No. 742,244. PATENTED OCT. 27, 1903.

J. C. SHERBURNE.

MACHINE FOR PRODUCING HOT AIR CURRENTS AND LIQUID SPRAY.

APPLICATION FILED MAR. 23, 1903.

NO MODEL.

Fig. 1.

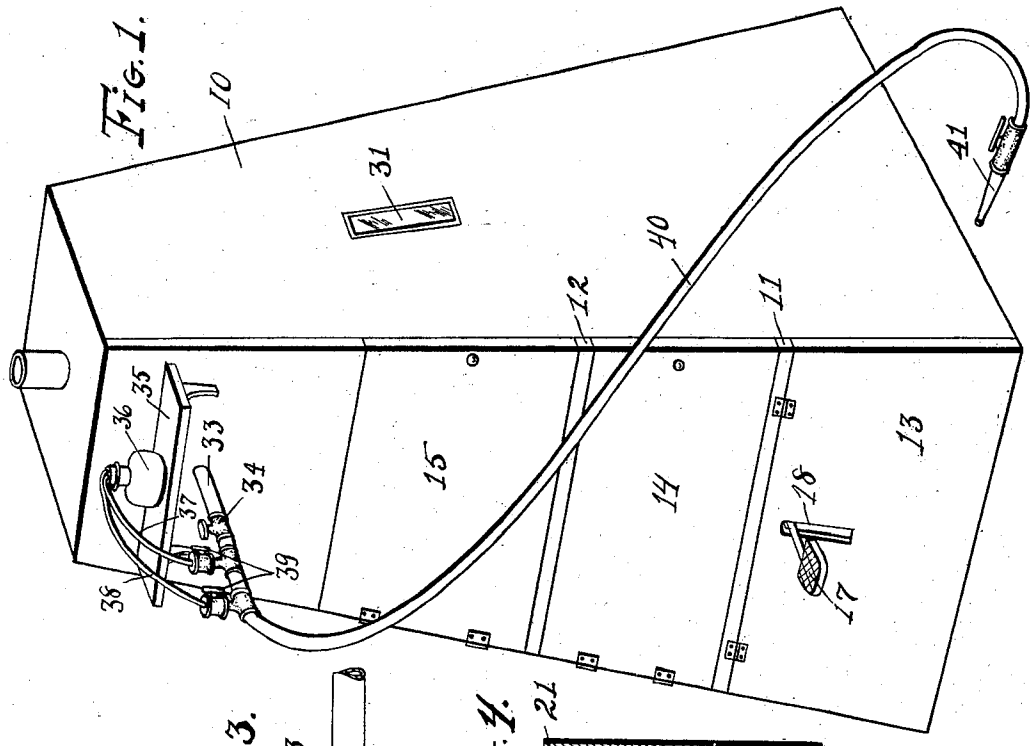


Fig. 3.

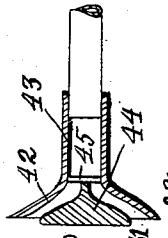


Fig. 4.

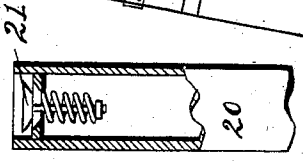
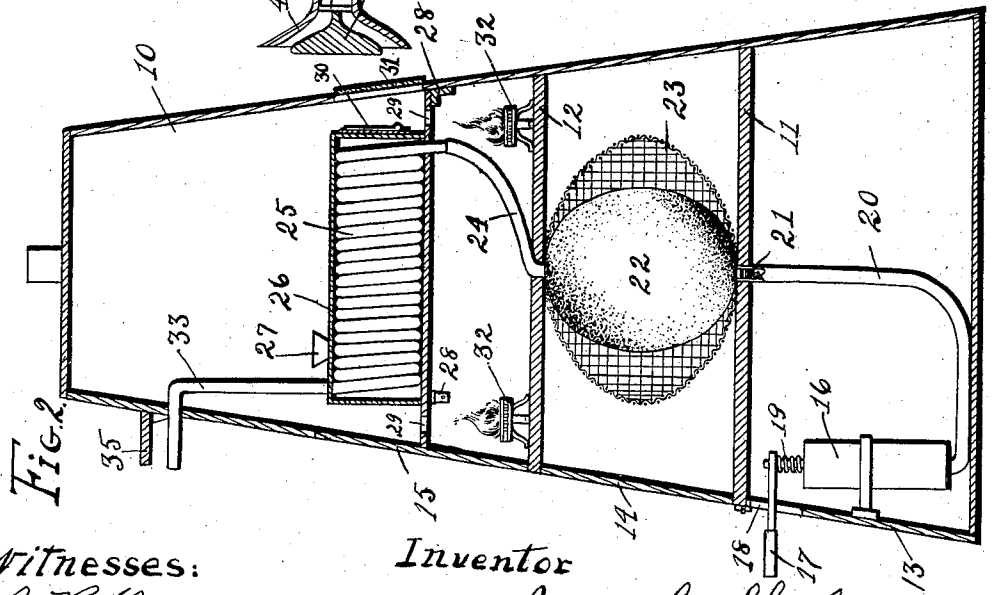


Fig. 2.



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No. 742,244. Patented October 27, 1903.

UNITED STATES PATENT OFFICE.

JAMES C. SHERBURNE, OF DES MOINES, IOWA.

MACHINE FOR PRODUCING HOT-AIR CURRENTS AND LIQUID SPRAY.

SPECIFICATION forming part of Letters Patent No. 742,244, dated October 27, 1903.

Application filed March 23, 1903. Serial No. 149,043. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. SHERBURNE, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Machines for Producing Hot-Air Currents and Liquid Spray, of which the following is a specification.

