

part or a newly required process, and various subsequent developments are being made for stabilization.

Recently, there is a tendency for the popularization of solid-state drives (SSDs), which are large-sized electronic parts each equipped with various electronic devices, to be increasing.

When the initial demand for SSDs was low and thus only a small number of SSDs were manufactured, SSDs were handled manually. In particular, in a test process, SSDs were electrically connected to a tester and then disconnected from the tester manually. However, as the demand surged, manual support for tests became difficult.

However, since the thickness, structure, and weight of SSDs are different from those of conventional electronic parts, a conventional handler could not be applied without change. Accordingly, the applicant of the present invention previously proposed handlers suitable for the support of the testing of large-sized electronic parts such as SSDs in Korean Patent Application Publication Nos. 10-2019-0050483 and 10-2019-0061291.

Meanwhile, the conventional handlers are designed to handle only electronic parts having the same dimensions, or require the replacement of various components when the dimensions of electronic parts to be handled change. As a result, multiple handlers necessary for the handling of

electronic parts having various dimensions are required, resulting in the waste of the construction cost and space, or the operating time is decreased due to the replacement of components.

5 In addition, since electronic parts such as SSDs have considerably different dimensions depending on finished products to which SSDs will be applied, they are being manufactured by a small-quantity batch production system. In view of this situation, the applicant of the present
10 application proposed a versatile handler (hereinafter referred to as the "the invention of the preceding application") in Korean Patent Application No. 10-2020-0073725.

 An adapter is applied to the handler according to the invention of the preceding application. The adapter serves as
15 a carrier that is used to feed an electronic part to a tester. Accordingly, a single handler may handle multiple types of electronic parts having different sizes only by replacing the adapter.

 An adapter has a pair of gripping rails that selectively
20 grip and release a seated electronic part. An adapter needs to be in an open state in such a manner that the gap between the pair of gripping rails is widened in the process of seating an electronic part on the adapter or removing an electronic part from the adapter. Furthermore, when the
25 adapter is in an open state, separate support protrusions

capable of supporting an electronic part are required to maintain the location of the electronic part.

Meanwhile, although electronic parts are manufactured considerably precisely, there are bound to be tolerances. For
5 example, when an electronic part having a width of 22 mm is manufactured, the actual width of a manufactured electronic part falls within a range of 21.85 mm to 22.15 mm into which a tolerance of 0.15 mm has been incorporated. Accordingly, the width of an electronic part to be supported by a support means
10 is inevitably set to 22.15 mm.

However, as shown in the reference diagram of FIG. 20, support protrusions sj formed on support components 213a and 213b are formed to support the left and right ends of an electronic part ED by only 0.25 mm due to interference with
15 the structure of the electronic part ED or other structures of an adapter. Accordingly, as shown in FIG. 21, there may occur a seating failure in which an electronic part ED having a width of 21.85 mm into which a negative tolerance is incorporated may not be appropriately supported by the support
20 protrusions sj and one side of the electronic part ED falls downward. Furthermore, when a seating failure occurs, the operation of the handler has to be stopped and then the seating failure has to be resolved, so that there is a problem in that the operation rate of the handler decreases or damage
25 to an electronic part ED occurs.

SUMMARY

The present invention has been conceived in pursuit of a
5 structure that can desirably support electronic parts that are
manufactured to have different widths due to tolerances.

According to the present invention, there is provided a
holder for an electronic part handler, the holder including: a
pair of gripping levers configured to selectively grip and
10 release an adapter on which an electronic part can be
detachably seated; a driving source configured to allow the
pair of gripping levers to selectively grip and release the
adapter by narrowing or widening the gap between the pair of
gripping levers; a pair of movable guiders configured to
15 support an electronic part in the state in which the adapter
is opened by an opener, and to guide an electronic part to a
seating location in the process in which the electronic part
is seated on the adapter; a restoring member configured to
restore the pair of movable guiders to their original
20 locations when the pair of movable guiders are moved by
applying an external force to the pair of movable guiders and
then the external force is removed from the pair of movable
guiders; and an installation frame configured to install the
pair of gripping levers, the driving source, the pair of
25 movable guiders, and the restoring member; wherein the movable

guiders are movably installed on the installation frame, protrude upward through the passage regions of the adapter, and support an electronic part seated on the adapter; and wherein the pair of movable guiders include: guide portions
5 configured such that the width between the opposite surfaces thereof decreases downward so that they can guide an electronic part to the seating location; and support portions located underneath the guide portions, and configured to form support protrusions that set the seating location at which an
10 electronic part can be seated on the adapter by supporting the electronic part.

