WHAT IS CLAIMED IS:

1. A cutting apparatus comprising:

a chuck table configured to hold a workpiece;

cutting means having a cutting blade for cutting said workpiece held on said chuck table;

cutting water supplying means for supplying a cutting water to said cutting blade;

an elastic wave detecting sensor provided in said cutting means for detecting an elastic wave due to the rotation of said cutting blade; and

control means for identifying abnormal processing of the cutting means, said control means comprising a processor and memory;

said control means including

a reference data storing section configured to store reference data as a set of reference processing elastic wave data detected in previously processing of one or more workpieces under predetermined processing conditions and reference idling elastic wave data detected in previous processing in the condition where said cutting blade is idling without cutting said one or more prior workpieces and supplying said cutting water before processing,

a threshold value storing section configured to store a threshold value set on the basis of an average value in a predetermined frequency band of said reference

processing elastic wave data,

an idling elastic wave data storing section configured to store idling elastic wave data detected in the predetermined frequency band in the condition where said cutting blade is idling without cutting said workpiece and supplying said cutting water for a period of time and to store the period of time of detection,

a ratio calculating section configured to calculate a first ratio of an average value of said idling elastic wave data at the period of time in the predetermined frequency band to an average value of said reference idling elastic wave data in the predetermined frequency band, and

a determining section configured to divide an average value of processing elastic wave data detected during processing of said workpiece in the predetermined frequency band by said first ratio thereby obtain a corrected processing elastic wave data value and then determine that the processing is abnormal when said corrected processing elastic wave data value is greater than said threshold value.

2. The cutting apparatus of claim 1, wherein the period of time comprises a time when said cutting blade is rotating at a speed in which cutting will be performed before processing said workpiece.

3. The cutting apparatus according to claim 1,

wherein said workpiece has division lines along which said workpiece is to be cut, and the period of time comprises a time while said cutting blade having cut any one of said division lines of said workpiece is moved relative to a start point for the cutting of the next division line.

4. The cutting apparatus according to claim 1, wherein the cutting water supplying means comprises a nozzle for discharging cutting water.

5. The cutting apparatus according to claim 1, wherein the elastic wave detecting sensor comprises an acoustic emission sensor or a vibration sensor.

6. The cutting apparatus according to claim 1, wherein the elastic wave detecting sensor comprises a resonance type acoustic emission sensor, a wide-band type acoustic emission sensor, or a pre-amplifier built-in type acoustic emission sensor.

7. The cutting apparatus according to claim 1, wherein the elastic wave detecting sensor comprises a resonance type acoustic emission sensor having a plurality of vibrators having different resonance frequencies.

8. The cutting apparatus according to claim 1, wherein the elastic wave detecting sensor comprises a vibrator formed of a ceramic.

9. The cutting apparatus according to claim 8,

wherein the ceramic comprises barium titanate, lead zirconate titanate, lithium niobate, or lithium tantalite.

10. The cutting apparatus according to claim 1, further comprising first and second annular coils magnetically coupled with the elastic wave detecting sensor.

11. The cutting apparatus according to claim 1, further comprising an alarm connected to said control means for indicating when said corrected value is greater than said threshold value.