

WHAT IS CLAIMED IS:

1. A wire bonding method, comprising:

a step of preparing a wire bonding apparatus comprising a bonding tool and a bonding stage, wherein the bonding tool is configured to allow a wire to be inserted, and the bonding

5 stage fixes and holds a workpiece comprising a first electrode and a second electrode;

a ball forming step of forming a free air ball at a front end of a wire inserted in the bonding tool;

a first height measuring step of measuring a height of the first electrode by detecting whether the free air ball is grounded to the first electrode;

10 a second height measuring step of measuring a height of the second electrode by detecting whether the free air ball is grounded to the second electrode;

a first bonding step of bonding the free air ball to the first electrode by controlling a height of the bonding tool based on a measurement result of the first height measuring step; and

15 a second bonding step of bonding the wire to the second electrode by controlling a height of the bonding tool based on a measurement result of the second height measuring step to connect the first electrode and the second electrode.

2. The wire bonding method according to claim 1, wherein

the first height measuring step and the second height measuring step comprise: detecting whether the free air ball at the front end of the wire is grounded to the first electrode
20 and the second electrode, respectively, based on a change in a bonding load applied to the free air ball when the free air ball at the front end of the wire presses the first electrode and the second electrode, respectively.

3. The wire bonding method according to claim 1 or claim 2, wherein

the first height measuring step and the second height measuring step comprise:
25 detecting whether the free air ball at the front end of the wire is grounded to the first electrode and the second electrode, respectively, based on an output change in a predetermined electric

signal supplied to the wire inserted in the bonding tool when the free air ball at the front end of the wire contacts the first electrode and the second electrode, respectively.

4. The wire bonding method according to claim 3, wherein

the predetermined electric signal is a DC voltage signal or an AC voltage signal, and

5 the first height measuring step and the second height measuring step comprise:
detecting whether the free air ball at the front end of the wire is grounded to the first electrode and the second electrode based on a change in a potential difference between the wire and the first electrode and between the wire and the second electrode.

5. A wire bonding apparatus, comprising:

10 a bonding tool configured to allow a wire to be inserted, wherein a free air ball is formed at a front end of the wire;

a bonding stage for fixing and holding a workpiece which comprises a first electrode and a second electrode;

15 a first height measuring part for measuring a height of the first electrode by detecting whether the free air ball is grounded to the first electrode;

a second height measuring part for measuring a height of the second electrode by detecting whether the free air ball is grounded to the second electrode;

a first bonding part for bonding the free air ball to the first electrode by controlling a height of the bonding tool based on a measurement result of the first height measuring part; and

20 a second bonding part for bonding the wire to the second electrode by controlling a height of the bonding tool based on a measurement result of the second height measuring part to connect the first electrode and the second electrode.

6. The wire bonding apparatus according to claim 5, wherein

25 the first height measuring part and the second height measuring part detect whether the free air ball at the front end of the wire is grounded to the first electrode and the second electrode, respectively, based on a change in a bonding load applied to the free air ball when the

free air ball presses the first electrode or the second electrode.

7. The wire bonding apparatus according to claim 6, wherein

the first height measuring part and the second height measuring part detect whether the free air ball at the front end of the wire is grounded to the first electrode and the second electrode, respectively, based on an output change in a predetermined electric signal supplied to the wire inserted in the bonding tool when the free air ball contacts the first electrode or the second electrode, respectively.

8. The wire bonding apparatus according to claim 7, wherein

the predetermined electric signal is an AC voltage signal, and

the first and the second height measuring parts respectively detect whether the free air ball at the front end of the wire is grounded to the first electrode and the second electrode based on a change in a potential difference between the wire and the first electrode and between the wire and the second electrode.