The pair of movable guiders may be configured such that the lower end portions thereof are hinged to the installation frame so that the gap between the support protrusions of the
15 pair of movable guiders is selectively widened and narrowed by the rotational movement of the pair of movable guiders.

The restoring member may include a pair of restoring springs configured to restore the pair of movable guiders, respectively.

20 The restoring member may include a single restoring spring configured to restore both the pair of movable guiders together.

The holder may further include a pair of fixed guiders fixedly installed onto the installation frame and configured
25 to support an electronic part in the state in which the

adapter is opened by the opener and to guide an electronic part to the seating location in the process in which the electronic part is seated on the adapter.

The holder may further include a prevention protrusion
5 fixedly installed onto the installation frame and configured to prevent an electronic part, seated on the adapter, from being off-centered in the state in which the opener opens the adapter.

The holder may further include a detector configured to
10 detect a seating failure of an electronic part in the process in which the electronic part is seated on the adapter.

BRIEF DESCRIPTION OF THE DRAWINGS

15 The above and other objects, features, and advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a reference diagram illustrating a structure
20 for the electrical connection between an electronic part and a tester;

FIG. 2 is a conceptual structure diagram of an electronic part handler according to an embodiment of the present invention;

25 FIG. 3 is a schematic perspective view of the handler of

FIG. 2;

FIG. 4 is a reference diagram illustrating the flow of an electronic part that is formed in a connection part;

FIG. 5 is a plan view of an adapter that is applicable to
5 the handler of FIG. 2;

FIG. 6 is a conceptual diagram of an intermediary device for an electronic part handler applied to the handler of FIG. 2;

FIG. 7 is a partial excerpt view of the intermediary
10 device of FIG. 6;

FIG. 8 is an excerpt view of an opener applied to the intermediary device of FIG. 6;

FIGS. 9, 10 and 11 are excerpt views of a holder applied to the intermediary device of FIG. 6;

15 FIGS. 12 and 13 are excerpt views illustrating a pair of gripping levers and a driving source applied to the holder of FIG. 9;

FIGS. 14 and 15 are excerpt views of mobile guiders applied to the holder of FIG. 9;

20 FIG. 16 shows an example in which an adapter is held on the holder;

FIG. 17 is a reference diagram illustrating a characteristic operation performed in the holder of FIG. 9;

FIGS. 18 and 19 are reference diagrams illustrating
25 application examples of the holder of FIG. 9; and

FIGS. 20 and 21 are reference views illustrating a problem regarding the seating of an electronic part.

DETAILED DESCRIPTION

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Embodiments of the present invention will be described in detail below with reference to the accompanying drawings. For brevity of description, descriptions of redundant or substantially identical configurations will be omitted or
10 abridged as much as possible.

<Description of the Electrical Connection between an Electronic Part and a Tester>

A handler to which a holder for an electronic part handler (hereinafter abbreviated as the "holder") according to
15 the present invention is applied is more suitable for a case where the contact terminal-side portion of an electronic part is inserted into a test slit of a tester like that of a solid-state drive (SSD).

For example, as shown in FIG. 1, a tester TESTER is
20 provided with test slits S and the terminal (T)-side portion of an electronic part ED is inserted into a corresponding one of the test slits S, so that the electronic part ED and the tester TESTER are electrically connected to each other. In this case, the test slits S may be elongated in the vertical
25 direction, as shown in FIG. 1, or may be elongated in the

lateral direction.

**<Schematic Description of the Large-level Configuration
of a Handler>**

FIG. 2 is a schematic plan view of a handler HR, and FIG.
5 3 is a schematic perspective view of the handler HR of FIG. 2.

