A coating apparatus has a spin chuck for attracting and holding a semiconductor wafer in a horizontal state by means of vacuum. A movable beam is arranged above the spin chuck. The movable beam includes first and second nozzles integrally formed. The first nozzle is used for supplying a photo-resist liquid while the second nozzle is used for supplying a solvent for the photo-resist liquid. When a coating process is performed, the movable beam above the wafer is horizontally moved in one direction. The solvent is first supplied onto the wafer from the second nozzle, and the coating or photo-resist liquid is then supplied from the first nozzle, following the solvent. Wettability of the wafer relative to the photo-resist is increased by the solvent, prior to supply of the photo-resist liquid.