

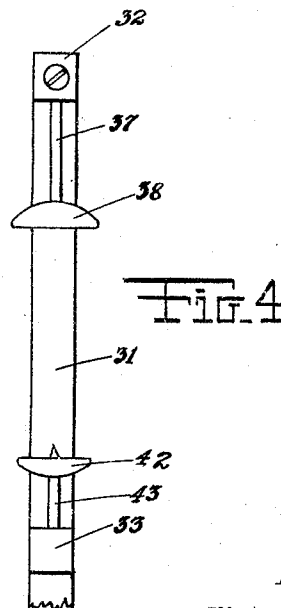
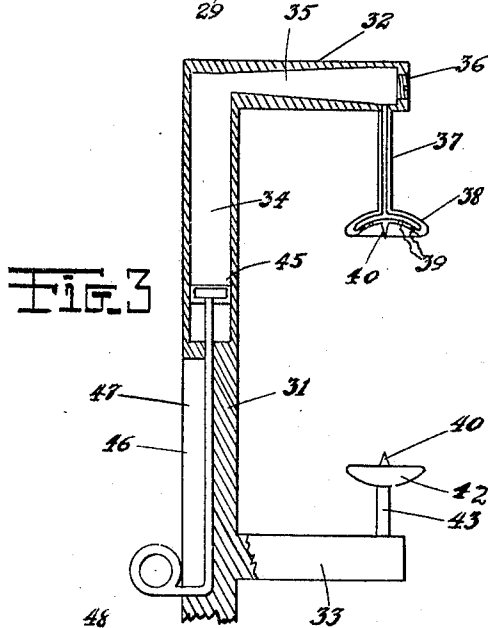
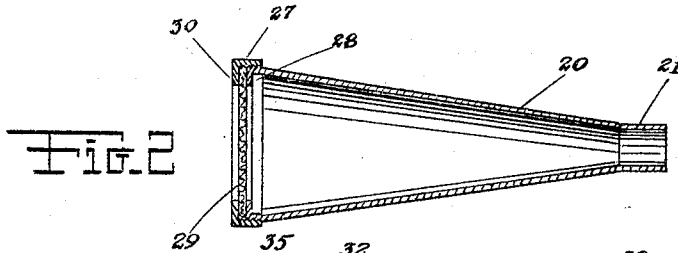
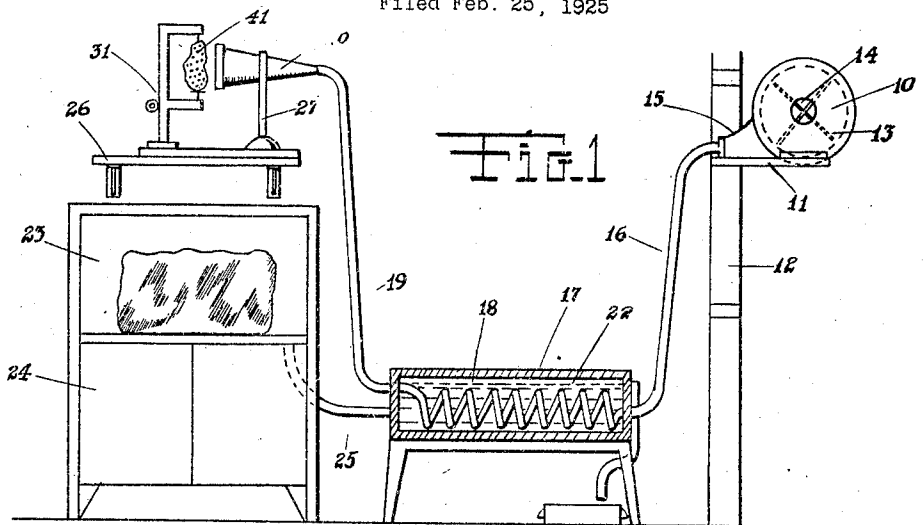
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F. HILLE

COOLING DEVICE

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UNITED STATES PATENT OFFICE.

FRANK HILLE, OF LONG ISLAND CITY, NEW YORK.

COOLING DEVICE.

Application filed February 25, 1925. Serial No. 11,402.

To all whom it may concern:

Be it known that I, FRANK HILLE, a citizen of the United States, residing at Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Cooling Devices, of which the following is a specification.

The main object of this invention is to provide an apparatus adapted to force cooled air into an enclosed compartment and filter the same before being used.

Another object is to provide an air filtering system in which means are incorporated for cooling the air before the same arrives at the point of distribution.

The above and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing, Figure 1 is a front elevational view of the air filtering and cooling system.

Figure 2 is a longitudinal sectional elevational view of the air filtering funnel.

Figure 3 is a longitudinal sectional elevational view of the sponge saturator used with the device.

Figure 4 is a side elevational view of Figure 3.

Referring in detail to the drawing, the numeral 10 indicates a blower which is mounted on a shaft 11. This shaft projects outwardly from a window opening 12 of a building and is adapted to support the motor propelled blower 10. By rotation of the blades 13, air is impelled thru the opening 14 and expelled thru the spout 15 into a conveyor tube 16. This conveyor tube courses downwardly and at its lower end enters into a sealed box-like structure 17. Within the chamber of this box-like structure, a tubular coil 18 is housed. One end of the tubular coil is connected to the conveyor tube 16 and its opposite end connects to a pipe 19 which communicates with a tapering filtering funnel 20. At the smaller end of the filtering funnel, a sleeve 21 is formed over which the ends of the pipe 19 is slipped to make a leak-proof joint. The chamber of the box 17 is filled with a cooling medium 22 such as ice water, which is drained from the ice compartment 23 of an ordinary type of refrigerator 24. In this manner the drain water from the refrigerators may be salvaged and put to use for