The handler HR according to the present embodiment includes a connection part CP, a stacker part SP, and a transfer device TA.

The connection part CP draws out an electronic part ED to
10 be tested from a customer tray CT and feeds it to a tester TESTER, or collects a tested electronic part ED from a tester TESTER and loads it onto a customer tray CT. The holder according to the present invention is provided in the connection part CP.

15 The stacker part SP stores customer trays, carried into the handler HR, to feed a customer tray CT loaded with electronic parts ED to be tested to the connection part CP, or collects a customer tray CT loaded with tested electronic parts ED from the connection part CP and stores it before
20 being drawn out from the handler HR. Furthermore, the stacker part SP feeds a stored customer tray CT, loaded with electronic parts ED to be tested, to the transfer device TA, or collects a customer tray CP, loaded with tested electronic parts ED, from the transfer device TA.

25 The transfer device TA transfers a customer tray CT

between the connection part CP and the stacker part SP. In other words, a customer tray CT loaded with electronic parts ED to be tested is transferred from the stacker part SP to the connection part CP by the transfer device TA, and a customer
5 tray CT loaded with tested electronic parts ED is transferred from the connection part CP to the stacker part SP by the transfer device TA.

In the above-described handler HR, an electronic part ED to be tested is moved from the stacker part SP to the
10 connection part CP by the transfer device TA in the state of being loaded on a customer tray CT. Furthermore, in the connection part CP, an electronic part ED to be tested is moved from a customer tray CT to the intermediary device 100 by a moving hand MH, and is fed from the intermediary device
15 100 to a tester TESTER by a test hand TH. Thereafter, a tested electronic part is moved to the stacker part SP through the reverse process of the above-described process.

In this case, the moving hand MH has a structure configured to grip an electronic part ED by a vacuum suction
20 method, and the test hand TH has a structure configured to grip an electronic part ED by a both-end pressing method.

<Summary of the Flow of an Electronic Part in the Connection Part related to an Adapter>

As described in detail in the preceding application, the
25 flow of an electronic part ED that is formed when an adapter

AD is applied is summarized with reference to the conceptual diagram of FIG. 4.

In the state in which an adapter AD is held on the intermediary device 100, the moving hand MH draws out an
5 electronic part ED from a customer tray CT and seats it on the adapter AD in a first operation area WA1. In this case, the intermediary device 100 opens the adapter AD so that the moving hand MH can seat the electronic part ED on the adapter AD.

10 When the first operation of seating the electronic part ED on the adapter AD is completed, the intermediary device 100 moves the adapter AD from the first operation area WA1 to a second operation area WA2. In this case, the first operation area WA1 is located behind the second operation area WA2.

15 When the movement of the adapter AD to the second operation area WA2 is completed, the intermediary device 100 rotates the adapter AD so that the posture of the electronic part ED seated on the adapter AD is converted from a laid position to an erected position. Then, the test hand TH grips
20 the adapter AD, moves the adapter AD, and then electrically connects the electronic part ED, seated on the adapter AD, to a tester TESTER. Thereafter, when the electronic part ED has been tested, the tested electronic part ED is moved to a customer tray CT through the reverse operations of the above-
25 described operations.

<Schematic Description of the Adapter>

FIG. 5 is a plan view of the adapter AD, which is configured such that an opening lever FL may be pressed by an opener (to be described later) or the pressing of the opening lever FL may be released by the opener, as in the preceding Korean Patent Application No. 10-2021-0017446 (hereinafter referred to as the "preceding application") of the applicant of the present application. When the opening lever FL is pressed, the gap between the pair of gripping rails GR1 and GR2 is widened and thus the adapter AD is opened, so that the electronic part ED can be seated on the adapter AD or the electronic part ED seated on the adapter AD can be separated. Furthermore, when the pressing of the opening lever FL is released, the gap between the pair of gripping rails GR1 and GR2 is narrowed and thus the adapter AD is closed, in which case the electronic part ED seated on the adapter AD is fixed.

Since the other components and operating structure of the above-described adapter AD have been described in detail in the preceding application, descriptions thereof will be omitted herein.

