

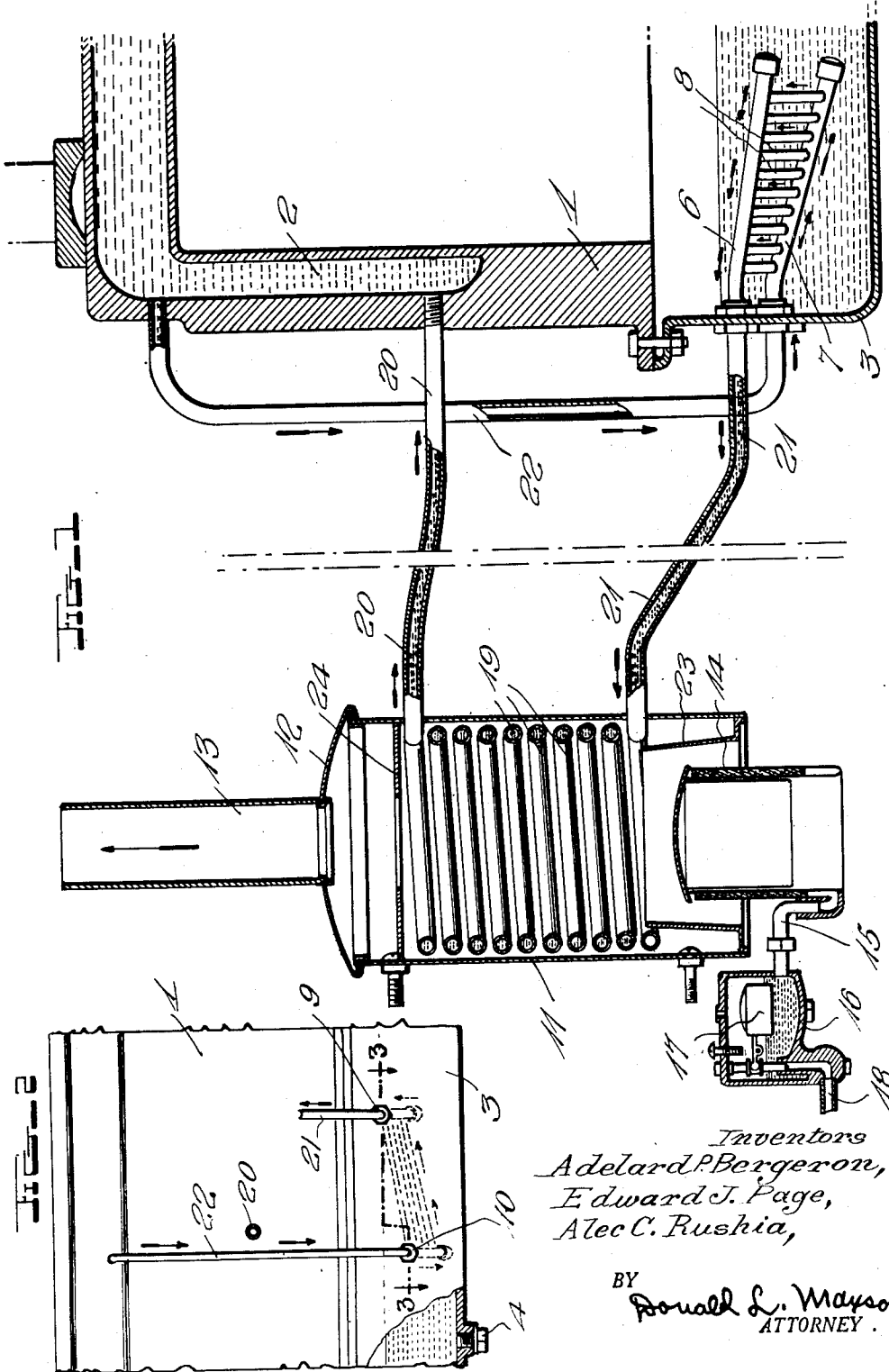
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A. P. BERGERON ET AL
CRANKCASE OIL HEATER FOR ENGINES

