Disclosed is an apparatus for forming a coating film for semiconductor processing, including a holder for holding a substrate, a coating solution supply device arranged to face one main surface of the substrate held by the holder and provided with a discharge port for supplying a coating solution onto the one main surface of the substrate, the coating solution forming a band-like stream having a width smaller than that of the substrate, a moving device for moving the coating solution supply device in parallel and relative to the substrate held by the holder to form a coating region and a non-coating region on the one main surface of the substrate, and a clearance retaining device for maintaining constant the distance between the discharge port of the coating solution supply device and the one main surface of the substrate.