What is claimed is:

[Claim 1]

An apparatus for producing a nanofiber comprising a resin discharging unit for discharging a molten resin into a high-pressure gas flow ejected from a high-pressure gas ejection unit, wherein

said apparatus for producing a nanofiber comprises a hopper for feeding a resin to be a material for the nanofiber, a heating cylinder for heating and melting the resin supplied from the hopper, a heater as a heating unit for heating the heating cylinder, a screw which is rotatably stored in the heating cylinder and functions as an extruding unit for moving the molten resin to the end of the heating cylinder by rotating, a motor as a driving unit for rotating the screw, a head portion which is provided at the end of the heating cylinder and comprises a high-pressure gas flow passage at a center area thereof and a plurality of flow passage s of the molten resin around the high-pressure gas flow passage, and a gas supplying pipe for supplying a high-pressure gas to the high-pressure gas flow passage formed at the center area of the head portion,

the high-pressure gas from the gas supplying pipe is introduced to inside of the head portion from outside and ejected from a gas ejection hole provided at the center area, and

a plurality of the resin discharging units are provided around the gas ejection hole at equal intervals about the high-pressure gas flow ejected from the high-pressure gas ejection unit as the center, and arranged having an installation angle of 0° to 90° against a center line of the high-pressure gas flow so that a discharged liquid raw material discharged and supplied intersects the center line of the high-pressure gas flow.

[Claim 2]

The apparatus for producing the nanofiber according to claim 1, comprising an angle adjusting unit capable of adjusting an installation angle of the resin discharging unit against the high-pressure gas flow ejected from the high-pressure gas ejection unit.

[Claim 3]

A method for producing a nanofiber using the apparatus for producing the nanofiber comprising a hopper for feeding a resin to be a material for the nanofiber, a heating cylinder to which the resin is supplied from the hopper, a heating unit for heating the heating cylinder, a screw as an extruding unit for pushing the a material in the heating cylinder, a motor as a driving unit for rotating the screw, a head portion which is provided at the end of the heating cylinder and comprises a high-pressure gas flow passage at a center area thereof and a plurality of flow passage s of the molten resin around the high-pressure gas flow passage, and a

gas supplying pipe for supplying a high-pressure gas to the high-pressure gas flow passage formed at the center area of the head portion, wherein

the high-pressure gas from the gas supplying pipe is introduced to inside of the head portion from outside and ejected from a gas ejection hole provided at the center area,

a plurality of the resin discharging units for discharging the resin in a molten state in the heating cylinder are provided around the gas ejection hole, the resin is melted in the heating cylinder heated with the heating unit and discharged from the resin discharging unit at a discharging angle of the liquid raw material of 0° to 90° against a center line of the high-pressure gas flow so that the discharged liquid raw material discharged and supplied by the extruding unit intersects the center line of the high-pressure gas flow, and

an air current is generated by the gas ejected from the gas ejection hole, and a fiber having nanometer-order diameter is obtained by elongating the discharged liquid raw material along with the air current of the ejected gas on which the discharged liquid raw material rides from the periphery so as to intersect the center line of the high-pressure gas flow.

[Claim 4]

The method for producing a nanofiber according to claim 3, wherein the liquid raw material is discharged by adjusting the discharge angle of 0° to 90° from discharge from the resin discharging unit to a center line of the high-pressure gas flow.