

Machine Translation Output

Note1. This document has been translated by computer. " **** " or " --- " show the words which cannot be translated.

Note 2: It should be understood that the quality of machine translation is far below that of a human translation. While machine translation output can let you know what is being described in a patent application, it can rarely tell you what is being said. It is unwise to make any significant decision basing on machine translation output without discussing it with your professional translators.

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **08-162797**

(43)Date of publication of application : **21.06.1996**

(51)Int.Cl. **H05K 13/04**
H01L 21/50
H01L 21/52
H05K 13/08

(21)Application number : **06-304636** (71)Applicant : **MATSUSHITA ELECTRIC IND
CO LTD**

(22)Date of filing : **08.12.1994** (72)Inventor : **KANAYAMA SHINJI
KABESHITA AKIRA
SHIDA SATOSHI
ENCHI KOUHEI
TAKAHASHI KENJI**

(54) **ELECTRONIC PART MOUNTER**

(57)Abstract:

PURPOSE: To provide an electronic part mouter, in which a mounting work is shortened, the supply of parts is simplified and the space of a facility is saved, accuracy of which can be improved and by which expansion to the mixed loading mounting of COB mounting and STM mounting, monolithic mounting corresponding to a multiplication, the COG mounting of an ACF junction system, etc., is facilitated.

CONSTITUTION: A first part transfer head 11 and a second transfer head 13 are NC-driven in the X-axis direction respectively independently on the same axis, and a circuit board 16 is NC-driven in the Y-axis direction. The supply section of an electronic part 19 and a transfer pan 23 for supplying paste are arranged on both sides of a board stage 17. Accordingly, the mounting work of COB mounting is shortened, the supply of parts is simplified, the space of a facility is saved, and the accuracy is improved.

CLAIMS

[Claim(s)]

[Claim 1] They are a supply means to supply electronic parts and an anisotropy electric conduction sheet, or a paste, a loading means to hold said electronic parts and an

anisotropy electric conduction sheet, or a paste, and to move to the predetermined one direction on the circuit board, and to carry, and electronic-parts mounting equipment that holds said circuit board and has the migration means which the migration direction of a loading means moves to an abbreviation perpendicular direction.

[Claim 2] It is electronic-parts mounting equipment according to claim 1 constituted so that a loading means might consist of a components transfer head which can hold electronic parts and an anisotropy electric conduction sheet, or a paste movable to the shaft orientations of the 1 shaft robot extended and formed in the one direction, and this 1 shaft robot, and two or more said components transfer heads might be prepared on a 1 shaft robot's same axle and it might be controlled independently respectively.

[Claim 3] A supply means is electronic-parts mounting equipment according to claim 1 constituted so that it might be arranged at the side, the both sides of a migration means, or either.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is used by SMT mounting, COB mounting, COG mounting, etc. about the equipment which mounts electronic parts etc. on the circuit board.

[0002]

[Description of the Prior Art] As conventional electronic-parts mounting equipment, either [at least] an element-placement head or the circuit board adopted a means to move in X and the direction of Y.

[0003] Drawing 3 shows the configuration of conventional electronic-parts mounting equipment. In drawing, the parts cassette by which a components transfer head and 2 supply a X-Y robot, and, as for 3, 1 supplies electronic parts or a tray, and 4 are the circuit boards.

[0004] About the conventional example constituted as mentioned above, the actuation is explained below. The components transfer head 1 is carried in the X-Y robot 2, and is movable in the direction of X, and the direction of Y. Then, the components transfer head 1 carries out the parts cassette which supplies the electronic parts in facility back, or tray 3 top-X-Y migration, and takes out required electronic parts by adsorption. Then, X-Y migration is carried out to the predetermined location of the circuit board 4 by which location readjustment was carried out, and electronic parts are mounted on the circuit board.

[0005]

[Problem(s) to be Solved by the Invention] However, it is difficult to supply electronic parts from the front face of a facility, or a side face with the above configurations. Furthermore, since the configuration which carries a components transfer head in a X-Y robot is adopted, only one piece can carry a components transfer head. Therefore, when it is necessary to apply a paste on the circuit board or and a paste needs to be applied to the electronic parts to which it stuck, the need [of following on it] function will be added to a components transfer head, the process of a components transfer head of operation increases, and a mounting baton becomes long. Furthermore, by the X-Y robot method, the rigidity of the connection section of the X-axis and a Y-axis was weak, and caused a precision fall.

[0006] Moreover, in order to prevent the above-mentioned fault, the circuit board is moved in X and the direction of Y, and if it is made the configuration which carries two or more components transfer heads, in order to move the circuit board in X and the direction of Y, a facility will be enlarged inevitably.

[0007] This invention solves the above technical problem and it makes it possible to supply electronic parts from the front face of a facility, and it aims at offering the electronic-parts

mounting equipment which realizes mounting, without [even if a need function increases, without it lengthens a mounting baton, and] making a scale and a facility enlarge the improvement in precision.

