Oct. 20, 1931. W. A. SCHWENDER 1,827,768

AIR WASHING AND TEMPERING MACHINE

Filed Aug. 8, 1930

Fig. 1.

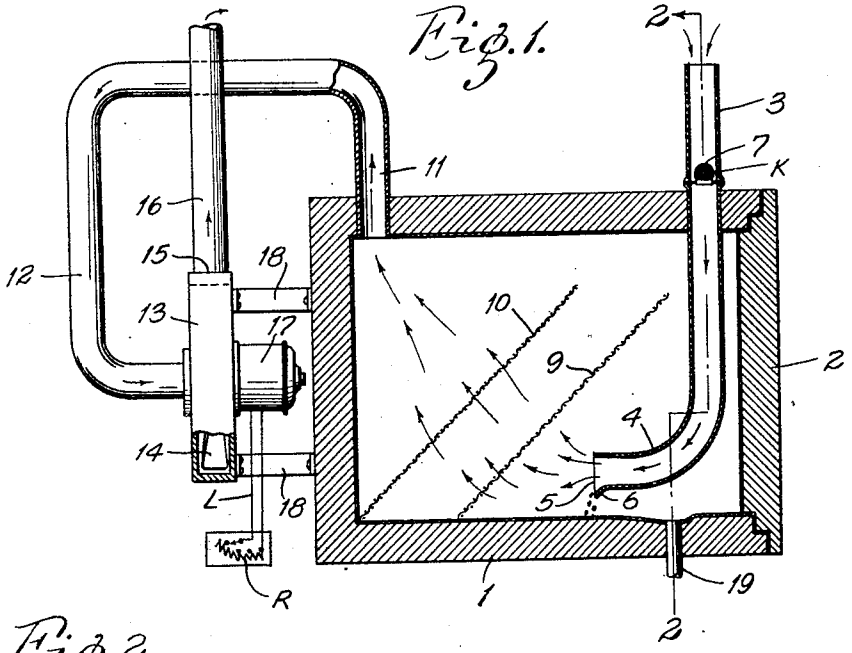


Fig. 2.

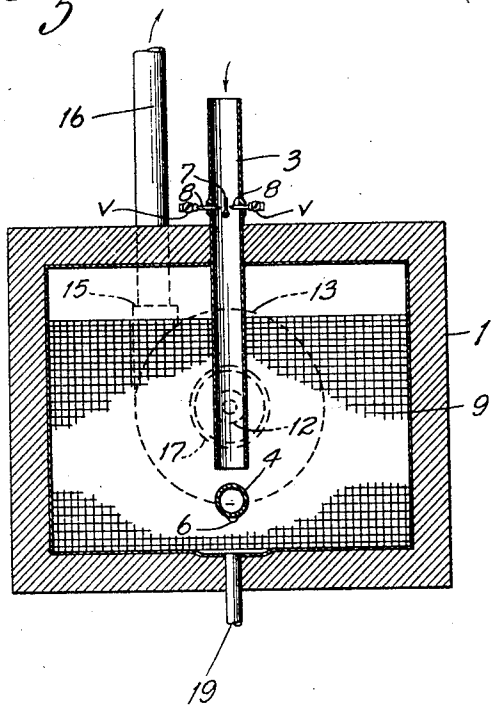


Fig. 3.

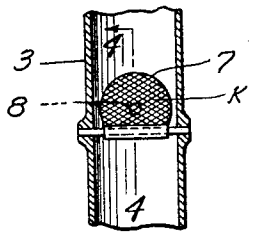
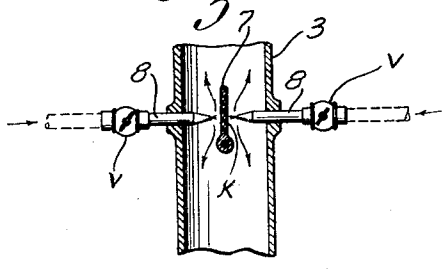


Fig. 4.



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UNITED STATES PATENT OFFICE

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AIR WASHING AND TEMPERING MACHINE

Application filed August 8, 1930. Serial No. 473,951.

