Claims

Claim 1

A method for cutting a polycrystalline silicon rod comprising the step of cutting the polycrystalline silicon rod by using a cutting tool,

the step of cutting including:

delivering a liquid to a cutting position of the polycrystalline silicon rod through a first nozzle; and

delivering a liquid to a surface of the polycrystalline silicon rod through a second nozzle,

wherein the liquid is delivered to a region of the surface through the second nozzle, the region extending, toward at least one end in an extending direction of the polycrystalline silicon rod, from the cutting position to a position which is at least not less than two times a diameter of the polycrystalline silicon rod away from the cutting position,

wherein the step of cutting further includes sucking and removing an air including a scattered substance having been scattered due to the cutting, and

wherein the air including the scattered substance is sucked and removed between the first nozzle and the second nozzle in the extending direction of the polycrystalline silicon rod

~~delivering a liquid, through a second nozzle, to a region where the liquid delivered through the first nozzle does not flow but scattered substances having been scattered due to the cutting~~

~~adhere, the region being on a surface of the polycrystalline silicon rod and being at least on one end side of an extending direction of the polycrystalline silicon rod~~.

~~Claim 2~~

~~The method according to claim 1, wherein the region where the liquid delivered through the first nozzle does not flow but scattered substances having been scattered due to the cutting adhere, the region being on a surface of the polycrystalline silicon rod and being at least on one end side of an extending direction of the polycrystalline silicon rod, is within a region extending from a position which is a width substantially the same as a diameter of the polycrystalline silicon rod away from the cutting position to a position which is five times the diameter of the polycrystalline silicon rod away from the cutting position.~~

Claim ~~3~~2

The method according to claim 1 ~~or 2~~, wherein the liquid is delivered through the second nozzle from above the polycrystalline silicon rod so that the liquid delivered through the second nozzle moves on the surface of the polycrystalline silicon rod and then flows downward so as to fall off the polycrystalline silicon rod.

~~Claim 4~~

~~The method according to any one of claims 1 to 3, wherein the step of cutting further includes sucking and removing an air including a scattered substance having been scattered due to the cutting.~~

Claim ~~5~~3

The method according to any one of claims 1 to ~~4~~2, wherein:

the cutting tool is an outer diameter blade in which diamond abrasive particles are firmly fixed; and

the step of cutting further includes rotating the polycrystalline silicon rod in a direction opposite to a rotation direction of the outer diameter blade.

Claim ~~6~~4

A method for manufacturing a cut rod of a polycrystalline silicon rod comprising the step of cutting the polycrystalline silicon rod by using a cutting tool, the step of cutting including:

delivering a liquid to a cutting position of the polycrystalline silicon rod through a first nozzle; and

delivering a liquid to a surface of the polycrystalline silicon rod through a second nozzle,

wherein the liquid is delivered to a region of the surface through the second nozzle, the region extending, toward at least

one end in an extending direction of the polycrystalline silicon rod, from the cutting position to a position which is at least not less than two times a diameter of the polycrystalline silicon rod away from the cutting position,

wherein the step of cutting further includes sucking and removing an air including a scattered substance having been scattered due to the cutting, and

wherein the air including the scattered substance is sucked and removed between the first nozzle and the second nozzle in the extending direction of the polycrystalline silicon rod~~delivering a liquid, through a second nozzle, to a region where the liquid delivered through the first nozzle does not flow but scattered substances having been scattered due to the cutting adhere, the region being on a surface of the polycrystalline silicon rod and being at least on one end side of an extending direction of the polycrystalline silicon rod~~.

Claim ~~7~~5

A method for manufacturing a nugget of a polycrystalline silicon rod comprising the step of cutting the polycrystalline silicon rod by using a cutting tool, the step of cutting including:

delivering a liquid to a cutting position of the polycrystalline silicon rod through a first nozzle; and

delivering a liquid, through a second nozzle, to a region

where the liquid delivered through the first nozzle does not flow but scattered substances having been scattered due to the cutting adhere, the region being on a surface of the polycrystalline silicon rod and being at least on one end side of an extending direction of the polycrystalline silicon rod.

Claim ~~8~~6

A polycrystalline silicon rod cutting device comprising:

a cutting tool for cutting a polycrystalline silicon rod;

a first nozzle for delivering a liquid to a cutting position of the polycrystalline silicon rod; and

a second nozzle for delivering a liquid to a surface of the polycrystalline silicon rod, wherein the liquid is delivered to a region of the surface through the second nozzle, the region extending, toward at least one end in an extending direction of the polycrystalline silicon rod, from the cutting position to a position which is at least not less than two times a diameter of the polycrystalline silicon rod away from the cutting position, and

wherein a suction opening for sucking and removing the air including the scattered substance is provided between the first nozzle and the second nozzle in the extending direction of the polycrystalline silicon rod ~~region where the liquid delivered through the first nozzle does not flow but scattered substances having been scattered due to the cutting adhere, the region being on a surface of the polycrystalline silicon rod and being at least on~~

~~one end side of an extending direction of the polycrystalline silicon rod~~.