the explosion-proof area, thus avoiding the 25 complexity of the disassembling operation.

[0095] [Other Embodiments]

(1) As shown in FIG. 12, the hook wall portion 71 may extend inward from the arms 61, instead of extending with the base 5 serving as the base end. In this case, the hook wall portion 71 is formed in one piece with the 30 engagement control section 6 (arms 61), instead of being formed in one piece with the base 5.

[0096] (2) In addition, the holder 9 may be formed in one piece with the base 5, the engagement control section 6, the hook section 7, and the restricting section 8, instead of being formed as a separate body separate from the base 5, 35 the engagement control section 6, the hook section 7, and the restricting section 8. In this case, for example, as shown in FIG. 13, the base 5 may have a

configuration in which the protruding wall portions 63 of the engagement control section 6 and the guide wall portions 92 are formed in one piece. As shown in FIG. 14, the holding wall 91 may be formed in one piece with the hook wall portion 71.

5 [0097] (3) In addition, as shown in FIG. 15, the shape and size of the disassembly target object M can be changed as appropriate, and the shape of the holder 9 can be changed as appropriate depending on the outer shape of the disassembly target object M. In addition, the quantity, position, size, and shape of the protrusions 1t and the engaging holes 23h included in the
10 disassembly target object M are changed as appropriate, and the position, size, and shape of the arms 61 and the locking sections 62 are changed accordingly. Note that the shape of the protrusions 1t and the engaging holes 23h can be interchanged with each other. In other words, the engaging holes 23h may be formed in the body 1, and the protrusions 1t may be formed on the extension
15 sections 23 of the disassembly part 2. In this case, the engaging holes 23h do not need to pass through the body outer peripheral wall 1g.

[0098] (4) In the above-described embodiment, a set of arms 61 are arranged so as to oppose each other in the X direction, but a set of arms 61 may be positioned correspondingly to the coupling positions between the body 1 and
20 the disassembly part 2, without opposing each other in the X direction. In addition, the number of arms 61 constituting a set of arms 61 can also be appropriately changed according to the number of coupling positions between the body 1 and the disassembly part 2, and may be one or three or more. In addition, the number of coupling positions may be less than the number of
25 arms 61. In this case, it is sufficient if an arm 61 corresponding to a coupling position has a claw 621, or there may be an arm 61 that does not have any claw 621. It is sufficient that at least one coupling position is provided, and at least one arm 61 is provided.

[0099] (5) The above-described embodiment has described a case where the
30 hook section 7 has a hook wall portion 71 that extends substantially parallel to the arms 61 with the base 5 serving as the base end, but the configuration of the hook section 7 can be changed as appropriate. For example, the hook section 7 may be constituted by the base 5 and the set of arms 61. Alternatively, the hook section 7 may be omitted.

35 [0100] (6) In the arm 61 described in the embodiment above, at least either the protruding wall portions 63 or the projection 64 may be omitted.

[0101] (7) In the above-described embodiment, the extension leading ends 23a have the extension section tapered surfaces 23t, but either the extension section tapered surfaces 23t or the locking section tapered surfaces 62t may be omitted.

5 [0102] (8) In the above-described embodiment, the locking sections 62 (arm leading ends 61a) are distanced from each other in the Y direction, but the locking sections 62 may not be distanced from each other in the Y direction.

[0103] (9) In the above-described embodiment, the guide surfaces 61k of the arms 61 may also be omitted. In this case, the top surface 2s of the
10 disassembly part 2 may have a structure that guides the arm leading ends 61a and displaces the arm leading ends 61a in the direction in which they separate from each other in the X direction.

[0104] (10) In the above-described embodiment, the locking section opposing surfaces 62m are both flat surfaces, but the configuration of the locking section
15 opposing surfaces 62m can be appropriately changed to match the outer shape of the disassembly part 2. For example, they can be surfaces that intersect each other. Also, the locking section opposing surfaces 62m do not need to be flat and may have a shape symmetrical to the YZ plane passing through their center. For example, they may be curved surfaces having the same curvature
20 as the curvature of the recess bottoms 1e of the recesses 1k.

[0105] (11) In the above-described embodiment, when viewed along the Z direction, the locking sections 62 overlap the extension leading ends 23a of the extension sections 23 of the disassembly part 2, but when viewed along the Z direction, the locking sections 62 may be positioned on the inner side relative
25 to the extension leading ends 23a, or part of the locking sections 62 may overlap the extension leading ends 23a and the remainder may be positioned on the inner side.

