

DATA IDENTIFICATION STRUCTURE OF A FILTER ELEMENT

Technical field

The application belongs to the technical field of water purifiers, in particular to a data identification structure of a filter element.

Technical background

Generally, there are KDF and activated carbon in the filter element of water purifier. The filter element is to make the polluted water clean to the state required by production and life. That is, to make the water reach a certain cleanliness, and remove solid particles from water, kill bacteria and filter out harmful chemical components.

The existing water purifier usually adopts a chip on the filter element to record the service days of the filter element or the filtered water volume to determine the real use state of the filter element. In actual use and production, in order to prevent the anti-counterfeiting label from falling off, the anti-counterfeiting label is fixed on the filter cartridge outside the filter element. However, due to the rate of inferior products and the negligence of inspectors, there may be cases where the anti-counterfeiting label cannot be used normally, which undoubtedly leads to return of goods by users. But for manufacturers, if the anti-counterfeiting label is removed and reinstalled, on the one hand, there is no guarantee that the filter cartridge or even the filter cartridge outside the filter cartridge will not be damaged. On the other hand, the replaced filter cartridge involves secondary sales, which requires new sales channels for second-hand products, and may not be accepted by customers. Therefore, the general practice of manufacturers is to scrap both the filter cartridge and the chip, which undoubtedly causes unnecessary waste of filter cartridge resources.

Summary

The purpose of the application is to provide a data identification structure of a filter element to solve the problems mentioned in the above background.

In order to achieve the above purpose, the application adopts the following technical solution. A data identification structure of a filter element is provided, including a filter element and a filter cartridge sleeved outside the filter element, wherein a filter element chip is arranged on the filter cartridge, a chip holder is fixed on the filter cartridge, and the

filter element chip and the chip holder are detachably connected.

Preferably, a chip clamping shell is sleeved outside the filter element chip, and the chip clamping shell and the chip holder are detachably connected.

Preferably, the chip clamping shell is detachably connected with the filter element chip.

Preferably, the chip holder is a shell with a rectangular cross section and an open side, and the chip clamping shell is inserted into the chip holder.

Preferably, a top surface of the chip holder is provided with a clamping groove penetrating into the inside thereof, and a top surface of the chip clamping shell is fixedly connected with an elastic clamping piece, arranged obliquely in an opposite direction of the chip clamping shell being inserted into the chip holder; when the chip clamping shell is inserted into the chip holder, a tilted part of the elastic clamping piece abuts against the clamping groove.

Preferably, the chip clamping shell is matched with an internal space of the chip holder in shape; a bottom surface of the chip clamping shell is provided with an opening, and the opening is able to accommodate a front of the filter element chip.

Preferably, the filter element chip is connected with a first data transmission line, and another end of the first data transmission line is connected with a connection plug.

Preferably, one side wall of the chip clamping shell is provided with an accommodating groove downwards from the bottom surface of the chip clamping shell with the opening, and the accommodating groove is used for placing the first data transmission line.

Preferably, a water purifier main body is provided with an identification chip, and data transmission between the identification chip and the filter element chip is performed through electrical signals.

Preferably, one end of the first data transmission line away from the filter element chip is connected with a connection plug, the identification chip is connected with a second data transmission line, and another end of the second data transmission line is connected with a connection socket for connecting with the connection plug.

Preferably, a power access casing is fixed on the water purifier main body, the identification chip is detachably connected with the power access casing, and the power access casing is connected with power supply.

Preferably, two clamping blocks are fixed in the chip clamping shell, and the two clamping blocks are used for clamping the filter element chip in the chip clamping shell; and a top surface of the clamping block is provided with a rounded corner at one side facing the filter element chip to facilitate the entry of the filter element chip.

Preferably, the filter element chip has filter element anti-counterfeiting data and/or is able to record filter element usage data.

The application has the following beneficial effects: 1. If the filter element chip is damaged, and the main body of the water purifier cannot be identified and used. As the application adopts the design of detachable connection between the filter element chip and the filter cartridge, the filter element can be reused by replacing a new filter element chip, thus avoiding the loss of the filter cartridge caused by the integration of the filter cartridge and the filter element chip.