My invention has relation to improvements in air washing and tempering machines and consists in the novel features of construction more fully set forth in the specification and pointed out in the claim.

The object of the present invention is to provide an air washing machine in which a water mist is created in the air intake pipe for effectively cleansing and cooling the air as it passes therethrough; a further object is to provide effective means for separating the moisture from the air before the air is discharged from the machine so that the air that is distributed to the rooms will not only be clean but also dry; a further object is to provide an air washing machine that is comparatively simple and may be cheaply manufactured, thereby adapting it for household use. Further and other advantages will be better apparent from a detailed description of the invention in connection with the accompanying drawings, in which—

Fig. 1 is a vertical middle longitudinal section taken through the machine; Fig. 2 is a vertical cross-section taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged detail of the atomizer for creating the water spray; and Fig. 4 is a cross-sectional detail taken on the line 4—4 of Fig. 3.

Referring to the drawings, 1 represents a casing or air washing box provided at one end with a door 2 to which access may be had for the purpose of cleaning out the accumulations of dirt washed from the air. 3 represents the air inlet tube traversing the top of the box and having an inwardly turned extremity 4, the outlet 5 of which is flared downwardly as shown at 6. Fixed within the tube 3 near its outer end is a deflecting vane 7, said vane being centrally disposed within the tube 3 and somewhat narrower than the tube. A pair of jet nozzles 8, 8, are oppositely disposed within the tube 3 and each nozzle is arranged to direct a jet of water against the center of the vane 7. The impingement of the jet issuing from each nozzle 8 on the kerfs *k* of the vane 7 causes the jet to be broken up into a spray which is deflected both upwardly and downwardly in the tube 3 so that for a considerable distance on both sides of the vane 7, the tube 3 will be filled with a water mist.

A screen 9 is fixed within the box 1 in an inclined position immediately beyond the outlet 5 of the tube 3, and a second screen 10 is also disposed within the box in spaced relation with the screen 9 and substantially parallel thereto. An air outlet tube 11 traverses the top of the box 1 at the end opposite the door 2 and above the screen 10, said tube 11 having a downwardly bent component 12 leading to the center of housing 13 within which is a fan 14. The fan 14, of course, exhausts the air through the tubes 11 and 12 and forces it out through the peripheral outlet 15 to which is connected a distributing pipe 16, whereby the air is carried to any desired point for use. A motor 17 is directly connected to the fan 14 and the entire motor and fan assembly is mounted on the end wall of the box 1 by means of suitable brackets 18. The usual rheostat R may be inserted in the line L for the purpose of controlling the speed of the motor 17 and thus regulating the volume of air moved in a given unit of time. The volume of water issuing from nozzles 8, 8 may also be regulated by valves *v*, *v*.

When the fan 14 is in operation, air is sucked into the outer open end of tube 3 and drawn downwardly through said tube and through the water mist therein. As the air leaves the open end 5 of the tube, it is, of course, projected against the screen 9 and any impurities that have been separated therefrom in the washing operation will, of course, be intercepted by the screen 9. The mist that is carried downwardly through the tube by gravity and the force of the air currents will be converted into a small stream of water in the lower part of tube 3 on account of the union of particles that heretofore formed the mist. This stream will discharge from the overflow lip 6 and find its way into the drain 19 in the bottom of the box.

In the summer, the temperature of the water is cooler than the air and reduces the air temperature, while in the winter the water that is used may be heated the required amount to temper the air as well as wash it.

Having described my invention, I claim:

An air washing and tempering apparatus comprising a casing, an open end tube extending from without to within the casing, an air distributing pipe leading from the casing, means for exhausting air through the casing and tube, said means operating to discharge air from the distributing pipe, and means for creating a water mist in the tube, said last-mentioned means comprising a deflecting vane having kerfs formed on the faces thereof, and a pair of opposed water nozzles disposed to project their streams against said surfaces to form a mist.

In testimony whereof I hereunto affix my signature.

WILHELM AUGUST SCHWENDER.