The adapter AD is detachably coupled to the intermediary device 100, and is thus moved together with the electronic part ED by the test hand TH.

For reference, the adapter has passage regions pf through which movable guiders and fixed guiders, which will be

described later, can be passed.

<Brief Description of the Purpose and Configuration of the Intermediary Device>

The intermediary device 100 handles an electronic part ED
5 between the moving hand MH and the test hand TH that are
responsible for the process of feeding an electronic part ED
seated on a customer tray CT to a tester TESTER or collecting
a tested electronic part ED from a tester TESTER to a customer
tray CT.

10 In general, a large electronic part ED having a wide and
flat shape such as an SSD is fed to the handler HR in the
state of being loaded onto a customer tray CT in a laid
position. Accordingly, in order to draw out the electronic
part ED from the customer tray CT, it is appropriate to employ
15 a scheme of gripping an electronic part ED by a vacuum suction
method. In contrast, in order to forcibly insert an
electronic part ED into a test slit S of a tester TESTER, the
scheme of gripping an electronic part ED by a vacuum suction
method is inappropriate, and a scheme of gripping an
20 electronic part ED by pressing both ends of the electronic
part ED is appropriate. The reason for this is that in the
case of employing the scheme of gripping an electronic part ED
by pressing both ends of the electronic part ED, a structure
capable of appropriately guiding an electronic part ED moving
25 for insertion may be easily taken.

Accordingly, as in the preceding related applications, the handler HR needs to be provided with two types of gripping mechanisms for gripping an electronic part ED. One type of gripping mechanism is the moving hand MH capable of gripping
5 an electronic part ED by a vacuum suction method, and the other type of gripping mechanism is the test hand TH capable of gripping an electronic part ED by a both ends pressing method.

The moving hand MH is used to draw out an electronic part
10 ED from a customer tray CT or to load an electronic part ED into a customer tray CT. In contrast, the test hand TH is used to insert an electronic part ED into the test slit S of a tester TESTER or to collect an electronic part ED from a test slit S.

15 Meanwhile, when the operation areas of the moving hand MH and the test hand TH overlap each other, it is difficult to design control to prevent interference between the moving hand MH and the test hand TH, and also the operation rate of the moving hand MH and the test hand TH is lowered. Accordingly,
20 it is preferable to divide an overall operation area into their respective operation areas WA1 and WA2, as described above. In addition, when a test slit S is elongated in the vertical direction, it is necessary to change the posture of the electronic part ED from a laid position to an erected
25 position. Therefore, the intermediary device 100 is required

as in the present invention.

In other words, the intermediary device 100 according to the present invention is provided for the following reasons:

First, it is necessary to appropriately handle an
5 electronic part ED between the moving hand MH having a vacuum suction structure and the test hand TH having a both ends pressing structure.

Second, in an intermediary process, it is necessary to change the posture of an electronic part ED from a laid
10 position to an erected position or from an erected position to a laid position.

Third, it is necessary to prevent the overlapping of the operation areas WA1 and WA2 of the moving hand MH and the test hand TH.

15 Fourth, it is necessary for the handler HR to handle electronic parts having various dimensions.

To this end, the intermediary device 100 includes a holder 110, a reciprocator 120, a posture converter 130, and an opener 140, as shown in the conceptual diagram of FIG. 6
20 and the partial excerpt view of FIG. 7 from which the reciprocator 120 is omitted.

The holder 110 is provided to hold the adapter AD described above. Furthermore, the present invention is directed to this holder 110, and the holder 110 will be
25 described in more detail later under a separate section title.

The reciprocator 120 reciprocates the holder 110 between the first operation area WA1 in which the moving hand MH operates and the second operation area WA2 in which the test hand TH operates. Accordingly, the first operation area WA1 and the second operation area WA2 may be divided without overlapping each other, and operation interference between the moving hand MH and the test hand TH may be prevented.

The posture converter 130 rotates the adapter AD held on the holder 110 by rotating the holder 110, and thus rotates an electronic part ED seated on the adapter AD, thereby changing the posture of the electronic part ED. For reference, in a process in which an electronic part ED is fed to a tester TESTER, the posture of the electronic part ED is converted from a laid position to an erected position, and in a process in which an electronic part ED is collected to a customer tray CT, the posture of the electronic part ED is converted from an erected position to a laid position.

