Aug. 13, 1957 D. C. WHITE 2,802,348

CAB COOLING UNIT

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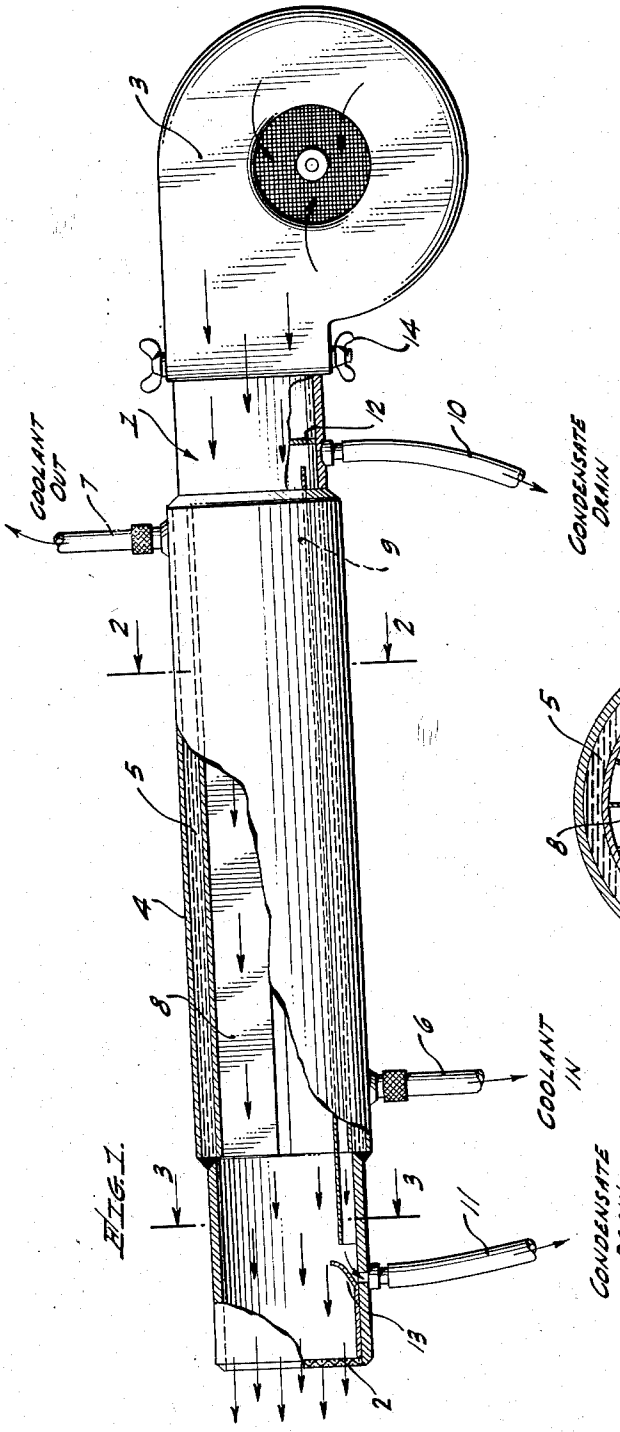


FIG. 1.

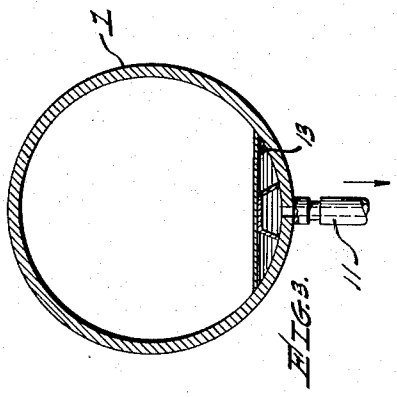


FIG. 3.

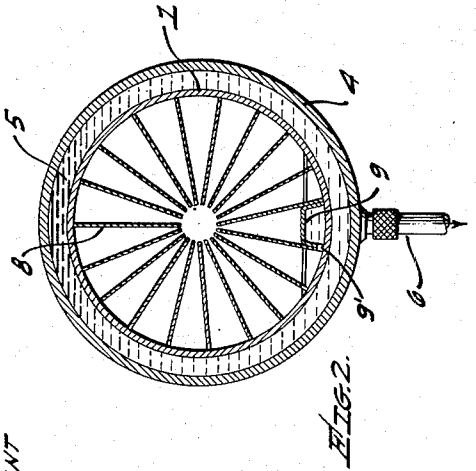


FIG. 2.

INVENTOR.
DONALD C. WHITE,
BY
ATTORNEY.

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CAB COOLING UNIT

Donald Clifton White, Garden Grove, Calif.

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3 Claims. (Cl. 62—140)

This invention relates to a cab cooling unit, particularly for trucks, buses, and the like, and the prime object of my invention is to provide a simple, effective and compact unit which can be placed under the seat of the truck or bus, or in a tool box compartment or other place which is normally not utilized, for the purpose of reducing the temperature of the cab.

Another object of my invention is to provide a cab cooling unit which consists of a unitary structure or assembly which can be easily and quickly mounted within the cab of a vehicle, the unit including the means to cool the air, as well as the means to circulate it.

Another object of my invention is to provide a novel cab cooling unit of the character stated, in which the heat from the air passing through the unit is conducted to a refrigerated space by means of radial fins placed within the air tube and over which air is moved by means of a fan or blower.

