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ASPIRATOR

Filed July 14, 1930

Fig. 1.

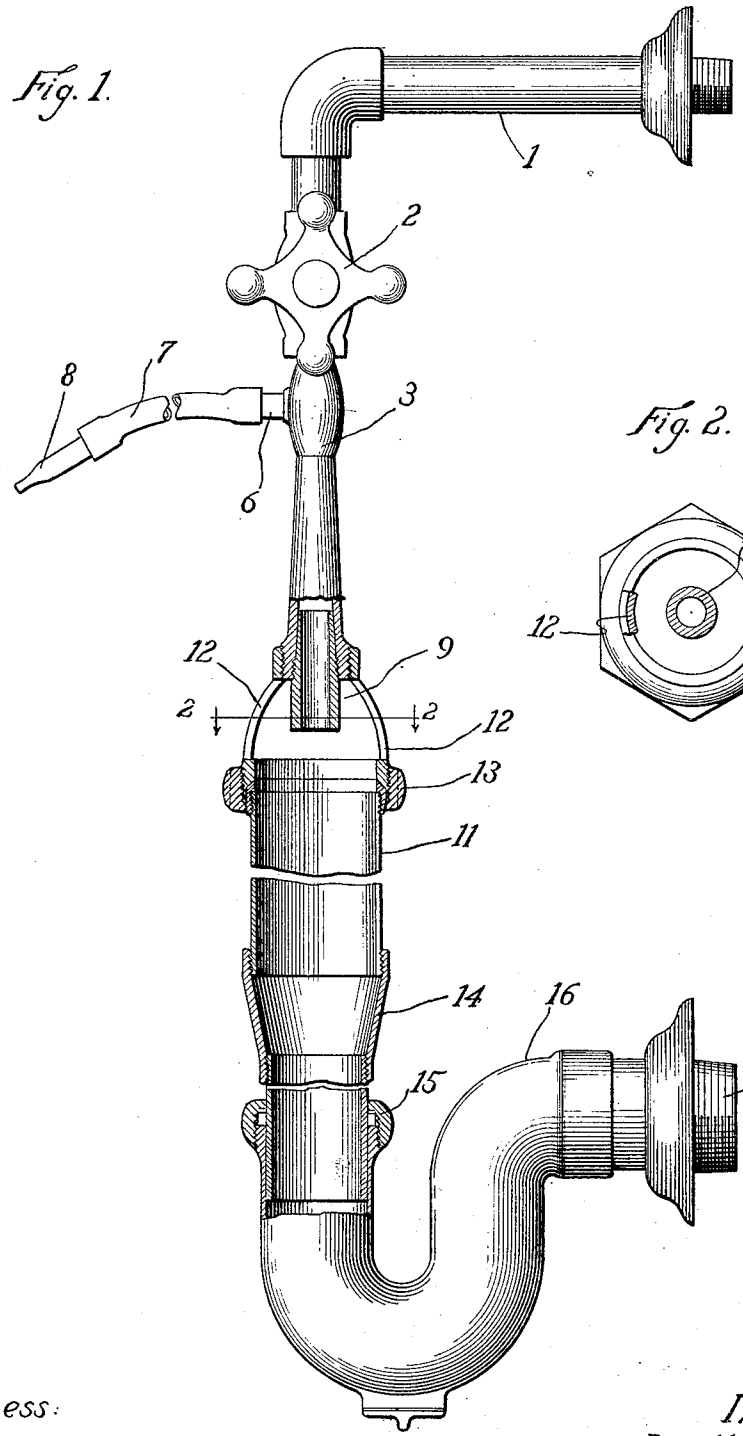


Fig. 2.

Witness:

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UNITED STATES PATENT OFFICE

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ASPIRATOR

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This invention relates to aspirators and similar suction devices and more particularly to those which are adapted to be used in hospitals, dental clinics or the like.

Aspirators of this type usually utilize the flow of water through a Venturi tube to create a suction or partial vacuum in a suction tube, the latter being extended to remove fluids from some remote point. Previous devices of this character, however, were usually cumbersome makeshifts which did not properly dispose of the fluid picked up by the aspirator in such a manner as to prevent back-siphoning thereof from the waste tube and/or suction tube into the fresh water supply, nor were they constructed to permit proper cleansing thereof.