The opener 140 opens the adapter AD so that an electronic part ED can be seated on the adapter AD or an electronic part ED seated on the adapter AD can be drawn out. As shown in the excerpt view of FIG. 8, the opener 140 includes a pressing lever 141, a pressing source 142, and a repulsive spring 143.

The pressing lever 141 opens the adapter AD by pressing the opening lever FL of the adapter AD.

The pressing source 142 selectively moves the pressing

lever 141 forward and backward so that the pressing lever 141 can press or release the opening lever FL of the adapter AD. Although a cylinder is applied as the pressing source 142 in the present embodiment, the pressing source 142 is not
5 necessarily limited to a cylinder.

The repulsive spring 143 is provided as an elastic member for applying an elastic force to the pressing lever 141 in a direction that releases pressing when a pressing force is not supplied from the pressing source 142.

10 Meanwhile, it needs to be noted that the holder 110 is rotated by the posture converter 130. Accordingly, in order to open the adapter AD on the holder 110, it may be first contemplated that the opener 140 is coupled to the holder 110. However, due to the operating structure of the holder 110
15 itself, it is considerably difficult to couple the opener 140 to the holder 110. Therefore, in the present embodiment, by employing a structure in which the pressing lever 141 is rotatably coupled to the pressing source 142, the pressing lever 141 is allowed to be also rotated when the holder 110 is
20 rotated by the posture converter 130.

For reference, since the posture converter 130 and the opener 140 need to be reciprocated together with the holder 110, they are coupled to the holder 110 in an operable structure and moved together with the holder 110.

25 **<Description of the Holder>**

As shown in the excerpt views of FIGS. 9, 10 and 11, the holder 110 includes a pair of gripping levers 111a and 111b, a driving source 112, a pair of movable guiders 113a and 113b, a pair of fixed guiders 114a and 114b, a pair of restoring
5 springs 115a and 115b, an installation frame 116, and a detector 117.

The pair of gripping levers 111a and 111b and the driving source 112 will be described with reference to the excerpt views of FIGS. 12 and 13.

10 The pair of gripping levers 111a and 111b selectively grip and release the adapter AD in such a manner that the gap therebetween is narrowed or widened.

The driving source 112 provides a driving force that selectively narrows and widens the gap between the pair of
15 gripping levers 111a and 111b so that the pair of gripping levers 111a and 111b automatically grip or release the adapter AD. In this embodiment, the driving force generated by the driving source is not directly supplied to the pair of gripping levers 111a and 111b, but is transmitted by a guide
20 rail 'a,' a pair of rotation links 'b,' and an advance/retreat member 'c.'

The guide rail 'a' guides the gripping levers 111a and 111b through their movement when the gripping levers 111a and 111b move in the left and right directions. To this end, the
25 gripping levers 111a and 111b are rail-coupled to the guide

rail 'a.'

First sides of the pair of rotation links 'b' are rotatably coupled to the gripping levers 111a and 111b, and the remaining sides thereof are rotatably coupled to the advance/retract member 'c.' Accordingly, the rotation links b
5 are rotated by the forward or backward movement of the advance/retreat member 'c,' and thus the gripping levers 111a and 111b are pushed or pulled in the left and right directions by the rotation links b.

10 The advance/retreat member 'c' is moved forward or backward by the driving force of the driving source 112.

For reference, although the driving force of the driving source 112 provided as a cylinder is transmitted to the pair of gripping levers 111a and 111b through the advance/retreat
15 member 'c' and so forth in the present embodiment, any structure may be preferably applied as long as it can change the gap between the pair of gripping levers 111a and 111b.

