

Jan. 30, 1923.

D. ROHRER.

1,443,435.

AIR COOLING AND PURIFYING DEVICE FOR MOTOR DRIVE TIRE PUMPS.

FILED MAR. 24, 1921.

2 SHEETS—SHEET 1.

FIG. 1.

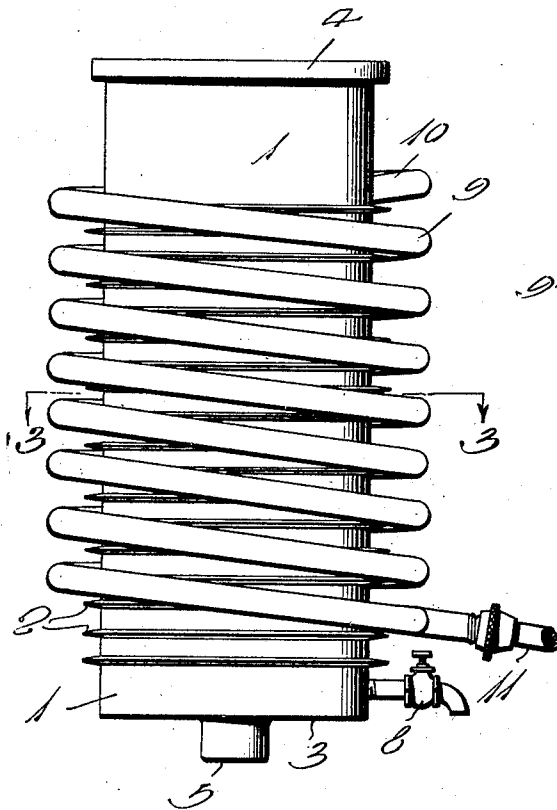


FIG. 2.

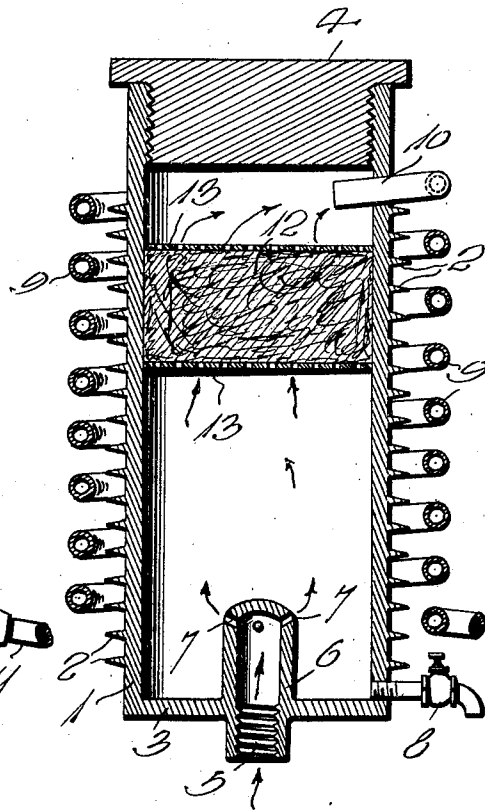
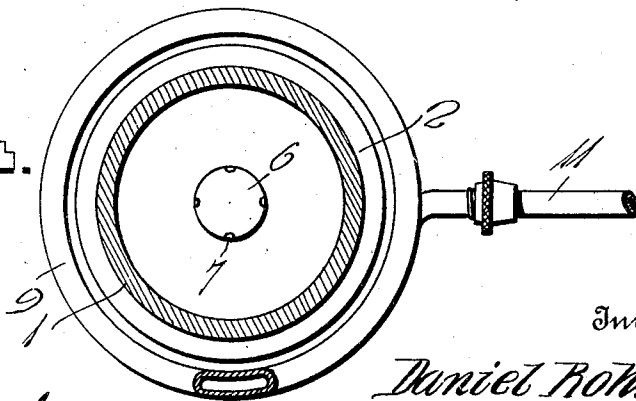


FIG. 3.



