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VALVE

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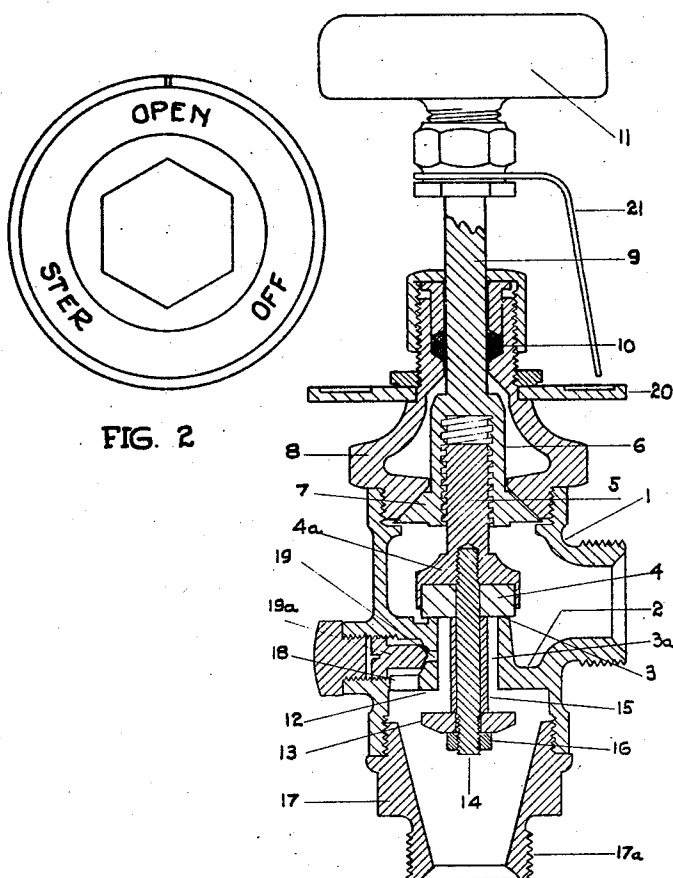


FIG. 2

FIG. 1

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VALVE.

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It is desirable in some relations to provide valves which may be completely closed and which may be fully opened and then partially closed permitting a predetermined continued flow. One relation in which such a valve is desirable is in connection with sterilizers. Sterilizers are ordinarily indirectly heated through steam evolved from a water supply which water supply is subjected to the action of steam under pressure operating through a coil in the water. Ordinarily the operative fully turns on the steam to such a coil and this delivers to the coil a greater amount of heat than is necessary for desirable sterilizing and usually causes a violent boiling of the water and excessive development of steam. With the present invention the valve is so arranged that the operator by turning the valve in one direction for opening the valve first opens the valve full filling the coil with a full supply of steam to bring the water to the desired temperature and then with a continued movement partially closes the valve supplying just sufficient steam to maintain the desired temperature, thus assuring initial quick action without subsequent excessive boiling. Features and details of the invention will appear from the specification and claims.

The invention is illustrated in the accompanying drawings as follows:—

Fig. 1 shows a central section through a valve having my construction.

Fig. 2 a plan view of the dial indicating the position of the valve.

1 marks the valve body, 2 the diaphragm in the body, 3 the main valve seat, 4 the valve head disc, 4^a the valve head, 5 a screw-threaded projection on the head, 6 an internally screw-threaded stem operating on the projection, 7 a head on the stem locking the stem against axial movement, the head being secured in the body by the bonnet 8. 9 an extension on the stem 6, 10 a stuffing box through which the stem extends and 11 the operating handle. These parts are now in use.

A valve seat 12 is arranged in the lower end of the diaphragm opposite the seat 3 and a valve head 13 seats on the seat 12. The head 13 is mounted on a pin 14 which is screwed into the head 4^a. A distance piece 15 is arranged between the valve head disc 4 and the head 13 and a nut 16 is screwed on to the pin 14 clamping the head

against the distance piece. The inlet to the valve 17 is in the form of a fitting removable from the body so as to permit the ready assembling of the head 13. It is provided with screw threads 17^a by means of which a connection is made to the steam supply.

