that the spring is in the same condition as the corrodible link may allow the spring to break and be corroded, which can lead to errors of the device's functioning.

The US Patent No. 8,810, 264 B2 discloses a device for sensing corrosion under insulation, which comprises a base, at least one corrosion-test circuit mounted to the base and comprising a first conductor; a second conductor and a testing element extending between the first conductor and the second conductor, and a reference circuit mounted to the base. The said patent also discloses a method for sensing corrosion under insulation, which comprises positioning the device for sensing corrosion under insulation radially adjacent an outer surface of the pipe, exposing the testing element to the same environment as the outer surface of the pipe, and determining whether the testing element has been corroded by measuring and comparing the resistance across the testing element with a reference element. If the measured value is high, this indicates that the test element suffers from corrosion, which in turn also indicates that the pipe experiences corrosion. Nonetheless, this device and its method have some disadvantages, for examples, complexity of the device, difficulty in operating, and a high cost.

The prior arts described above are intended to provide devices for detecting corrosion with different characteristics. However, there is no prior art disclosure of a solution to the aforementioned problems.

Summary of the Invention

According to an aspect of the present invention, there is provided a corrosion inspection device, which comprises a housing, a display arranged at one end of the housing, and a spring arranged in compression within the housing and having one end pressed on the display, and a sensor arranged within the housing. The corrosion inspection device is provided with a compartment that allows a part of the sensor to be near and/or in the same condition as metal parts and allows the spring not to be near and/or in the same condition as the metal parts, in such a way that, when the sensor is corroded and breaks related to the degree of corrosion of the metal parts, the display continues function and indicates the metal parts having experienced corrosion.

Embodiments of the present invention to provide a corrosion inspection device with specific features and several advantages, such as:

Claims

1. A corrosion inspection device, comprising:

- a housing;
- a display arranged at one end of the housing;
- a spring arranged in compression within the housing and having one end of the spring pressed on the display; and
- a sensor arranged within the housing,

whereinthe corrosion inspection device is provided with a compartment that allows a part of the sensor to be near and/or in the same condition as the metal parts and allows the spring not to be near and/or in the same condition as the metal parts, in such a way that, when the sensor is corroded and breaks related to the degree of corrosion of the metal parts, the display continues function and 2indicates the metal parts having experienced corrosion.

2. The corrosion inspection device according to claim 1, wherein the housing is characterized by a long hollow rod with a notch at one end of the housing to allow a part of the sensor to be near and/or in the same condition as the metal parts.

3. The corrosion inspection device according to claim 1, wherein the display comprises a display indicating non-corrosion of the metal parts and a display indicating corrosion of the metal parts, both of which have different characteristics, and are the same piece or different pieces.

4. The corrosion inspection device according to claim 1 or 3, wherein

- In the condition where the metal parts have no corrosion, or their corrosion is within an acceptable range, the sensor is not corroded, or corroded but does not break, resulting in the display indicating non-corrosion of the metal parts, which has a particular characteristic, to extend from the housing to indicate that the metal parts have no corrosion, and the display indicating corrosion of the metal parts, which has a different characteristic, remains inside the housing; and