

N. E. HOUSER.
THERMO ELECTRIC FOUNTAIN SYRINGE.
APPLICATION FILED MAY 24, 1910.

1,000,335.

Patented Aug. 8, 1911.
2 SHEETS—SHEET 1.

Fig 1

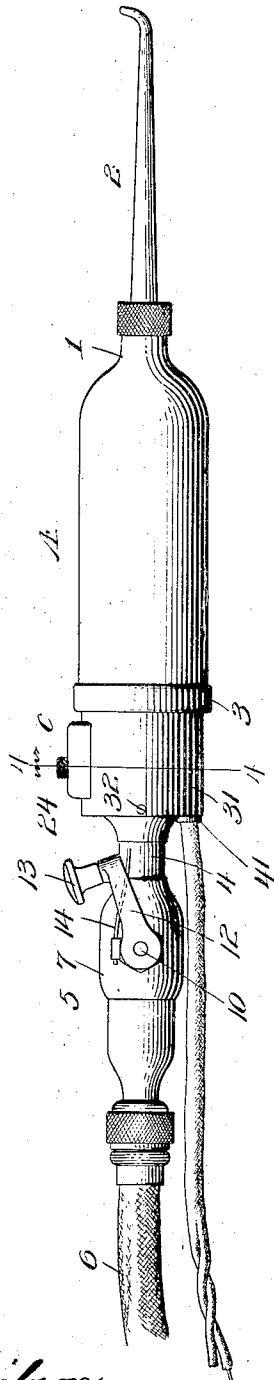


Fig. 5.

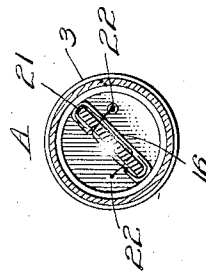
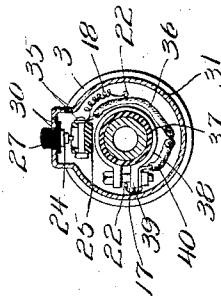


Fig 4



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2 SHEETS-SHEET 2.

Fig. 2.

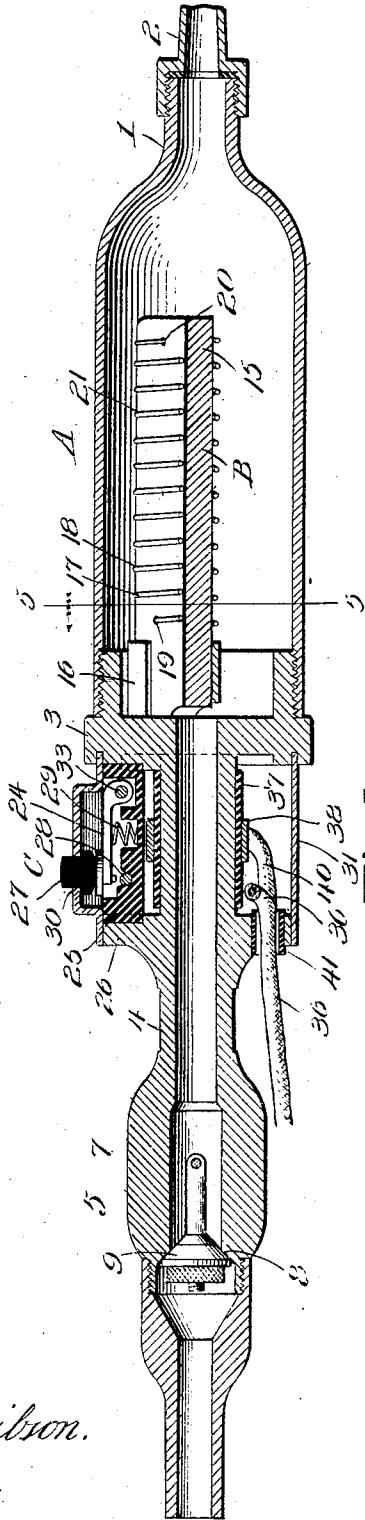
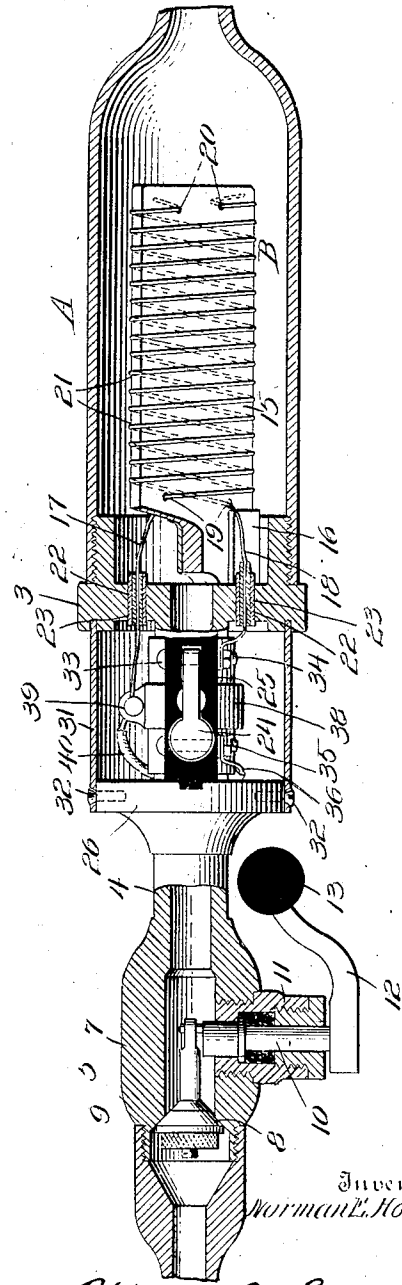