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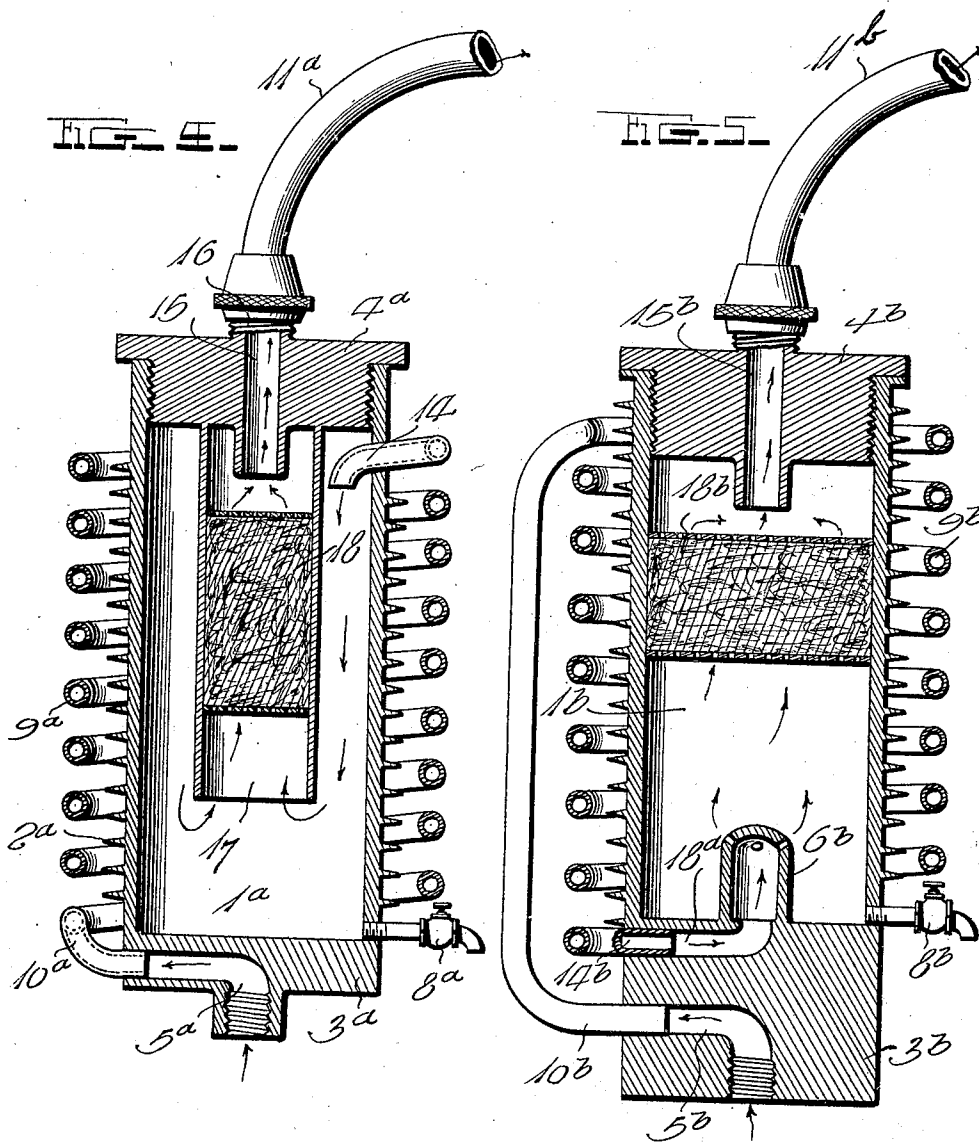
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

DANIEL ROHRER, OF SPOKANE, WASHINGTON.

AIR COOLING AND PURIFYING DEVICE FOR MOTOR-DRIVE TIRE PUMPS.

Application filed March 24, 1921. Serial No. 455,251.

To all whom it may concern:

Be it known that I, DANIEL ROHRER, a citizen of the Dominion of Canada, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Air Cooling and Purifying Devices for Motor-Drive Tire Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its principal object to provide a simple and inexpensive oil vapor condensing device for preventing the passage of oil into the inflation tubes which lead from motor driven tire pumps, a novel air cooling coil being associated with the device in a unique manner so as to not only effectively cool the air before it is discharged into the tires, but to greatly assist, in some instances, in effecting proper condensation of the oil vapor with which the air discharged from the pump, is laden.

With the foregoing in view, the invention resides in the novel construction and association of parts hereinafter described and claimed, the descriptive matter being supplemented by the accompanying drawings.

Figures 1 and 2 are respectively a side elevation and a vertical sectional view of one form of my invention.

Figure 3 is a horizontal sectional view as indicated by line 3—3 of Fig. 1.

Figure 4 is a vertical sectional view showing a further form of construction.

Figure 5 is a view similar to Fig. 4 but illustrating still another form of construction.

In the construction shown in Figs. 1, 2 and 3, the numeral 1 designates a vertically elongated cylinder preferably provided on its exterior with a plurality of parallel circumferential cooling fins 2. The lower end wall 3 of the cylinder may well be integral with the side wall thereof, but the upper end 4 is by preference in the form of a removable screw plug. The bottom 3 is provided with a central air inlet 5 and a short tube 6 rises from said bottom around said inlet, the upper end of said tube being closed but provided with air outlet perforations 7. The oil laden air entering the cylinder 1 through the inlet 5, tube 6 and openings 7, is cooled and the oil vapor is condensed so that the oil settles to the bottom of said

cylinder around the tube 6, from which it may be drained from time to time, through a suitable petcock 8, or like device.