An opening 18 is arranged outside the seat 12 and a bypass 19 extends from the opening to the valve passage 3^a extending through the seats 3 and 12. The bypass is adjusted as desired by a needle valve 19^a.

In the operation of the valve starting with the closed position as shown in Fig. 1, the operator by giving the handle a single turn first opens the valve, bringing the heads to mid-position, thus giving a full opening, then with a continued movement of the handle in the same direction seats the head 13 closing the opening through the seat 12 and permitting a continued flow of steam through the limited opening afforded by the bypass 19, the size of this bypass being adjusted to give a proper supply of steam to generate the desired steam for a sterilizer or other instrumentality in its continued operation. In the closing of the valve the operator simply turns it in the closing direction, seating the valve head disc 4 on the seat 3.

While this arrangement may be accomplished by first opening the main valve filling the coil and then returning the main valve to a partial opening, in actual practice with the many operators who use such devices the actual accomplishment of such a movement is not readily brought about; but with this device in which the operator simply turns the valve toward the open direction, thus accomplishing the effect, with its economy and further the annoyance of an excess of generated steam in the sterilizer or instrument is avoided.

I prefer to provide the dial 20 having the indicating points "Off", "Open" and "Ster", "Off" meaning that the valve is entirely closed, "Open" that the valve heads are in mid-position, and "Ster" that the lower head is seated and steam is passing through the bypass. A finger 21 is arranged on the valve stem and moves over the dial thus indicating the positions of the valve, the stem 5 having a quick acting screw so that the single movement of the handle 11 accomplishes the opening movement as indicated.

What I claim as new is:—

1. In a valve the combination of a valve body having a valve passage with oppositely faced seats; a main valve seating surface closing on one seat and closing the valve passage; an auxiliary valve head seating on the opposite seat as the main valve is opened and means permitting a limited flow around the auxiliary valve when seated.

2. In a valve the combination of a valve body having a valve passage with oppositely faced seats; a bypass; a main valve head closing on one seat and closing the passage; and an auxiliary valve head seating on the opposite seat as the main valve head is opened, said bypass opening from the inlet to a point in the valve body between the valve heads whereby the bypass is closed with the passage by the main valve head but remains open on the closing of the auxiliary valve head.

3. In a valve, the combination of a valve body having a valve passage with oppositely faced seats; a main valve head seating on one seat and closing the passage; an auxiliary valve head closing on the opposite seat as the main valve is opened; means permitting a limited flow around the auxiliary valve when seated; and a connection between the valve heads extending through the valve passage.

4. In a valve, the combination of a valve body having a valve passage with oppositely faced seats; a main valve seating surface

closing on one seat and closing the valve passage; an auxiliary valve head seating on the opposite seat as the main valve is opened; means permitting a limited flow around the auxiliary valve when said auxiliary head is seated; a stem actuating said seating surfaces; and a dial and pointer, one mounted on the body and the other on the stem indicating the valve positions.

5. In a valve, the combination of a valve body having a valve passage with oppositely faced seats; a main valve seating surface closing on one seat and closing the valve passage; an auxiliary valve seating surface seating on the opposite seat as the main valve is opened; means permitting a limited flow around the auxiliary valve when seated; and means for adjusting the limited flow.

6. In a valve, the combination of a valve body having a valve passage with oppositely faced seats; a bypass; a main valve head closing on one seat and closing the passage; an auxiliary valve head seating on the opposite seat as the main valve head is opened, said bypass opening from the inlet to a point in the valve body between the valve heads whereby the bypass is closed with the passage by the main valve head but remains open on the closing of the auxiliary valve head; and means for varying the bypass.

In testimony whereof I have hereunto set my hand.

J EVERETT HALL.