Fig. 3.



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UNITED STATES PATENT OFFICE.

NORMAN E. HOUSER, OF ST. LOUIS, MISSOURI.

THERMO-ELECTRIC FOUNTAIN-SYRINGE.

1,000,335.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed May 24, 1910. Serial No. 563,232.

To all whom it may concern:

Be it known that I, NORMAN E. HOUSER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented new and useful Improvements in Thermo-Electric Fountain-Syringes, of which the following is a specification.

This invention relates to syringes of that type in which a continuous supply of warm or hot water can be supplied instantaneously as needed, the device being especially useful for dentists and dental surgeons to wash out oral cavities, and also for treating the ear, eye, nose or throat.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use and so controlled that either hot or cold water can be used as required.

Another object of the invention is the provision of a novel electrical heating element over which water passes to be heated thereby.

A further object of the invention is the novel arrangement of the cut-off valve for the water and the push button or circuit closer, whereby both can be operated by the thumb of the hand in which the instrument is held, so that the circuit can be closed while the valve is held opened to obtain hot water or whereby the circuit can be opened while the valve is held opened for supplying cold water.

With these objects in view, and others as will appear as the description proceeds, the invention comprises the various features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings which illustrate one embodiment of the invention, Figure 1 is a side view of the instrument. Fig. 2 is a longitudinal section thereof. Fig. 3 is a similar section taken at right angles to the section of Fig. 2. Fig. 4 is a sectional view on line 4-4 of Fig. 1. Fig. 5 is a sectional view on the line 5-5 of Fig. 2.

Similar reference characters are employed to designate corresponding parts throughout the several views.

Referring to the drawings, A designates the barrel of the device which is formed at

one end with a reduced nipple 1 in which is screwed a nozzle 2 of any approved shape. The opposite end of the barrel or cylinder A is closed by a head 3 that screws into the barrel and this head is rigidly fastened on a hollow stem or pipe 4 through which the water is supplied, there being a valve 5 fastened to the outer end of the pipe or tube 4 so that the supply of water can be controlled, and this valve may be connected by a flexible conduit 6 with an ordinary service pipe. The valve 5 consists of a casing 7 in which is a seat 8 that is engaged by a valve 9. This valve 9 is operated by a stem 10 which passes through a stuffing box 11 on the casing 7, the outer end of the stem being provided with a crank arm 12 that is curved inwardly toward the valve casing and has a knob or button 13. Engaging under the crank arm and fastened to the valve casing is a leaf spring 14 which operates to hold the valve closed. When the knob 13 is pressed against the tension of the spring the valve opens so as to permit water passing through the same.

The water is heated by passing through the barrel and for this purpose a heating element B is arranged in the barrel in such a manner as to effectively raise the temperature of the water. This heating element consists of a flat support or core 15 which is of any suitable material, such as slate, and one end of this support or core is secured in a socket 16 arranged on the head 3 of the barrel. The core or support extends axially and longitudinally of the barrel and directly in line with the tube 4 so that the water discharged into the barrel by the said tube will flow along the opposite sides of the core. In other words the core forms a longitudinal partition in the barrel, but this partition stops short of the outer end of the latter so that water can freely pass out of the nipple 1. Lapped or coiled around this support are two wires 17 and 18 which have their convolutions alternated and spaced apart so that short circuiting will be prevented and these wires are connected with an electric circuit so that current flows through them and thereby heats the water. The inner end of the wires 17 and 18 pass through openings 19 in the core and their outer ends are passed through openings 20 in the outer end of the core and they are retained in these open-

ings by merely bending the extremities of the wires backward and flat against the core. The side edges of the core are notched to form seats 21 for the convolutions of the heating coils. The inner ends of the coils pass through insulating bushings 22 that extend through openings 23 in the head of the barrel, and at a point outside of the barrel these wires are connected with an electric supply circuit. When the circuit is closed current passes through one coil and thence by way of the water to the other coil so that both coils will be operative.