2. With the design of detachable connection between the identification chip and the power access casing, the identification chip can be replaced in time when it is damaged.

Brief description of drawings

Fig. 1 is a schematic diagram of the connection relationship and position relationship between a filter cartridge and a chip holder of the application.

Fig. 2 is a schematic diagram of the connection relationship between an identification chip and a filter element chip of the application.

Fig. 3 is a structural schematic diagram 1 of a chip clamping shell of the application.

Fig. 4 is a structural schematic diagram 2 of the chip clamping shell of the application.

Reference signs in the figures are as follows. 1. Filter cartridge; 11. Chip holder; 2. Identification chip; 3. Filter element chip; 4. Chip clamping shell; 41. Elastic clamping piece; 42. Clamping block; 43. Accommodation groove; 5. First data transmission line; 6. connection plug; 7. Second data transmission line; 8. connection socket.

Detailed description of disclosed embodiments

The preferred embodiments of this application will be described in detail with the attached drawings, so that the advantages and features of this application would be more easily understood by those skilled in the art, and the protection scope of this application would be defined more clearly.

Embodiments

Referring to Fig. 1 and Fig. 2, the data identification structure of a filter element includes a filter element and a filter cartridge 1 sleeved outside the filter element; a chip holder 11 is fixed on the filter cartridge 1, and a filter element chip 3 is detachably connected in the chip holder 11. If the filter element chip 3 is damaged, the filter element chip 3 can be disassembled for replacement, thus avoiding the situation that the filter cartridge 1 is scrapped together with the filter element chip 3.

Referring to Fig. 1, Fig. 2 and Fig. 4, a chip clamping shell 4 is sleeved outside the filter element chip 3, and the chip clamping shell 4 and the chip holder 11 are detachably connected. Specifically, the chip holder 11 is a shell with a rectangular cross section and an open side. And a top surface of the chip holder 11 is provided with a clamping groove penetrating into the inside thereof, and a top surface of the chip clamping shell 4 is fixedly connected with an elastic clamping piece 41, arranged obliquely in an opposite direction of the chip clamping shell 4 being inserted into the chip holder 11; when the chip clamping shell 4 is inserted into the chip holder 11, a tilted part of the elastic clamping piece 41 abuts against the clamping groove.

Referring to Fig. 3, the chip clamping shell 4 is matched with an internal space of the chip holder 11 in shape; a bottom surface of the chip clamping shell 4 is provided with an opening, and the opening is able to accommodate a front of the filter element chip 3. Two clamping blocks 42 are fixed in the chip clamping shell 4, and the two clamping blocks 42 are used for clamping the filter element chip 3 in the chip clamping shell 4; and a top surface of the clamping block 42 is provided with a rounded corner at one side facing the filter element chip 3 to facilitate the entry of the filter element chip 3.

Referring to Fig. 1 and Fig. 2, this product can be directly used with the water purifier

main body. In this case, the identification chip 2 that can read the data of the filter element chip 3 is usually provided on the water purifier main body, and the data transmission between the filter element chip 3 and the identification chip 2 may be realized by arranging a wireless unit, in which case the power on the filter element chip 3 may be realized by connecting a battery, etc. In this embodiment, the data transmission between the identification chip 2 of the filter element chip 3 is realized through a data line. Specifically, the filter element chip 3 is connected with a first data transmission line 5, and another end of the first data transmission line 5 is connected with a connection plug 6. The identification chip 2 is connected with a second data transmission line 7, and another end of the second data transmission line 7 is connected with a connection socket 8 for connecting with the connection plug 6. One side wall of the chip clamping shell 4 is provided with an accommodating groove 43 downwards from the bottom surface of the chip clamping shell 4 with the opening, and the accommodating groove 43 is used for placing the first data transmission line 5. In other embodiments, the positions of the connection plug 6 and the connection socket 8 are interchangeable.

In addition, a power access casing is fixed on the water purifier main body, and the power access casing is connected with power supply. The function of the power access casing is to allow the electric current to flow into the identification chip to realize the work of the identification chip when the identification chip is installed in the power access casing, so that the identification chip 2 can be detachably connected with the power access casing. In this way, the identification chip 2 can be replaced in time when it is damaged. And the connection between the power access casing and the identification chip 2 can also be realized through the above structure.

