

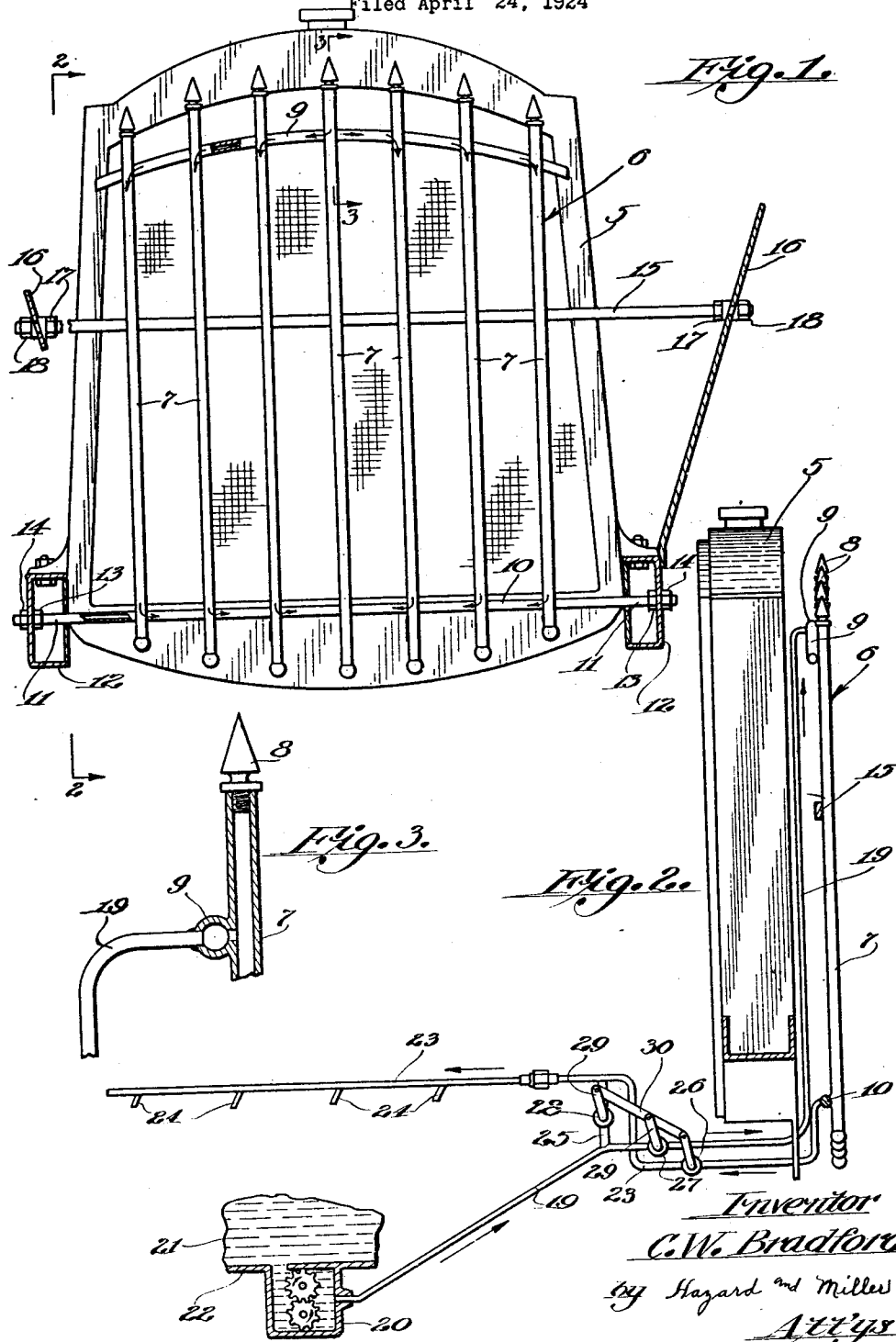
April 17, 1928.

1,666,485

C. W. BRADFORD

OIL RADIATOR

Filed April 24, 1924



UNITED STATES PATENT OFFICE.

CHARLES W. BRADFORD, OF SOUTHGATE, CALIFORNIA.

OIL RADIATOR.

