WHAT IS CLAIMED IS:

1. A creep feed grinding apparatus comprising:

a chuck table having a holding surface for holding a workpiece under suction thereon;

a grinding unit having a spindle rotatable about a longitudinal axis thereof and a grinding wheel mounted on a lower end of the spindle, the grinding wheel including an annular base and a plurality of grindstones disposed in an annular array on a surface of the annular base, the grindstones following an annular track upon rotation of the spindle, the annular track having an outside diameter larger than a diameter of the chuck table;

a moving mechanism for moving the chuck table and the grinding unit relative to each other along a predetermined direction perpendicular to the longitudinal axis of the spindle; and

a bottom surface state adjusting mechanism for adjusting states of bottom surfaces of the grindstones by cleaning or correcting or cleaning and correcting the bottom surfaces that are held in contact with the workpiece on the holding surface when the grinding unit grinds the workpiece in a creep feed grinding

mode, the bottom surface state adjusting mechanism being positioned outside of a relative movement area of the chuck table in which the chuck table and the grinding unit are moved relative to each other by the moving mechanism, the bottom surface state adjusting mechanism having a relative position with respect to the grinding unit that is fixed.

2. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a first nozzle for ejecting high-pressure water to the bottom surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.

3. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a second nozzle for ejecting high-pressure water including abrasive grains to the bottom surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.

4. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a third nozzle for ejecting a two-fluid mixture of water and air to the bottom

surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.

5. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a dresser for contact with the bottom surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.

6. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a brush for contact with the bottom surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.

7. The creep feed grinding apparatus according to claim 1, wherein the bottom surface state adjusting mechanism has a laser beam applying unit including a beam condenser for applying a laser beam to the bottom surfaces of the grindstones when the grinding unit grinds the workpiece in the creep feed grinding mode.