2,180,663

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3 Sheets-Sheet 1



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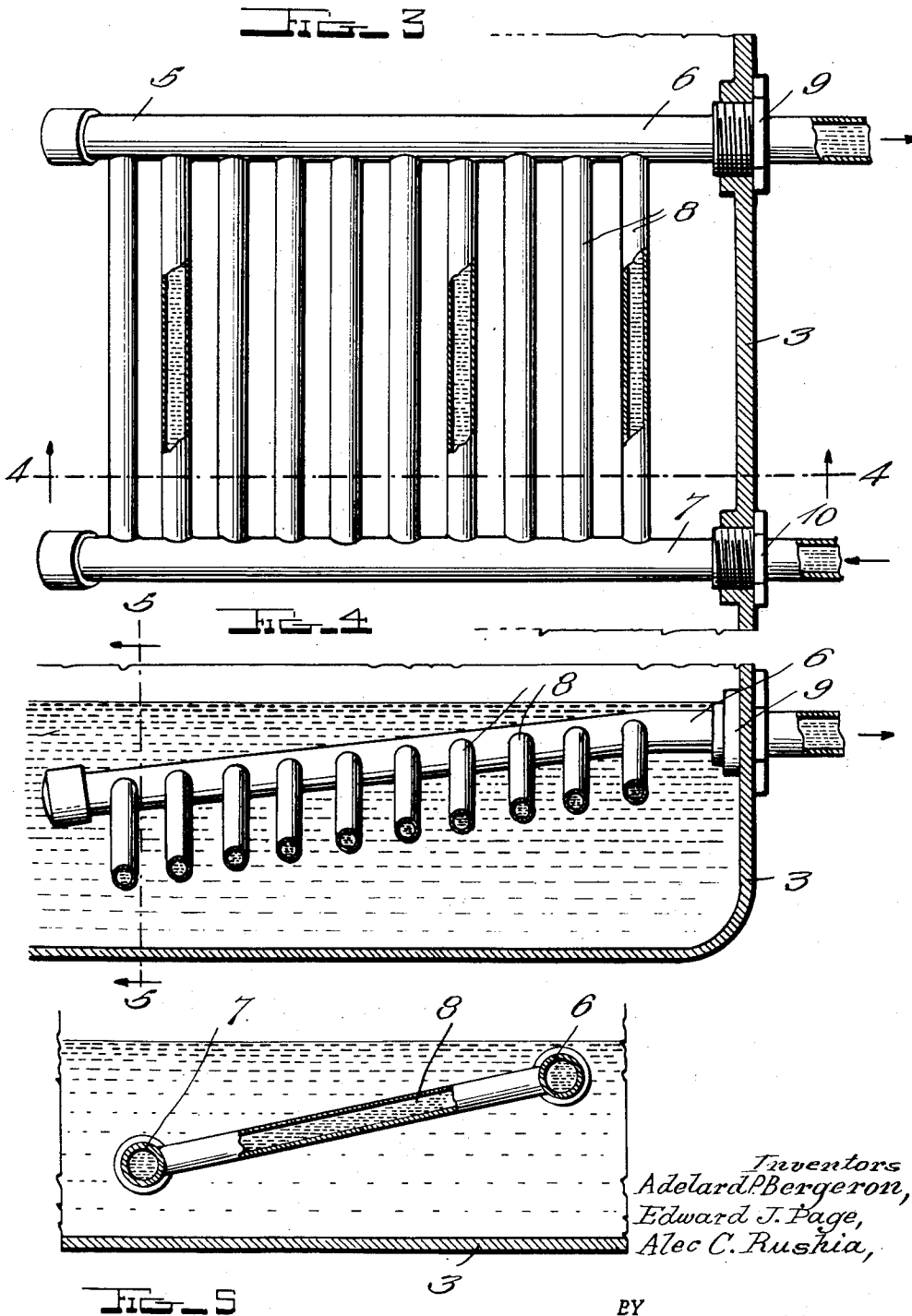
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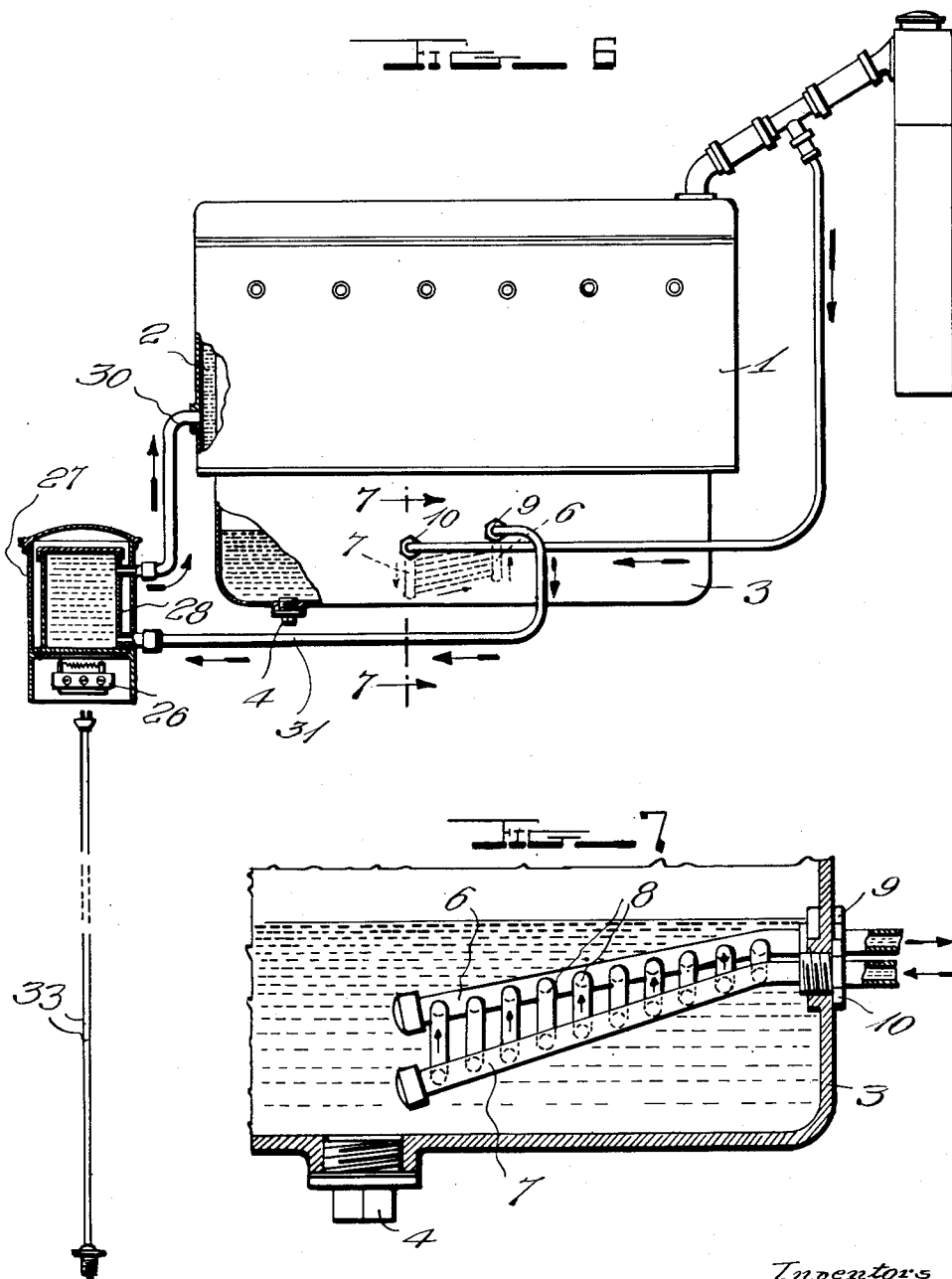
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UNITED STATES PATENT OFFICE

