WHAT IS CLAIMED IS:

1. A method of processing a wafer having on a face side thereof a device region in which a plurality of devices are formed in respective areas demarcated by a plurality of intersecting streets and an outer circumferential excess region surrounding the device region, the wafer further including a circular recess defined by grinding in a reverse side of the wafer and corresponding to the device region and a ring-shaped stiffener along an outer circumference of the circular recess, the method comprising:

a protective member affixing step of affixing a protective member whose area covers the face side or the reverse side of the wafer to the wafer,

wherein the protective member affixing step includes

a step of affixing an outer circumferential edge of the protective member that covers the face side or the reverse side of the wafer to an annular frame, forming a frame unit in which the wafer is affixed to the protective member in an opening of the annular frame; and

after the protective member affixing step has been carried out, a ring-shaped stiffener removing step of removing the ring-shaped stiffener from the wafer,

wherein the ring-shaped stiffener removing step includes:

a ring-shaped stiffener separating step of dividing the wafer along an outer circumference of the device region to separate the device region and the ring-shaped stiffener from each other, and

after the ring-shaped stiffener separating step has been carried out, a removing step of processing the ring-shaped stiffener with a grindstone to remove the ring-shaped stiffener from the wafer while a processing fluid is being supplied to the wafer.

2. The method of processing a wafer according to claim 1,

wherein the removing step includes

a step of grinding off the ring-shaped stiffener with a grinding wheel mounted on a lower end of a spindle having a rotational axis perpendicular to a holding surface of a chuck table that holds the wafer thereon.

3. The method of processing a wafer according to claim 1,

wherein the removing step includes

a step of cutting off the ring-shaped stiffener with a cutting blade mounted on a distal end of

a spindle having a rotational axis parallel to a holding surface of a chuck table that holds the wafer thereon.

4. The method of processing a wafer according to claim 1,

wherein the ring-shaped stiffener separating step is carried out using a cutting blade or a laser beam.