Still another object of my invention is to provide a novel and effective means of accumulating and draining the condensed water from the air which passes through the unit.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:

Figure 1 is a side elevation of my cooling unit with parts broken away to show interior construction.

Figure 2 is an enlarged sectional view taken on line 2—2 of Figure 1.

Figure 3 is a sectional view taken on line 3—3 of Figure 1.

Referring more particularly to the drawing, the numeral 1 indicates an air tube which is of uniform diameter from end to end and is formed of a suitable metal. A blower or fan 3 is removably attached to the end of the tube 1 opposite the screen 2. This blower or fan may be of any usual and well known type and causes air to be blown through the tube 1 throughout the entire length of the tube. A shell 4 surrounds the tube 1 for part of the length of the tube, and the shell is welded or otherwise fixedly attached to the tube, the weld also forming the closure or end wall of the shell 4. A refrigerant circulating space 5 is thus provided between the shell 4 and the tube 1. A coolant intake pipe 6 extends through the wall of the shell 4 and into the space for the purpose of forcing a suitable refrigerant into the space 5 and thus effectively cooling the wall of the tube 1. A coolant outlet pipe 7 extends from the circulating space 5 and through the wall of the shell 4 so that the refrigerant may be returned to the condensing unit and recirculated, all of which is usual and well known in the refrigerating art. A plurality of radial fins 8 project inwardly from the wall of the tube 1 and are substantially coextensive with the shell 4, and these fins provide an effective means of conducting the heat from the air traversing the tube 1 to the wall of the tube and thence to the refrigerant in the space 5 so that the air

may be effectively cooled. The fins 8 are also formed of a suitable conducting metallic substance so that heat may be effectively conducted from the air to the circulating refrigerant, thus reducing the temperature of the air and causing the cab of the vehicle to be cooled.

When the dew point of the air traversing the cooling unit is reduced, moisture therein will be condensed, and I provide a means of draining or removing this condensed moisture as follows: A conduit 9 which is open at both ends extends longitudinally of the tube 1 and at the bottom thereof. This conduit extends substantially the entire length of the tube 1, and water which condenses from the circulating air will drain to the bottom of the tube 1 and will flow through the conduit 9. The conduit 9 may have holes 9' in the sides thereof, if desired, in order to admit water thereto. The tube 1 is preferably arranged at a slight angle in the cab of the vehicle so that water will more readily flow through the conduit 9. A drain tube 10 extends from the tube 1 at one end of the conduit 9, and a second tube 11 extends from the tube 1 at the other end of the conduit 9. A baffle 12 extends transversely across the tube 1 at the bottom thereof and forwardly of the tube 10. The baffle 12 is spaced from the end of the conduit 9 so as to permit water to readily enter the end of the conduit. The baffle deflects air from the end of the conduit 9 so that condensed water can flow downwardly, and also the air moving through the tube 1 will not tend to blow the moisture through the conduit 9 and out of the end of the tube 1. A second baffle 13 is provided adjacent the outlet end of the tube 1 and rearwardly of the drain pipe 11. The baffle 13 tends to accumulate moisture and deflect it into the drain tube or pipe 11. The blower or fan 3 may be removably attached to the inlet end of the tube 1 by means of wing nuts or screws 14, so that the blower can be removed at intervals, if necessary.

Having described my invention, I claim:

1. A cab cooling unit comprising a tube of uniform diameter throughout its length, a blower mounted on one end of the tube to force air throughout the length of tube, a shell surrounding the tube and spaced therefrom, said shell and tube defining a refrigerating space therebetween and radial metal fins projecting inwardly from the tube, a coolant intake pipe and a coolant outlet pipe extending from said shell to circulate a refrigerant in said refrigerating space, a conduit within said tube and at the bottom thereof, and a drain pipe extending from the tube at one end of said conduit.

2. A cab cooling unit comprising a tube of uniform diameter throughout its length, a blower mounted on one end of the tube to force air throughout the length of the tube, a shell surrounding the tube and spaced therefrom, said shell and tube defining a refrigerating space therebetween and radial metal fins projecting inwardly from the tube, a coolant intake pipe and a coolant outlet pipe extending from said shell to circulate a refrigerant in said refrigerating space, a conduit within said tube and at the bottom thereof, and a drain pipe extending from the tube at one end of said conduit, a baffle within said tube at each end of said conduit and spaced from the ends of the conduit.

3. A cab cooling unit comprising a tube of uniform diameter throughout its length, an air blower removably mounted on one end of the tube to force air through said tube, a shell surrounding said tube, said shell being of lesser length than the tube and spaced from the tube to define a refrigerating space therebetween, a coolant intake pipe extending through the shell and into the refrigerating space, a coolant outlet pipe extending from said shell to conduct a refrigerant from said shell, radially extending fins projecting inwardly from said tube, said

fins being coextensive with the shell, a conduit in the bottom of the tube and extending substantially the length of the tube, a drain pipe adjacent each end of said conduit, the drain pipe projecting from the tube, and a transversely extending baffle within the tube adjacent each end of the conduit.

References Cited in the file of this patent

UNITED STATES PATENTS

1,983,466	Kline	Dec. 4, 1934
2,042,142	Campbell	May 26, 1936
2,169,693	Haynes	Aug. 15, 1939
2,686,662	Smith	Aug. 17, 1954