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CRANKCASE OIL HEATER FOR ENGINES

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3 Claims. (Cl. 123—174)

This invention relates to improvements in apparatus for heating the circulated engine cooling water and lubricating oil in the crankcase of engines of different types, and more especially to an oil or electric heater for heating the water in the water jacket of an engine, which in turn heats the lubricating oil in the engine crankcase, whereby easy starting may be effected in winter operation, and cracked engine blocks and cylinder heads due to the water freezing will be positively prevented.

An object of our invention is to provide an improved heating system employing either oil or electricity for heating the water in the water jackets of an engine, and said water when heated being fed by thermo syphon vacuum action to and through a radiator placed below the oil level in the engine crankcase, whereby the lubricating oil may be kept warm and ready for instant operation and easy starting of the engine.

Another object of our invention is to provide an improved oil or electric heater for heating the water in the cooling system of an engine, which in turn passes through a radiator placed in the oil pan of an engine, whereby a combined thermo syphon vacuum system of operation will discharge the heated water to the engine water jacket, and the action of vacuum will discharge the water from the radiator in the oil pan back to the heated coil in the heater for reheating, thus efficiently heating the lubricating oil at all times the heater is in operation.

A still further object of our invention is to provide an improved oil or electric heater for heating the water in the cooling system of an engine, which in turn will heat the oil in the crank case of the engine, said apparatus being highly efficient in operation and quite inexpensive to manufacture.

Other objects will appear as the description proceeds.

