WHAT IS CLAIMED IS:

1. A cutting blade of an annular shape for being mounted on a fixed flange having a cylindrical blade mounting portion fixed to a distal end of a spindle, comprising:

an annular blade main body having an outer circumference serving as a cutting edge, a central through-hole that has a diameter greater than a uniform outer diameter of the blade mounting portion having a uniform cylindrical surface and in which the blade mounting portion is to be fitted, and an uninterrupted surface extending from the central through-hole to the outer circumference; and

three or more flexible inner circumferential protrusions that project monolithically from an inner circumference of the central through-hole toward the center in a diametrical direction and contact at extremities thereof with the blade mounting portion fitted in the central through-hole to support the blade main body,

wherein as viewed in plan, a circle interconnecting the extremities of the inner circumferential protrusions and a circle defined by the outer circumference of the blade main body are formed concentrically, and when the

cutting blade is mounted on the fixed flange, the inner circumferential protrusions are configured to be deformed by pressure contact with the uniform cylindrical surface of the blade mounting portion into which the cutting blade is fitted to allow the fitting of the cutting blade with the blade mounting portion.

2. The cutting blade according to claim 1, wherein the blade main body is configured from an abrasive grain layer in which abrasive grains are fixed by bond, and the inner circumferential protrusions are formed from a bond layer that does not include abrasive grains.

3. A cutting apparatus comprising:

a cutting blade including

an annular blade main body having an outer circumference serving as a cutting edge and a central through-hole, and three or more flexible circumferential protrusions formed integrally with the annular blade main body and projecting from an inner circumference of the central through-hole toward the center in a diametrical direction; and

a mounting mechanism including

a fixed flange including a blade mounting portion fixed to a distal end of a spindle of a cutting apparatus and having a male thread on an outer circumference

thereof and a flange portion formed integrally with the blade mounting portion behind the blade mounting portion, the flange portion having a smooth uniform surface along an entire face of the flange portion;

a removable flange configured to be mounted on the blade mounting portion and having a body portion and a face portion protruding from the body portion, the face portion being configured so as to cooperate with the face of the flange portion of the fixed flange to sandwich therebetween a cutting blade mounted on the blade mounting portion of the fixed flange and to create a space between the body portion and the cutting blade; and

a fixation nut configured to be screwed with the male thread of the fixed flange such that the cutting blade is sandwiched and fixed between the flange portion of the fixed flange and the face portion of the removable flange,

wherein, a diameter of the blade mounting portion is smaller than a diameter of the central through-hole of the blade main body, and when the fixation nut is screwed with the male thread of the fixed flange and tightened, the inner circumferential protrusions are pressed against and deformed by the blade mounting portion to be directed into a space created by the face portion of the removable

flange, a gap is created between the central through-hole and the blade mounting portion, and the annular blade main body is supported by the inner circumferential protrusions.

4. The cutting blade according to claim 1, wherein the circumferential protrusions are formed in a triangular shape.

5. The cutting blade according to claim 1, wherein the circumferential protrusions are formed in a semicircular shape.

6. The cutting blade according to claim 1, wherein the circumferential protrusions are formed in a trapezoidal shape.

7. The cutting apparatus according to claim 3, wherein the face portion of the removable flange has a smooth uniform surface along an entire face of the face portion.

8. The cutting blade according to claim 1, wherein the inner circumferential protrusions are configured to be deformed such that the extremities of the inner circumferential protrusions are directed towards the distal end of the spindle.