Surrounding the cylinder 1 and its fins 2 is an air cooling coil 9 whose inlet end 10 communicates with the upper end of the cylinder as seen in Fig. 2. The other end of the coil however is suitably connected with the usual tire inflating hose 11. The air from the cylinder, being freed of oil vapor passes through the cooling coil 10 and is thus effectively cooled to a greater extent than if it were allowed to escape directly from the cylinder through the hose 11, the result being that the air has no injurious effect on the hose and the tire tubes, whereas hot air is very injurious.

To absolutely insure that no oil vapor whatever shall escape from the cylinder 1, I preferably mount a quantity of absorbent material 12 in said cylinder between open-work partitions 13, but it is to be understood that the device may be successfully used without this absorbent material in some instances.

In the form of construction shown in Fig. 4, the lower end wall 3^a of the cylinder 1^a is provided with an air inlet 5^a which extends upwardly and laterally and communicates with the inlet end 10^a of an air cooling coil 9^a which surrounds the cylinder and its cooling fins 2^a, the discharge end 14 of said coil being passed through the vertical wall of the cylinder and turned downwardly as shown. By this arrangement, the air from the pump is effectively cooled before it is discharged into the cylinder and the final cooling and condensation of oil vapor takes place in the latter, a suitable pet-cock or the like 8^a being employed for draining the oil from the cylinder whenever necessary.

The upper end wall 4^a of the cylinder 1^a is provided with a central air outlet opening 15 which terminates in a threaded nipple 16 by means of which the inflation hose 11^a is attached, and the lower side of said end wall 4^a is provided with a depending sleeve 17 which surrounds the outlet 15 and extends an appreciable distance into the cylinder. This sleeve insures that the air from the coil shall travel downwardly and then turn upwardly before it discharges through the outlet 15, this being desirable in effecting proper separation of the oil vapor from the air. Within the sleeve 17, I preferably,

although not necessarily mount a quantity of absorbent material as indicated at 18.

Fig. 5 illustrates a still further modification of my invention, in which the lower end wall 3^b of the cylinder 1^b is of comparatively great thickness, said end wall being provided with an air inlet passage 5^b which extends upwardly and laterally and communicates with the inlet end 10^b of an air cooling coil 9^b, which coil surrounds the cylinder and discharges at 14^b into a passage 18^a which extends horizontally and upwardly through the bottom wall 3^b, a perforated tube 6^b, identical with the tube 6, being provided at the outlet of this passage for the same reasons as those assigned to the aforesaid tube 6.

The upper end wall 4^b of the cylinder 1^b is provided with an air outlet passage 15^b from which the tire inflating hose 11^b extends, and a quantity of absorbent material 18^b may if desired be mounted in the cylinder as shown.

The form of construction last described is provided with a pet-cock 8^b for draining accumulated oil therefrom.

All forms of my invention are comparatively simple and inexpensive, yet will be highly efficient and desirable for cooling the air discharged from motor driven tire pumps, and for condensing any oil vapor in the air to prevent it from entering and injuring the inflation hose and the tire tubes.

Since excellent results may be obtained from the details disclosed, such details may be followed if desired. I wish it understood however that within the scope of the invention as claimed, the device may be embodied in numerous forms other than those shown.

I claim:

1. An air cooling and filtering device comprising a hollow cylinder whose interior forms an oil vapor condensing chamber, spaced circumferential fins on the outside

of said cylinder, an air cooling coil surrounding said cylinder in spaced relation with said fins and communicating at one end with said chamber, one end of the cylinder having an air inlet passage for connection with a pump and with said coil and the other having an air outlet for connection with a tire inflating hose, an air filter in said chamber to remove all oil from the air, and an oil drain from the lower end of the cylinder.

2. A device of the class described comprising a hollow oil vapor condensing cylinder closed at both ends and provided in its upper end wall with an air outlet adapted for connection to a tire inflating hose, the lower end wall of said cylinder having an air inlet passage leading upwardly and laterally out of direct communication with the interior of the cylinder and adapted to have its lower end connected to an air pump, and an air cooling coil surrounding said cylinder with one end in communication with said air inlet passage and its other end discharging into said cylinder.

3. A device of the class described comprising a hollow oil vapor condensing cylinder closed at both ends and provided in its upper end wall with an air outlet adapted for connection to a tire inflating hose, the lower end wall of said cylinder having an air inlet passage leading upwardly and laterally out of direct communication with the interior of the cylinder and adapted to have its lower end connected to an air pump, an air cooling coil surrounding said cylinder with its lower end in communication with said air inlet passage, the upper end of said coil discharging into the cylinder near its upper end, and a sleeve depending from the upper end wall of said cylinder around said air outlet.

In testimony whereof I have hereunto set my hand.

DANIEL ROHRER.