cooling the air which passes thru the coiled tube 18. The water from the ice chamber 23 of the refrigerator is passed into the box 17 by a pipe 25 which connects the floor of the chamber 23 of the refrigerator with the side wall of the cooling box 17. An additional shelf 26 is mounted at some convenient position on a wall and is adapted to support a stand 27 on which the filtering funnel 20 is secured. The filtering funnel, as previously stated, consists of a hollow tapering member which is provided with helical threads at its larger end to which a cap 27 is engaged. An internal rim 28 encircles the inner periphery of the filtering funnel, and upon the face of this rim, a filtering medium 29, such as cotton or similar material is seated. The filtering medium is retained in position on the rim 28 by an internal flange 30 which is an integral part of the cap 27, and between the flange 30 and the rim 28 of the filtering funnel, the cotton or filtering medium 29 is held. In front of the large mouth of the filtering funnel, a hollow frame 31, which serves as a pedestal for an air saturator device, is mounted. This pedestal extends vertically upward and has an arm 32 extending at right angles from the top of the pedestal and an additional arm 33, which is aligned with the upper arm 32, extends also at right angles from the pedestal. A chamber 34 is formed in the upper half of the pedestal 31 and extends halfway the distance between the upper arm 32 and the lower arm 33. This chamber 34 communicates with a horizontal channel 35 which extends entirely thru the length of the upper arm 32. The outer end of the arm 32 is sealed on a set screw 36 which may be removed when it is desired to clean the channel 35. This upper arm 32 has a hollow tube 37 depending vertically therefrom, and at the lower end of this tube, an annular dished-out hollow head 38 is mounted. The hollow portion of the head 38 communicates with the opening in the tube 37, and this chamber in the head is provided with openings 39 thru which communication may be had from the chamber 34 and channel 35. Axially on the inverted face of the head 38, a prong 40 extends downwardly and is adapted to position a sponge 41 in place in front of the mouth of the filtering funnel. The lower end of this sponge is seated upon a dished-out plat-

form 42, which is mounted on a stud 43, and also is provided with a positioning prong 44 on which the sponge 41 is impinged. The chamber 34 of the pedestal 31 has a piston head 45 slidably vertically therein. This head is connected to a movable rod 46 which is housed in a slot 47 and has a finger ring 48 as part of its lower end.

The air cooling and filtering system, illustrated in the drawing, is used in the following manner. The blower 10 is energized so that the fan plates 13 will rotate and draw air into the confines of the blower thru the impeller opening 14 out of the spout 15 to circulate thru the tube 16, coil 18, and pipe 19, to be finally dissipated thru the mouth of the filtering funnel 20. The air in passing thru the coiled tube 18 is cooled, and as this cooled air circulates thru the cotton 29 mounted in the filtering funnel, said air is cleaned of any suspended impurities which may be carried into the chamber thru the impeller opening 14. The air which is emitted from the mouth of the filtering funnel is in a dry condition, and before it circulates in the compartment, it is subjected to circulation thru a saturated sponge 41 which is mounted directly in front of the mouth of the filtering funnel. This sponge is retained on a platform 41 by an upper dished-out liquid circulating head 28. Both the head and platform are provided with prongs 40 which secure the sponge in position. The sponge is continually made moist or wet by sliding the rod 46 upwardly so that the piston 45 moves upwardly in the chamber 34 and forces water with which it has been previously filled, into the hollow portion of the head 38 and then thru the openings 39, where it communicates with and saturates the sponge thru capillary attraction. When the chamber 34 and hollow portion 35 of the arm 32 has been emptied of water or liquid therein, these portions 34 and 35 may again be filled by removing said screw 36 and holding the arm 32 under a source of liquid supply.

I claim:—

1. In an air cooling and filtering system, a blower, a cooling coil connected to said blower, a filtering funnel connected to said

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adapted to be moistened, a pedestal supporting said sponge, said pedestal having a hollow portion therein adapted to be filled with liquid, an upper and a lower arm extending sidewise from the pedestal, the upper arm being hollow, a platform on the lower arm supporting said sponge, and movable means in said pedestal for forcing the water thru the upper arm into said sponge.

2. In an air cooling and filtering system, blower, a filtering funnel connected to said blower, a filtering funnel connected to said coil, an air saturator comprising a sponge adapted to be moistened, a pedestal supporting said sponge, said pedestal having a hollow portion therein adapted to be filled with liquid, an upper and a lower arm extending sidewise from the pedestal, the upper arm being hollow, a platform on the lower arm supporting said sponge, a piston slidable in said pedestal and adapted to lift the liquid therein, a rod on said piston movable in the recess in the pedestal, a finger ring on said rod, and a hollow head depended from the upper arm adapted to receive the upper end of the sponge.

3. In an air cooling and filtering system, a blower, a cooling coil connected to said blower, a filtering funnel connected to said coil, an air saturator comprising a sponge adapted to be moistened, a pedestal supporting said sponge, said pedestal having a hollow portion therein adapted to be filled with liquid, an upper and a lower arm extending sidewise from the pedestal, the upper arm being hollow, a platform on the lower arm supporting said sponge, a piston slidable in said pedestal and adapted to lift the liquid therein, a rod on said piston movable in the recess in the pedestal, a finger ring on said rod, a dished-out hollow head depending from the upper arm and having openings on its bottom face, the bottom face lying in contact with the upper portion of the sponge, and prongs on the platform of the lower arm and head of the upper arm for positioning the sponge in place between both members.

In testimony whereof I affix my signature.

FRANK HILLIE