In the accompanying drawings which form a part of our application,

Figure 1 is a sectional view through a portion of an engine associated with our improved oil heater;

Figure 2 is a partial side elevation of an engine, showing the method of placing the radiator in the engine crankcase;

Figure 3 is a view partly in section taken on the line 3—3 of Figure 2;

Figure 4 is a sectional view taken on the line 4—4 of Figure 3;

Figure 5 is a sectional view taken on the line 5—5 of Figure 4;

Figure 6 is an elevation partly in section of an engine showing our electric heating means incorporated therewith, and

Figure 7 is a sectional view taken on the line 7—7 of Figure 6.

Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

In carrying out our invention, we provide an engine of any desired type designated by the numeral 1, and having a water jacket 2, and an oil pan or crankcase 3. The usual oil drain plug 4 is provided in the lowermost portion of the crankcase 3, through which the lubricating oil may be drained.

The radiator 5 comprising side pipes 6 and 7, and connected by a plurality of cross pipes 8, is inserted in the crankcase 3 below the oil level, and the said side pipes 6 and 7, extend through suitable fittings 9 and 10. As will be seen from the drawings, the radiator will be mounted on an angle and will also be tilted backwardly, so that when the crankcase is drained, all of the oil on the outer surface of the radiator will drain off and be discharged with the oil being drained.

Our improved oil heater comprises a casing 11 having a closure 12 and a stack 13, and may be suitably positioned in any position adjacent the engine. A wick burner 14 will be provided at the lower end of the casing, and will be connected by the oil supply pipe 15 to a carburetor 16, which is provided with a float 17 for keeping the oil the proper level, and said carburetor will be fed through the pipe 18 from a suitable oil supply tank (not shown).

A water coil 19 will be disposed within the casing 11, in such a manner that the flame from the wick will strike the same, and the upper end of the coil will be connected by means of the pipe 20 to the lowermost part of the water jacket of the engine, while the lower end of the coil 19 is connected by the pipe 21 to the higher side pipe 6 of the radiator. The side pipe 7 of the radiator will be connected by means of the pipe 22 to the uppermost portion of the water jacket of the engine, thereby completing the water circuit from the heater to the water jacket and oil heating radiator. It will be understood, as before mentioned that the water from the cooling system of the engine will flow from the oil heating radiator in the crank case to the heating coil by means of a vacuum action, while the heated water from the coil passes to the water jacket by means of a thermo syphon vacuum action.

A flame protecting collar 23 will be disposed in the heater casing 11 about the wick burner, and a perforated heat retaining baffle 24 will be disposed in the casing 11 above the coil 19. The construction of the heater will be such that no draft will get to the flame when the vehicle in which the engine and heater is placed, is in movement.

In Figures 6 and 7 of the drawings, we have illustrated an electric heating coil 26 having a low and a high heat winding, placed in the lower portion of a casing 27 immediately below the water heating tank 28 in the casing 27. The tank 28 is connected by means of the pipes 30 and 31 to the lowermost portion of the water jacket of the engine, and to the highest portion of the radiator 32 in the crank case, respectively, and an electric cable 33 will be used to connect the heater to any suitable outlet (not shown) when the vehicle equipped with our oil heater is standing in a garage.

From the foregoing description, it will be apparent that we have devised a highly efficient and inexpensive means for heating the lubricating oil in an engine crankcase, and also for heating the water in the water circulatory system of the engine, to provide for ready and instant starting in cold weather.

It will be understood that while we have illustrated and described our preferred form of heating mechanisms and apparatus, many minor changes in detail of construction may be resorted

to without departure from the spirit of the invention.

Having thus described our invention what we claim as new and desire to secure by Letters Patent of the United States is:

1. In combination with an engine having an oil pan, a radiator in said pan adjacent the bottom thereof, a water heating coil disposed exteriorly of said engine, means connecting the coil with said radiator and with the water jacket of the engine, a water discharge connection between said water jacket and said radiator, and an oil burner for heating the water in said coil.

2. In combination with an engine having a water jacket and oil pan, a radiator in said pan adjacent the bottom thereof, a water heating coil disposed exteriorly of said engine, means connecting the coil with the radiator and with the water jacket, a water discharge connection between said water jacket and said radiator, and means for heating the water in said coil.

3. In combination with an engine having a water jacket and oil pan, a radiator in said pan adjacent the bottom thereof, a water heater, means connecting said heater with said radiator and with the water jacket, a water discharge connection between said water jacket and radiator, and means for heating the water in said water heater.

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