[0008]

[Means for Solving the Problem] In order to solve the above-mentioned trouble, the migration direction of said loading means has a migration means to move to an abbreviation perpendicular direction, in this invention by holding a supply means to supply electronic parts and an anisotropy electric conduction sheet (ACF), or a paste, a loading means to hold said electronic parts and an anisotropy electric conduction sheet (ACF), or a paste, and to move to the predetermined one direction on the circuit board, and to carry, and said circuit board.

[0009]

[Function] the electronic-parts mounting equipment of the above-mentioned configuration -- 1 shaft orientations -- each -- independent -- NC -- space-saving mounting with a short mounting baton can be realized by carrying out NC migration of the stage which has two or more movable components transfer heads on the same axle, and held the circuit board to Y shaft orientations.

[0010]

[Example] Hereafter, the example of this invention is explained for a drawing, making it reference.

[0011] Drawing 1 shows the configuration of the electronic-parts mounting equipment for COB mounting in the example of this invention.

[0012] In drawing 1 the part I article transfer head and 12 11 The components adsorption seal of a head point, The part II article transfer head and 14 13 The paste imprint tool of a head point, The X-axis robot with which 15 carries out NC drive of the part I article transfer head 11 and the part II article transfer head 13 to X shaft orientations independently respectively, The substrate stage where 16 holds the circuit board and 17 holds said circuit board 16, The Y-axis robot with which 18 carries out NC drive of said substrate stage 17 to Y shaft orientations, The wafer whose 19 is electronic parts and whose 20 is the aggregate of said electronic parts 19, It has the function which 21 carries said two or more wafers 20, and can choose the predetermined wafer 20. The X-Y table which can be driven in X and the direction of Y, The camera for recognition for 22 to perform location amendment for the quality judging of the electronic parts 19 in a wafer and 23 are the imprint pans containing the paste for adhesion for fixing electronic parts 19 on the circuit board 16.

[0013] About the electronic-parts mounting equipment constituted as mentioned above, the actuation is explained using drawing 2 , drawing 3 , and drawing 4 below.

[0014] First, next the part I article transfer head 11 moves to the pickup location on a wafer 20 in the direction of arrow-head A (process 51), it moves in the direction of arrow-head B, and electronic parts 19 are taken up (process 52), and it moves to the mounting position on the circuit board 16 (process 53), and descends in the direction of arrow-head C, and it is mounted in the predetermined location of the circuit board 16 (process 54).

[0015] At this time, the part II article transfer head 13 moves to the imprint location on the circuit board 16 in the direction of arrow-head D (process 55). The paste which furthermore moved in the direction of arrow-head E, and has adhered at the tip of the part II article transfer head 13 is imprinted to the predetermined location of the circuit board 16 (process 56), next, it moves to up to the imprint pan 23, it descends in the direction of arrow-head F, and a paste is imprinted at the tip of an imprint pin on the imprint pan 23 (process 58).

[0016] As mentioned above, by according to this example, carrying out NC drive of the part I article transfer head 11 and the part II article transfer head 13 to X shaft orientations independently respectively on the same axle, and carrying out NC drive of the circuit board 16 to Y shaft orientations Since it becomes possible to carry out parallel operation of two kinds of processes, compaction of a mounting baton is achieved and a circuit board stage drives only to Y shaft orientations further, a substrate stage -- immediately -- both sides -- the imprint pan 23 -- or since a components feed zone can be prepared, when a

components feed zone can be arranged near the front face of a facility, space-saving-ization of a facility can be attained.

[0017] Moreover, since the X-axis mechanical component and the Y-axis mechanical component are separated, the rigid lack of the connection section of X shank and Y shank which was the conventional X-Y robot's fault can be canceled, and the improvement in precision also becomes possible.

[0018] In addition, although the imprint pan 23 was formed in the right-hand side of the substrate stage 17 and the part II article transfer head 13 carried the paste imprint tool 14 in the head point as an object for imprint heads in the example. Instead, the parts cassette which carried the electronic parts for SMT mounting in the right-hand side of the substrate stage 17 is installed, in the part II article transfer head 13, it is good also as the part I article transfer head 11 and same head, and mixed-loading mounting of COB mounting and SMT mounting is attained at this time.

[0019] Moreover, if a wafer 20, X-Y table 21, and the camera 22 for recognition are installed in the right-hand side of the substrate stage 17 like left-hand side, it will also become possible to shorten a COB mounting baton further.

[0020] If the leadframe of the circuit board 16 is carried out at this time, monolithic mounting corresponding to multi-is also realizable.

[0021] Furthermore, COG mounting of an ACF junction method is attained by using the circuit board 16 as a liquid crystal panel, installing the supply unit of an anisotropy electric conduction sheet (ACF) in the right-hand side of the substrate stage 17, and carrying an ACF imprint tool in the point of the components transfer head B.