Application filed April 24, 1924. Serial No. 708,673.

This invention relates to oil cooling systems for automobiles, and it has as one of its objects the provision in an automobile of the combination with the oiling system of means for cooling the oil, said means preferably comprising a radiator positioned in front of the motor, and more particularly in front of the usual water radiator of the automobile.

With the foregoing object in view, together with such other objects and advantages as may subsequently appear, this invention consists in the construction and arrangement of parts hereinafter described and claimed and illustrated in the accompanying drawings, in which:

Figure 1 is an elevational view of an oil cooling radiator positioned in front of the water radiator of an automobile,

Fig. 2 is a section taken on the line 2—2 of Fig. 1, showing in combination part of an oiling system and the oil cooling radiator, and

Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Referring to the drawings for a more detailed description thereof, the numeral 5 indicates the usual water radiator in front of which is positioned an oil cooling radiator 6 comprising a series of vertical tubes 7 closed at their lower ends and provided at their upper ends with removable stoppers 8. The tubes 7 are connected near their upper ends with a transverse arcuate manifold 9 and near their lower ends with a manifold 10. The manifold 10 is preferably solid at its end portions 11 where it is secured to side frame members 12 by means of inner nuts 13 and outer nuts 14. To the inner sides of the tubes 7 is secured a transverse bar 15, the ends of which are fastened to fender members 16 by means of inner nuts 17 and outer nuts 18.

To the highest portion of the manifold 9 is connected a pipe 19 which leads to an oil pump 20 in the oil sump 21 within the crank case 22 of the motor of an automobile. To the manifold 10, and preferably at its middle, is connected a pipe 23 from which branch out ducts 24 which lead to parts of the motor which are to be oiled. The pipes 19 and 23 are connected with a by-pass pipe 25. The pipes 19, 23 and 25 are provided with valves 26, 27 and 28 respectively, each valve being provided with a lever 29, and the upper ends of the levers being connected

together by means of a rod 30, the connection of the rod to the levers being such that the valves 26 and 27 are open or closed at the same time, while the valve 28 is in the opposite or contrary position. In the operation of the system described, the valves 26 and 27 are open while the valve 28 is closed. The oil pump 20 pumps the hot oil up through the pipe 19 to the manifold 9 from which the hot oil enters the tubes 7 and is cooled as it descends in these tubes, the cooling being effected by the radiating surfaces of the tubes, the cooling effect being enhanced by the air which moves against them. The cooled oil passes out from the lower portions of the tubes 7 into the manifold 10 from which it enters the pipe 23 in condition for lubricating the motor again.

In case of damage to the oil cooling radiator by collision, the driver of the car may operate the rod 30 to close the valves 26 and 27 whereby the oil cooling radiator is cut out of the oiling system; at the same time, however, the valve 28 is opened and this condition permits the circulation of the oil as provided for by the usual method designed for any given type of car.

In the use of oil radiators it is found these tend to become clogged due to the oil sticking in the tubes as well as sediment carried by the oil and in my type of radiator having vertical tubes with removable stoppers 8 these individual tubes may be readily swabbed out by removing the stoppers and swabbing each tube in turn.

This invention has been described but modifications thereof may be devised without departing from the spirit thereof and it is to be understood that such modifications come within the scope of this invention.

What is claimed is:

1. An oil radiator having a lower tube forming a lower manifold, an upper tube forming an upper manifold, a plurality of vertical tubes connected to the upper and lower tubes, said vertical tubes being closed at the bottom and having removable stoppers at the top, said stoppers on removal allowing cleaning or swabbing of the individual vertical tubes.

2. In combination with an oiling system of an automobile having an oil pump and ducts leading to the parts to be oiled, an oil radiator having an upper and a lower manifold, a first pipe leading from the pump to the upper manifold, a second pipe lead-

ing from the lower manifold to the said ducts, a third by-pass pipe connected between the pipe from the pump to the pipe leading to the said ducts; a valve in each of said pipes, a rod interconnecting said valves, said rod being operable to open the valve in the said by-pass pipe and to close the valves in the said first and second pipes leading to the upper and lower manifold or vice versa. 10

In testimony whereof I have signed my name to this specification.

CHARLES W. BRADFORD.