WHAT IS CLAIMED IS:

1. A wafer detecting apparatus for detecting whether or not there is a wafer in a cassette that has opposite side-walls in which a plurality of pairs of slots vertically spaced from one another are defined and that is capable of storing wafers in such a manner that each of the wafers is retained by a corresponding one of the pairs of slots, the pair of slots being positioned at a same height in confronting relation to each other, the wafer detecting apparatus comprising:

a detecting unit having a non-contact-type sensor for detecting a front portion of the wafer laterally of the wafer in the cassette that has an open front end;

a lifting and lowering unit for selectively lifting and lowering the detecting unit vertically;

a tilting unit for selectively rotating the detecting unit about a horizontal rotational axis;

an output unit for outputting information regarding the wafer stored in the cassette;

a controller for controlling operation of the detecting unit, the lifting and lowering unit, the tilting unit, and the output unit; and

an input unit for entering information regarding the wafer stored in the cassette into the controller,

wherein

the controller includes

a storage section for storing a value of an actual thickness of the wafer stored in the cassette, the value being entered from the input unit, and a threshold value representing an allowable range for a difference between a value of an apparent thickness of the wafer and the value of the actual thickness of the wafer,

a determining unit for determining whether or not the difference between the value of the apparent thickness of the wafer and the value of the actual thickness of the wafer that has been stored in the storage section exceeds the threshold value, the value of the apparent thickness of the wafer being obtained by operating, while actuating the lifting and lowering unit to selectively lift and lower the detecting unit and while actuating the tilting unit to selectively rotate the detecting unit about the horizontal rotational axis, the non-contact-type sensor to detect whether or not there is the wafer in the cassette, and

a warning section for operating the output unit to issue a warning about an irregularity concerning the wafer stored in the cassette, if the determining section determines that the difference exceeds the

threshold value.

2. The wafer detecting apparatus according to claim 1, wherein the non-contact-type sensor is a light-transmissive sensor that includes a light emitter for emitting light and a light detector for detecting the light emitted from the light emitter.

3. A wafer delivery apparatus for taking a wafer out of and into a cassette that has opposite side-walls in which a plurality of pairs of slots vertically spaced from one another are defined and that is capable of storing wafers in such a manner that each of the wafers is retained by a corresponding one of the pairs of slots, the pair of slots being positioned at a same height in confronting relation to each other, the wafer delivery apparatus comprising:

a robot hand for holding the wafer, the robot hand having a non-contact-type sensor for detecting a front portion of the wafer laterally of the wafer in the cassette that has an open front end;

a lifting and lowering unit for selectively lifting and lowering the robot hand vertically;

a tilting unit for selectively rotating the robot hand about a horizontal rotational axis;

an output unit for outputting information regarding

the wafer stored in the cassette;

a controller for controlling operation of the robot hand, the lifting and lowering unit, the tilting unit, and the output unit; and

an input unit for entering information regarding the wafer stored in the cassette into the controller, wherein

the controller includes

a storage section for storing a value of an actual thickness of the wafer stored in the cassette, the value being entered from the input unit, and a threshold value representing an allowable range for a difference between a value of an apparent thickness of the wafer and the value of the actual thickness of the wafer,

a determining unit for determining whether or not the difference between the value of the apparent thickness of the wafer and the value of the actual thickness of the wafer that has been stored in the storage section exceeds the threshold value, the value of the apparent thickness of the wafer being obtained by operating, while actuating the lifting and lowering unit to selectively lift and lower the robot hand and while actuating the tilting unit to selectively rotate the robot hand about a horizontal rotational axis, the non-

contact-type sensor to detect whether or not there is the wafer in the cassette, and

a warning section for operating the output unit to issue a warning about an irregularity concerning the wafer stored in the cassette, if the determining section determines that the difference exceeds the threshold value.

4. The wafer delivery apparatus according to claim 3, wherein the non-contact-type sensor is a light-transmissive sensor that includes a light emitter for emitting light and a light detector for detecting the light emitted from the light emitter.

5. The wafer delivery apparatus according to claim 3, wherein the robot hand is a robot hand for holding the wafer under suction forces generated by a suction source, or a robot hand for holding the wafer under suction forces produced by gas supplied from a gas supply source, on a basis the Bernoulli effect.

6. The wafer delivery apparatus according to claim 4, wherein the robot hand is a robot hand for holding the wafer under suction forces generated by a suction source, or a robot hand for holding the wafer under suction forces produced by gas supplied from a gas supply source, on a basis the Bernoulli effect.

7. A method of determining whether or not there is an irregularity concerning a wafer stored in a cassette that has opposite side-walls in which a plurality of pairs of slots vertically spaced from one another are defined and that is capable of storing wafers in such a manner that each of the wafers is retained by a corresponding one of the pairs of slots, the pair of slots being positioned at a same height in confronting relation to each other, the method comprising:

a storing step of storing a value of an actual thickness of the wafer stored in the cassette and a threshold value representing an allowable range for a difference between a value of an apparent thickness of the wafer and the value of the actual thickness of the wafer;

a determining step of determining whether or not the difference between the value of the apparent thickness of the wafer and the value of the actual thickness of the wafer that has been stored in the storing step exceeds the threshold value, the value of the apparent thickness of the wafer being obtained by operating, while selectively lifting, lowering, and selectively rotating about a horizontal rotational axis a non-contact-type sensor for detecting a front portion of

the wafer laterally of the wafer in the cassette that has an open front end, the non-contact-type sensor to detect whether or not there is the wafer in the cassette; and

a warning step of issuing a warning about an irregularity concerning the wafer stored in the cassette, if the determining step determines that the difference exceeds the threshold value.

8. The wafer detecting apparatus according to claim 1, wherein the tilting unit selectively rotates the detecting unit about the horizontal rotational axis such that the determining unit determines whether the wafer is flexing or skewed.