Mounted between the barrel A and valve device 5 is a switch or circuit closer designated generally by C. This circuit closer comprises a spring pressed contact 24 which is mounted in a block of insulation 25 that is fastened between the head 3 and annular flange 26 on the tube or pipe 4 and this contact is adapted to be pressed by a push button 27 against the fixed contact 28 mounted in the support or block 25. In the block is a spring 29 which serves to hold the movable contact 24 normally out of engagement with the fixed contact and at the same time hold the push button projected through the openings 30 in the sleeve or casing 31 that houses the switch, said casing or sleeve being removably fastened to the annular flange 26 by screws 32. The movable contact 24 swings on a pivot 33 that forms a binding post 34 for connection with one of the heating wires. The fixed contact 28 has a binding post 35 to which a circuit wire 36 is fastened. Surrounding the tube 4 is an insulating sleeve 37 which insulates a ring 38 of the tube and on this ring is a binding post 39 for connection with the other heating wire and with the circuit wire 40. These circuit wires extend into the chamber that contains the switch through an opening 41 in the flange 26 and the wires can be connected by a plug with a lamp socket of the lighting circuit. The push button is located at the same side as the knob of the valve handle so that the thumb can be used for pressing both simultaneously or the thumb can be used for pressing only one valve when only cold water is desired. Obviously by pressing the push button the circuit will be closed so that current will flow through the heating wires and as water passes continuously around these wires by heating the wires the water will be instantaneously heated.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment

thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims.

Having thus described the invention what I claim as new is:—

1. An instrument of the class described comprising a heating chamber, a discharge device connected therewith, conductors passing into the chamber, a socket in the chamber, an insulating support having one end fastened in the socket and extending longitudinally of the chamber, wires separately coiled around and carried by the support, said support having openings into which the free ends of the wires are engaged, a valve-controlled conduit discharging into the chamber, and means for connecting the wires with the supply circuit.

2. An instrument of the class described comprising a barrel, a head having a threaded connection with the barrel, a pipe connected with the head to discharge fluid into the barrel, a socket arranged on the head, an insulating support extending longitudinally of the casing and anchored in the socket whereby the barrel can be detached from the head without removal of the support, heating coils extending into the barrel through the said head and wound around the support, and binding posts outside the barrel for connecting with an electric circuit the outer ends of the coil that project through the head, said support being immovable from the socket while the coils are connected with the binding posts.

3. An instrument of the class described comprising a barrel, a pipe for supplying fluid thereto, an electric heating element within the barrel and including wires extending out of the latter, an insulating sleeve surrounding the pipe, a ring on the sleeve, means on the sleeve for connecting one of the wires of the heating element thereto and for connecting a circuit wire to the ring, a switch to which the other wire of the element is connected and having means for connecting a supply wire thereto, a casing removably surrounding the switch and ring, and a device extending out of the casing and held thereby in cooperative relation with the switch for closing the circuit.

4. An instrument of the class described comprising a barrel, a conduit formed with a head at one end to which the barrel is attached and with a flange spaced from the head, a shell surrounding the portion of the conduit between the head and flange and cooperating with the head and flange to form a housing, electric wires leading into the housing through the said flange, heating coils within the barrel, and connections between the wires and coils, one of the connections including a switch for opening and closing the circuit, said shell being remov-

able from the head and flange to permit access to the switch and the connections between the wires and coils.

5 5. An instrument of the class described comprising a barrel, a pipe connected with one end thereof, a heating element in the barrel and including wires leading into the latter, a binding post with which one of the wires is connected, a circuit wire connected with the said binding post, a second binding post, a ring surrounding and insulated from the pipe for holding the second binding post on the pipe, a switch mounted thereon and including relatively movable contacts, means for connecting one of the contacts with the said heating element, a circuit wire connected with the other contact, and means for actuating the movable contact.

20 6. An instrument of the class described comprising a barrel, a pipe connected with one end thereof, a heating element in the barrel and including wires leading into the

latter, a binding post outside the barrel and with which one of the wires is connected, a circuit wire connected with the said binding post, a second binding post outside the barrel, insulating means for holding the second binding post on the pipe, a switch mounted on the pipe and including relatively movable contacts, means for connecting one of the contacts with the said heating element, a circuit wire connected with the other contact, a casing inclosing the switch and removable from around the latter, a spring acting on the movable contact to hold the same in open circuit position, and a push button extending out of the casing and arranged to press the movable contact into engagement with the fixed contact.

In testimony whereof I affix my signature in presence of two witnesses.

NORMAN E. HOUSER.

Witnesses:

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ELMER H. FREKER.