

WHAT IS CLAIMED IS:

1. A manufacturing method of a semiconductor device, comprising:

a first lifting step for bonding a wire at a first position on a substrate by a capillary and for lifting the capillary to a first height while feeding the wire from the capillary;

a circular arc lifting step for carrying out a circular arc motion for moving the capillary in a circular arc in a direction toward a second position on the substrate that is spaced apart from the first position by a first distance, and then carrying out a lifting motion for lifting the capillary while feeding the wire from the capillary to apply a bending habit to the wire;

a circular arc motion step for moving the capillary in a circular arc in a direction toward the first position by a second distance longer than the first distance;

a second lifting step for lifting the capillary up to a second height higher than the first height while feeding the wire from the capillary; and

a looping step for looping the capillary to the second position; wherein

by bonding the wire at the second position, a wire loop having a predetermined height is formed on the substrate.

2. The manufacturing method of a semiconductor device according to claim 1, wherein

the circular arc lifting step is carried out for several times.

3. The manufacturing method of a semiconductor device according to claim 1 or 2, wherein

the capillary is a stepped cone shape having a tapered elementary part and a front part thinner than the elementary part;

the wire loop is a mountain shape whose height from the substrate is higher than a length of the front part of the capillary, and an angle of a sloping part on the second position side of the wire loop with respect to an imaginary perpendicular line of the substrate is larger than a spread angle of an external surface of the elementary part with respect to a central axis of the capillary;

the first height is 60-90% of the height of the wire loop;

the first distance is 50-80% of the height of the wire loop;

the second distance is 110-130% of the height of the wire loop; and

the second height is 160-210% of the height of the wire loop.