CLAIMS

1. An end effector comprising:

a supporter configured to support a plate member;

a support table provided at an end portion of the supporter via an universal joint, the support table being configured to support the plate member by making surface contact with the plate member;

holding unit including a pair of holders configured to move linearly in a planar direction while the support table is interposed between the pair of holders in the planar direction, the holding unit being fixed to a base portion of the support table; and

electric cylinders configured to change an inclination angle of the support table with respect to the supporter,

wherein the plate member has a rectangular plate shape, and

the holding unit further includes:

engagement portions provided at the sides of opposing sides of the plate member, the engagement portions being configured to engage with the opposing sides of the plate member;

first cylinders, each of the first cylinders being configured to move each of the engagement portions in directions of making the engagement portions close to and away from each other; and

second cylinders, each of the second cylinders being configured to move each of the engagement portions in a direction perpendicular to the planar direction so as to store the engagement portions under the support table.

2. The end effector according to claim 1, wherein the electric cylinders are provided between the supporter and the base portion of the support table, and include:

a first electric cylinder configured to rotate the base portion of the support table about a first axis by contracting and extending in a direction substantially perpendicular to the support table; and

a second electric cylinder configured to rotate the base portion of the support table about a second axis orthogonal to the first axis.

3. A construction work robot comprising the end effector according to claim 1 or 2.

4. A method of mounting a plate member having a rectangular plate shape on a lattice-form support material using the end effector according to claim 1 or 2, the method comprising:

a step of holding the plate member by operating the holding unit after abutting the support table of the end effector against a surface of the plate member;

a step of moving the end effector holding the plate member to a vicinity of the support material;

a step of changing an orientation of the end effector such that the plate member held by the end effector is able to pass through a lattice-form opening surround by the support material from a lower side to an upper side;

a step of moving the plate member held by the end effector to pass through the lattice-form opening surrounded by the support material from the lower side to the upper side;

a step of adapting an orientation of the plate member held by the end effector to the lattice-form opening, by changing the orientation of the end effector, after moving the plate member held by the end effector to pass through

the lattice-form opening;

a step of applying one end of the plate member to one end of the support material by changing a height of the end effector and an inclination angle of the support table, after adapting the orientation of the plate member held by the end effector to the lattice-form opening, and then, operating the holding unit to release holding of the plate member by the end effector and store the holding unit; and

a step of lowering the support table by lowering the end effector such that the other end of the plate member is automatically applied to the other end of the support material.