Meanwhile, the pair of gripping levers 111a and 111b need to selectively grip and release the adapter AD in the state in
20 which the electronic part ED is in a laid position, and also need to selectively grip and release the adapter AD even in the state in which the electronic part ED is in an erected position. Accordingly, the gripping levers 111a and 111b and the driving source 112 need to be rotated together with the
25 installation frame 116 by the posture converter 130. To this

end, in the present embodiment, the gripping levers 111a and 111b and the driving source 112 are operatively coupled to the installation frame 116. In this case, as shown in FIG. 11, the driving source 112 is located on the rear surface of the installation frame 116, which is opposite to the surface of the installation frame 116 on which the adapter AD is held, so that it does not interfere with the holding of the adapter AD while appropriately supplying a driving force to the pair of gripping levers 111a and 111b.

10 The pair of movable guiders 113a and 113b may support the electronic part ED to maintain the location of the electronic part ED in the state in which the adapter AD is opened by the opener 140, and may guide the electronic part ED to a seating location in the process in which the electronic part ED is seated on the adapter AD. These movable guiders 113a and 113b are hinged to brackets B fixed to the installation frame 116, thereby ultimately being rotatably installed on the installation frame 116. Furthermore, the movable guiders 113a and 113b may protrude upward through the passage regions pf of the adapter AD and support the electronic part ED seated on the adapter AD. For this purpose, each of the movable guiders 113a and 113b has a guide portion gp and a support portion sp, as shown in the excerpt view of FIG. 14.

25 The guide portions gp are configured such that the width between the opposite surfaces thereof decreases downward so

that they can guide the electronic part ED to a seating location.

The support portions sp are integrated with the respective guide portions gp, are located underneath the guide portions gp, and form support protrusions sj configured to set the seating location at which the electronic part ED can be seated on the adapter AD by supporting the electronic part ED.

In addition, as shown in FIG. 15, the movable guiders 113a and 113b are provided with insertion holes ig into which restoring springs 115a and 115b provided as restoring members for restoring the locations of the movable guiders 113a and 113b can be inserted.

The gap between the pair of movable guiders 113a and 113b is preferably set such that an electronic part ED having a maximum negative tolerance width can be seated therebetween.

The pair of fixed guiders 114a and 114b have the same shapes and structures as the pair of movable guiders 113a and 113b, but are fixedly installed onto the installation frame 116. The pair of fixed guiders 114a and 114b may also guide an electronic part ED to its seating location in the process in which the electronic part ED is seated on the adapter AD. However, the gap between the pair of fixed guiders 114a and 114b is set such that an electronic part ED having a maximum positive tolerance width can be seated therebetween. Furthermore, the pair of fixed guiders 114a and 114b also have

the function of preventing an electronic part ED, seated on the adapter AD, from being off-centered in the state in which the opener 140 opens the adapter AD. Accordingly, from the point of view of the function of preventing an electronic part
5 ED from being off-centered, the pair of fixed guiders 114a and 114b may be referred to as "prevention protrusions" configured to prevent an electronic part ED from being off-centered. For example, the elastic moduli of both the restoring springs 115a and 115b are different, so that the electronic part ED lowered
10 by the moving hand MH may be off-centered to one side. In this case, the fixed guiders 114a and 114b prevent the electronic part ED from being off-centered by a predetermined limit or more.

The pair of restoring springs 115a and 115b are provided
15 as restoring members configured to restore the pair of movable guiders 113a and 113b to their original locations when the pair of movable guiders 113a and 113b are rotationally moved by applying an external force to the pair of movable guiders 113a and 113b and then the external force is removed from the
20 pair of movable guiders 113a and 113b. The lower ends of these restoring springs 115a and 115b are fixed to the installation frame 116.

The installation frame 116 is provided to install the pair of gripping levers 111a and 111b, the driving source 112,
25 the pair of movable guiders 113a and 113b, the pair of fixed

guiders 114a and 114b, and the restoring springs 115a and 115b.

The detector 117 detects a seating failure of the electronic part ED in the process in which the electronic part
5 ED is mounted on the adapter AD.

FIG. 16 shows an example in which the adapter AD is held on the holder 110. Referring to FIG. 16, it can be seen that the movable guider 113a and the fixed guider 114a are located in the passage region pf of the adapter AD.

10 <Description of a Characteristic Operation>

When the electronic part ED is fed to the adapter AD, mounted on the holder 110, by the moving hand MH, the adapter AD is maintained in an open state by the opener 140.