In accordance with this invention a unitary structure is provided which employs a suction tube connected to a form of a Venturi tube to produce the necessary suction. The aspirator has embodied therein a suitable drainage connection for disposing of the material picked up through the medium of the suction, which drainage means is constructed to eliminate any possibility of back-siphoning into the supply line from either the drainage pipe or suction tube and is constructed to permit thorough cleansing thereof.

A better understanding will be had of this invention from a consideration of the following description given in connection with the drawing, in which:

Fig. 1 is a side elevation partly in section of an aspirator constructed in accordance with this invention, and

Fig. 2 is a section on line 2—2 of Fig. 1.

The flow of water for creating the suction is taken from the usual supply line 1 controlled by valve 2 to which is connected a Venturi tube 3. The Venturi tube is tapped just ahead of the restricted portion of the tube to provide for a connection such as a nipple 6. A suitable hose 7 and nozzle 8 may be coupled to the nipple 6, the latter two constituting a suction or aspirating line to be extended to any desired point.

To the lower end of the Venturi tube 3 is attached a discharge tube 9 which leads into a waste connection or tube 11 of greater diameter than said Venturi tube and said discharge tube, the waste tube also being connected to the lower end of the Venturi tube by means of a spider 12 and a union connection 13. The arms of the spider are spaced sufficiently apart to permit an operator to reach therebetween to close the lower end of the tube 9 with his finger or a suitable implement, in order to flush the pipe nipple, hose and nozzle at such intervals when so desired. The lower end of waste tube 11 is connected through a reducer 14 and union joint 15 to a trap 16 leading to a suitable drainage pipe 17. The waste tube may, of course, discharge directly into an open fixture.

From the above it is apparent that a suction will be created at the nozzle 8 through the action of the Venturi tube, which nozzle may be positioned at any suitable place to remove a fluid which will be drawn up through the nozzle 8, hose 7, and discharged downwardly through the lower end of the Venturi tube 3 passing through tube 9 into the waste tube 11. The hose 7 may also be attached to suitable antiseptic containers (not shown) in order to minimize possibilities of infection, due to the nature of the fluids or discharge materials handled or for convenience in analyzing the discharge fluids.

The openings between the arms of the spider will permit the insertion of cleansing devices into the waste connection to cleanse the sides thereof and also permit an operator to insert his finger or a suitable implement therein to close off the opening of tube 9. Such a closure will cause a strong stream of water to flow out of nozzle 8 which may also be inserted between the arms of the spider to flush and wash out the waste tube 11. Because of the simplicity and convenience of the connections 13 and 15, it is also evident that the waste tube 11 and reducer 14 may be easily removed for purpose of cleansability and/or sterilization.

The possibility of back-siphonage, ordinarily possible in devices of this character, due to the clogging up of the outlet or discharge conduit 11, is prevented. Prevention of this condition eliminates all possibility of contamination of the supply line, which is a

serious menace, particularly in hospitals where contagion might become rampant. It will be noted that the lowest point of the tube 9 is above the highest possible water level attainable in the discharge orifice and union connection 13. In other words, in having the discharge tube 9 above the opening of the spider 12, an air gap, so to speak, is formed, preventing a water seal and back-siphonage into the supply system from either the waste or suction tube since no vacuum or seal can possibly be formed.

From the above it is seen that the aspirator may be readily cleansed and is of a simple unitary construction.

It is obvious that many changes may be made in the details of construction without departing from the spirit and scope of the invention as defined by the claims appended hereto.

We claim:

1. In an aspirator, a suction tube, means for creating a suction therein, a waste tube into which the suction tube discharges, a connecting member joining the suction tube to said waste tube, said connecting member having spaced arms intermediate its ends and above the upper end of said waste tube whereby air is admitted to said waste tube at a point above any possible fluid level therein and the discharge of said end of said tube being disposed above any possible fluid level in said waste tube to prevent back-siphonage into said suction means when said waste tube becomes clogged.

2. In an aspirator, a suction tube, means for creating a suction therein comprising a venturi adapted to be connected to a water supply pipe, a waste tube connected to said suction means so as to receive the discharge from said suction tube at a point removed from said venturi and above any possible fluid level in said waste tube, and means for venting the aspirator to the atmosphere to prevent a liquid seal and prevent back-siphonage into the water supply pipe in the case of failure of pressure therein.

In witness of the foregoing we affix our signatures.

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