[0022]

[Effect of the Invention] As mentioned above, this invention can arrange a components feed zone near the front face of a facility, when compaction of a mounting baton is achieved by establishing a means to supply electronic parts and an anisotropy electric conduction sheet (ACF), or a paste, a means to carry said electronic parts and an anisotropy electric conduction sheet (ACF), or a paste in X on the circuit board, and the direction of theta, and a means to hold said circuit board and to move in the direction of Y, and it can attain space-saving-ization of a facility. furthermore, rigidity -- the improvement in precision by UP is attained.

[0023] Moreover, not only COB mounting but the expansion to mixed-loading mounting of COB mounting and SMT mounting, monolithic mounting corresponding to multi-, COG mounting of an ACF junction method, etc. becomes easy.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view of the electronic-parts mounting equipment in one example of this invention

[Drawing 2] Drawing explaining the migration direction of the components transfer head of the electronic-parts mounting equipment in one example of this invention

[Drawing 3] The flow chart of migration of the part I article transfer head

[Drawing 4] The flow chart of migration of the part II article transfer head

[Drawing 5] The perspective view of conventional electronic-parts mounting equipment

[Description of Notations]

11 Part I Article Transfer Head

13 Part II Article Transfer Head

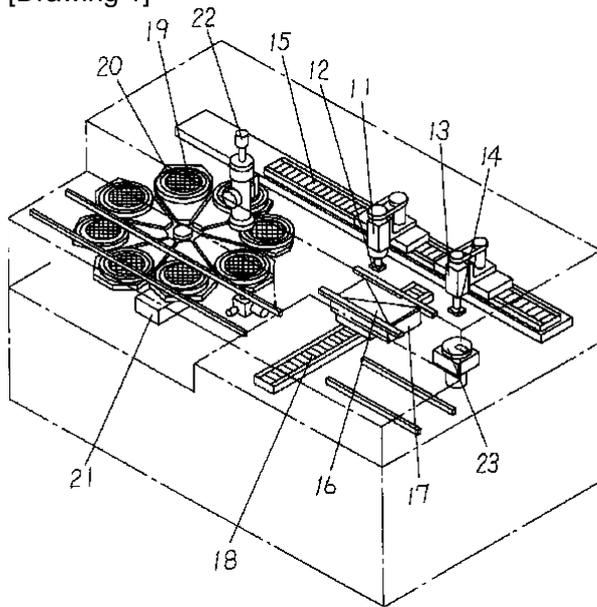
15 X-axis Robot

16 Circuit Board

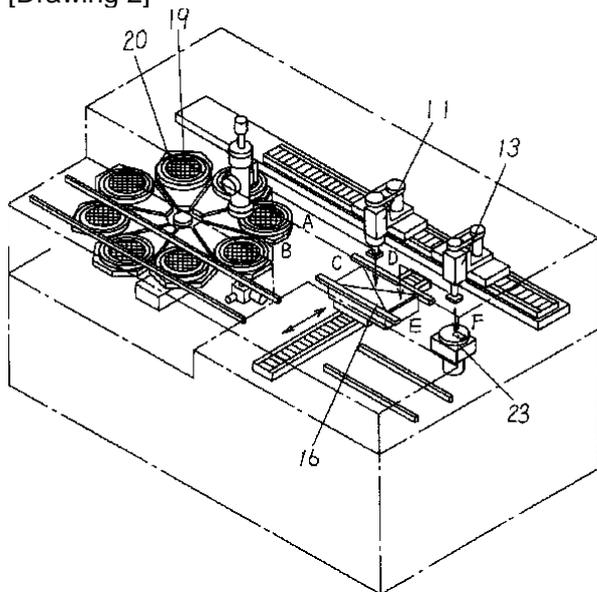
- 17 Substrate Stage
- 18 Y-axis Robot
- 19 Electronic Parts
- 20 Wafer
- 21 X-Y Table
- 23 Imprint Pan

DRAWINGS

[Drawing 1]

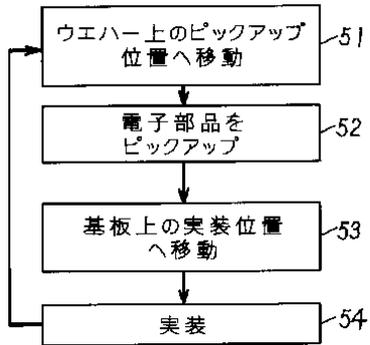


[Drawing 2]



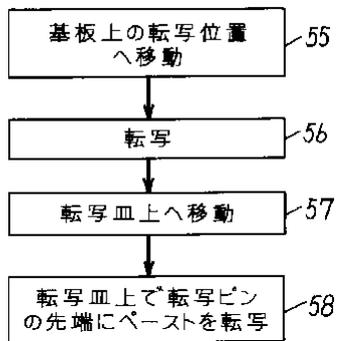
[Drawing 3]

第1部品 移載ヘッド



[Drawing 4]

第2部品 移載ヘッド



[Drawing 5]