The objects of my invention are to provide a machine of simple, durable, and inexpensive construction adapted for the relief of headaches, neuralgia, rheumatism, and similar ailments.

More specifically, it is my object to provide a machine that will be easily operated by foot-power and that will when operated produce an even regular current of air heated to any desired degree and discharged through a hose or pipe to be applied to the person of the patient at the point where it is desired to relieve the pain and cure the disease.

A further object is to provide means whereby a liquid spray may be automatically injected into the hose or pipe, so that curative remedies in liquid form may be commingled with the hot air to aid in the curative properties of the air-current, and, further, to provide an improved nozzle for the pipe or hose, whereby the air-current and liquid spray may be applied to the person of the patient in such manner as to heat and spray a greater or less surface of the body and whereby the temperature to which the parts of the body are subjected may be regulated with the greatest accuracy.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a perspective view of the complete apparatus ready for use. Fig. 2 shows a vertical central sectional view of same with the hose and liquid-spraying device omitted. Fig. 3 shows an enlarged detail sectional view of my improved nozzle, and Fig. 4 shows an enlarged detail view of the valve interposed between the pump and the equalizing pressure-bag.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the machine-frame. This frame is provided with two horizontal shelves or partitions 11 and 12, and at one side of the frame is a hinged door 13 to provide access to the space beneath the partition 11. A second hinged door, 14, provides access to the space between the partitions 11 and 12, and a hinged door 15 provides access to the space above the partition 12. Mounted on the interior of the machine-frame beneath the partition 11 is an air-pump 16 of ordinary construction. A treadle 17 is attached to its piston-rod and projects outwardly through a slot 18 in the door 13, and an extensile coil-spring 19 on the piston-rod of the pump serves to normally elevate the foot-treadle. Communicating with the pump 16 is a flexible tube 20, which passes upwardly through the central portion of the partition 11. At the upper end of the tube 20 is a one-way valve 21 of ordinary construction, fully illustrated in detail in Fig. 4. This tube 20 communicates with an expanding rubber bag 22, which bag is inclosed in a wire-netting 23, which limits the expansion of the rubber bag. A tube or pipe 24 communicates with the upper end of the rubber bag and also with a metal coil 25. This coil is contained within a water-tank 26, which tank is provided with a funnel 27 at its upper end and is detachably secured to the brackets 28 on the interior of the machine-frame. The bottom of the tank preferably projects a slight distance beyond the sides of the tank proper and is perforated at 29. A thermometer 30 is secured to the tank and may be seen from the exterior of the machine through a glass 31 over an opening in the machine-frame. Beneath the tank I place one or more lamps 32, by which the water in the tank is heated. Leading from the coil 27 is a discharge-pipe 33, which projects through the machine-frame, and a valve 34 provides means whereby the flow of air through the pipe 33 may be regulated to any desired degree or entirely stopped. On the exterior of the machine-frame is a shelf 35, designed to support a vessel 36, containing a liquid healing preparation. A tube or pipe 37 communicates with the pipe 33 and discharges into the vessel 36, and a second similar tube, 38, communicates between the vessel 36 and the

pipe 33, and valves 39 are provided in said tubes whereby the passage-ways through them may be adjusted as to size or shut-off.

The numeral 40 indicates a hose or tube having a nozzle 41 at its end. In Fig. 3 I have shown a modified form of this nozzle, in which the numeral 42 indicates a bell-shaped head on the body portion 43, which is to be connected with the hose 40, and within the bell-shaped head is a deflector 44, so arranged as to close the bell-shaped opening except at the outer edge thereof. This deflector is connected with a cross-piece 45 on the interior of the bell-shaped end.

In practical use and assuming that it is desired to apply a current of hot air and liquid spray, the operator may seat himself near the machine-frame and by placing one foot upon the treadle may operate the pump to force air into the expanding rubber bag. When the bag has been filled, the air cannot pass downwardly through the pipe that supplies it on account of the one-way valve therein, and hence the rubber bag will force air upwardly at a uniform pressure because the tube leading from the rubber bag is of less capacity than that leading to the bag. Obviously the water-tank in which the coil is contained may be first heated to the desired degree by the lamps, and when it is thus heated the operator may by observing the thermometer determine when the desired temperature is reached. The pipe leading from the coil communicates with the hose, and the valve therein provides means whereby the flow of the air may be regulated. If it is desired to commingle with the air a spray of liquid, the operator then connects the tubes 37 and 38 with the pipe 33, containing the liquid, and when the valves 39 are opened a portion of the current of air in the hose 40 will flow into the bottle containing the liquid and will carry away from said bottle a spray of the liquid through the tubes 38 into the hose 40, and by means of the bell-shaped nozzle a current of air and spray may be applied to the body. A small space only would be reached if the nozzle were placed close to the body, or a less temperature may be obtained over a larger area of the body by simply removing the nozzle a slight distance from the body.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a device of the class described, the combination of a machine-frame, an air-pump therein, an expanding bag communicating with the air-pump, a water-tank, means for heating the water, a pipe coiled within the water-tank and communicating with the expanding air-bag and a flexible pipe or hose communicating with the coil, substantially as and for the purposes stated.

2. In a device of the class described, the combination of a machine-frame, an air-pump on the interior of the machine-frame, a foot-treadle connected with the air-pump, a spring for normally elevating the foot-treadle, an expanding air-bag communicating with the pump, a one-way valve between the pump and an air-bag, a netting to limit the expansion of the air-bag, a detachable water-tank in the machine-frame, means for applying heat to the tank, a thermometer on the tank, a coil of pipe within the tank communicating with the expanding bag, a hose, two tubes communicating with the hose and entering into a vessel, a vessel for containing liquid and having said tubes admitted therein, and means for regulating the flow of air from the hose to the vessel, for the purposes stated.

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