[0106] (12) In the above-described embodiment, the abutment surface 71s is a surface extending along the X direction, but the abutment surface 71s
30 (abutment wall 71t) may be split in the X direction.

[0107] (13) At least either the hook section 7 or the restricting section 8 may be omitted.

[0108] (14) The electronic component described in the above embodiments is, for example, a sensor device that acquires values indicated by an analog
35 instrument, and the mounting surface F is a surface of the analog instrument (for example, the glass surface that covers a memory). An analog instrument

is, for example, a pressure gauge that measures a fluid pressure.

Industrial applicability

[0109] The present disclosure is applicable to a disassembly jig.

5

Description of Reference Signs

[0110]

- | | | |
|----|-----|--|
| | 1 | : Body |
| | 1t | : Protrusion (engaged section) |
| 10 | 2 | : Disassembly part |
| | 5 | : Base |
| | 6 | : Engagement control section |
| | 7 | : Hook section |
| | 8 | : Restricting section |
| 15 | 9 | : Holder |
| | 23 | : Extension section (engaging section) |
| | 61 | : Arm |
| | 61a | : Arm leading end (leading end) |
| | 61k | : Guide surface |
| 20 | 62 | : Locking section |
| | 71s | : Abutment surface |
| | 91 | : Holding wall |
| | 91S | : Accommodation space |
| | 621 | : Claw |
| 25 | G | : Disassembly jig |
| | M | : Disassembly target object |

CLAIMS

1. A disassembly jig configured to solve engagement between a body and a disassembly part of a disassembly target object, the body having at least one engaged section, and the disassembly part being disposed on one side in a first direction relative to the body and having at least one engaging section engageable with the at least one engaged section through snap fit, the disassembly jig comprising:

a base extending along a second direction orthogonal to the first direction with the disassembly jig attached to the disassembly target object; and

an engagement control section including at least one arm extending to another side in the first direction with the base serving as a base end, the engagement control section being configured to perform a separation operation to solve the engagement at least one coupling position where the engaged section and the engaging section are engaged with each other,

wherein the at least one arm is configured to be positioned correspondingly to the at least one coupling position,

each of the at least one arm includes:

a leading end extending toward a center of the base in the second direction; and

a locking section extending from the leading end toward the base, and

the locking section is configured to be able to solve the engagement at the corresponding coupling position, by being located on the other side in the first direction relative to the disassembly part, moving to the one side in the first direction to enter a space between the body and the disassembly part, and moving the engaging section to a side in the second direction to which the engaging section separates from the engaged section.

2. The disassembly jig according to claim 1,

wherein the at least one coupling position includes two coupling positions and the at least one arm includes two arms respectively including two locking sections, and

a spacing between the two locking sections in the second direction is less than or equal to a spacing between the two coupling positions in the second

direction.

3. The disassembly jig according to claim 1 or 2,
wherein the locking section has two claws spaced apart from each other
5 in a third direction orthogonal to both the first direction and the second
direction.
4. The disassembly jig according to claim 1 or 2,
wherein the arm is configured to be positioned outside the disassembly
10 target object, and
the leading end of the arm has a guide surface that is sloped to
approach the base toward an inner side of the disassembly target object.
5. The disassembly jig according to claim 1 or 2, further comprising:
15 a hook section into which a finger of an operator is to be inserted,
the hook section being located on the other side in the first direction
relative to the base.
6. The disassembly jig according to claim 1 or 2, further comprising:
20 a restricting section configured to be positioned outside the
disassembly part and having a dimension equal to a length of the disassembly
part in the second direction.
7. The disassembly jig according to claim 1 or 2, further comprising:
25 an abutment surface against which an opposite surface of the
disassembly part that is opposite to the body is configured to abut,
wherein a length between a leading end of the locking section and the
abutment surface is greater than or equal to a length of the disassembly part
in the first direction.
30
8. The disassembly jig according to claim 7, further comprising
a holder that includes:
a tubular holding wall with at least the other side in the first
direction open; and
35 an accommodation space defined by the holding wall and
corresponding to an outer shape of the disassembly part when viewed along

the first direction,

the holder being configured to hold the disassembly part by accommodating at least portion of the disassembly part in the accommodation space.

5

9. The disassembly jig according to claim 8,
wherein a length between the abutment surface and the holding wall is less than the length of the disassembly part in the first direction.

10 10. The disassembly jig according to claim 1 or 2,
wherein the disassembly jig is made only of an insulating material.