Working process and principle.

With the design of the chip holder 11 and the chip clamping shell 4, when the filter element chip 3 on the filter element is damaged, the user can press the elastic clamping piece 41 to stop it from abutting against the clamping groove, and then simply take the chip out and replace it. Thus, in the prior art, the problem that the filter element cannot be recognized by the main body of the water purifier when the filter element is damaged due to the fact that the filter element chip 3 and the filter cartridge 1 are fixed together is solved, thereby avoiding returning the filter cartridge 1 and the filter element chip 3 to the factory for scrapping.

The above are merely the preferred embodiments of this application, and are not intended to limit the protection scope of the application. Any equivalent structural transformation made by using the description and attached drawings of this application, or directly or indirectly used in other related technical fields, is equally included in the patent protection scope of this application.

Claims

1. A data identification structure of a filter element, comprising a filter element and a filter cartridge (1) sleeved outside the filter element, wherein a filter element chip (3) is arranged on the filter cartridge (1), a chip holder (11) is fixed on the filter cartridge (1), and the filter element chip (3) and the chip holder (11) are detachably connected.

2. The data identification structure of a filter element of claim 1, wherein a chip clamping shell (4) is sleeved outside the filter element chip (3), and the chip clamping shell (4) and the chip holder (11) are detachably connected.

3. The data identification structure of a filter element of claim 2, wherein the chip clamping shell (4) is detachably connected with the filter element chip (3).

4. The data identification structure of a filter element of claim 3, wherein the chip holder (11) is a shell with a rectangular cross section and an open side, and the chip clamping shell (4) is inserted into the chip holder (11).

5. The data identification structure of a filter element of claim 4, wherein a top surface of the chip holder (11) is provided with a clamping groove penetrating into the inside thereof, and a top surface of the chip clamping shell (4) is fixedly connected with an elastic clamping piece (41), arranged obliquely in an opposite direction of the chip clamping shell (4) being inserted into the chip holder (11); when the chip clamping shell (4) is inserted into the chip holder (11), a tilted part of the elastic clamping piece (41) abuts against the clamping groove.

6. The data identification structure of a filter element of claim 5, wherein the chip clamping shell (4) is matched with an internal space of the chip holder (11) in shape; a bottom surface of the chip clamping shell (4) is provided with an opening, and the opening is able to accommodate a front of the filter element chip (3).

7. The data identification structure of a filter element of claim 2, wherein the filter element chip (3) is connected with a [1] first data transmission line (5), and another end of the first data transmission line (5) is connected with a connection plug (6).

8. The data identification structure of a filter element of claim 7, wherein one side wall of the chip clamping shell (4) is provided with an accommodating groove (43)

downwards from the bottom surface of the chip clamping shell (4) with the opening, and the accommodating groove (43) is used for placing the first data transmission line (5).

9. The data identification structure of a filter element of any one of claims 1-8, wherein a water purifier main body is provided with an identification chip (2), and data transmission between the identification chip (2) and the filter element chip (3) is performed through electrical signals.

10. The data identification structure of a filter element of claim 9, wherein one end of the first data transmission line (5) away from the filter element chip (3) is connected with a connection plug (6), the identification chip (2) is connected with a second data transmission line (7), and another end of the second data transmission line (7) is connected with a connection socket (8) for connecting with the connection plug (6).

11. The data identification structure of a filter element of claim 9, wherein a power access casing is fixed on the water purifier main body, the identification chip (2) is detachably connected with the power access casing, and the power access casing is connected with power supply.

12. The data identification structure of a filter element of claim 3, wherein two clamping blocks (42) are fixed in the chip clamping shell (4), and the two clamping blocks (42) are used for clamping the filter element chip (3) in the chip clamping shell (4); and a top surface of the clamping block (42) is provided with a rounded corner at one side facing the filter element chip (3) to facilitate the entry of the filter element chip (3).

13. The data identification structure of a filter element of claim 1, wherein the filter element chip (3) has filter element anti-counterfeiting data and/or is able to record filter element usage data.