First, in the case of an electronic part ED having a
15 maximum negative tolerance width, the rotational movement of the movable guiders 113a and 113b does not occur.

However, in the case of an electronic part ED having a width exceeding the maximum negative tolerance width, when the electronic part ED is lowered by the moving hand MH, both ends
20 of the electronic part ED come into contact with the guide portions gp and thus an external force is applied to the movable guiders 113a and 113b in the direction in which the movable guiders 113a and 113b are widened. Accordingly, as shown in the exaggerated view of FIG. 17, as the movable
25 guiders 113a and 113b are rotationally moved, the gap between

the support protrusions sj is widened, so that the electronic part ED can be appropriately supported by the support protrusions sj.

<Application Examples of the Holder>

5 Referring to the schematic diagram of FIG. 18, the movable guiders 113a and 113b are horizontally moved such that the gap between the support protrusions is widened or narrowed.

In addition, referring to the schematic diagram of FIG. 10 19, a single restoring spring 115 is configured to provide a restoring force to both the movable guiders 113a and 113b together. When an example of applying a restoring force to both the movable guiders 113a and 113b by the single restoring spring 115 as shown in FIG. 19 is taken, the problem in which 15 the elastic moduli of the restoring springs 115a and 115b are different from each other and thus the distances by which the movable guiders 113a and 113b are moved are different from each other may be overcome.

According to the present invention, almost all electronic 20 parts manufactured to have different widths due to tolerances can be stably seated on an adapter, so that the operation rate of a handler may be increased ultimately.

While the specific description of the present invention has been given in conjunction with the embodiments described 25 with reference to the accompanying drawings above, the

aforementioned embodiments are merely examples of the present invention. Therefore, it should be understood that the present invention is not limited only to the above embodiments, and the true scope of the present invention
5 should be defined based on the attached claims and the range of equivalents thereto.

WHAT IS CLAIMED IS:

1. A holder for an electronic part handler, the holder comprising:

a pair of gripping levers configured to selectively grip and release an adapter on which an electronic part can be detachably seated;

a driving source configured to allow the pair of gripping levers to selectively grip and release the adapter by narrowing or widening a gap between the pair of gripping levers;

a pair of movable guiders configured to support an electronic part in a state in which the adapter is opened by an opener, and to guide an electronic part to a seating location on the adapter;

a restoring member configured to restore the pair of movable guiders to their original locations when the pair of movable guiders are moved by applying an external force to the pair of movable guiders and then the external force is removed from the pair of movable guiders; and

an installation frame configured to install the pair of gripping levers, the driving source, the pair of movable guiders, and the restoring member;

wherein the movable guiders, movably installed on the installation frame, are configured to protrude upward through passage regions of the adapter and support an electronic part seated on the adapter; and

wherein the pair of movable guiders comprise:

a guide portion on each of the movable guiders, the pair of guide portions configured such that a width between facing surfaces of the pair of guide portions

decreases so that they can guide an electronic part to the seating location; and

support portions located underneath the guide portions, and configured to form support protrusions that set the seating location at which an electronic part can be seated on the adapter by supporting the electronic part.

2. The holder of claim 1, wherein the pair of movable guiders are configured such that the support portions are hinged to the installation frame so that a gap between the support protrusions of the pair of movable guiders is selectively widened and narrowed by rotational movement of the pair of movable guiders.

3. The holder of claim 1, wherein the restoring member comprises a pair of restoring springs configured to restore the pair of movable guiders, respectively.

4. The holder of claim 1, wherein the restoring member comprises a single restoring spring configured to restore the pair of movable guiders together.

5. The holder of claim 1, further comprising a pair of fixed guiders fixedly installed onto the installation frame and configured to support the electronic part in the state in which the adapter is opened by the opener and to guide an electronic part to the seating location in a process in which the electronic part is seated on the adapter.

6. The holder of claim 1, further comprising a prevention protrusion fixedly installed onto the installation frame and configured to prevent the electronic part, seated on the adapter, from being off-centered in a state in which the opener opens the adapter.

7. The holder of claim 1, further comprising a detector configured to detect a seating failure of the electronic part in a process in which the electronic part is seated on the adapter.