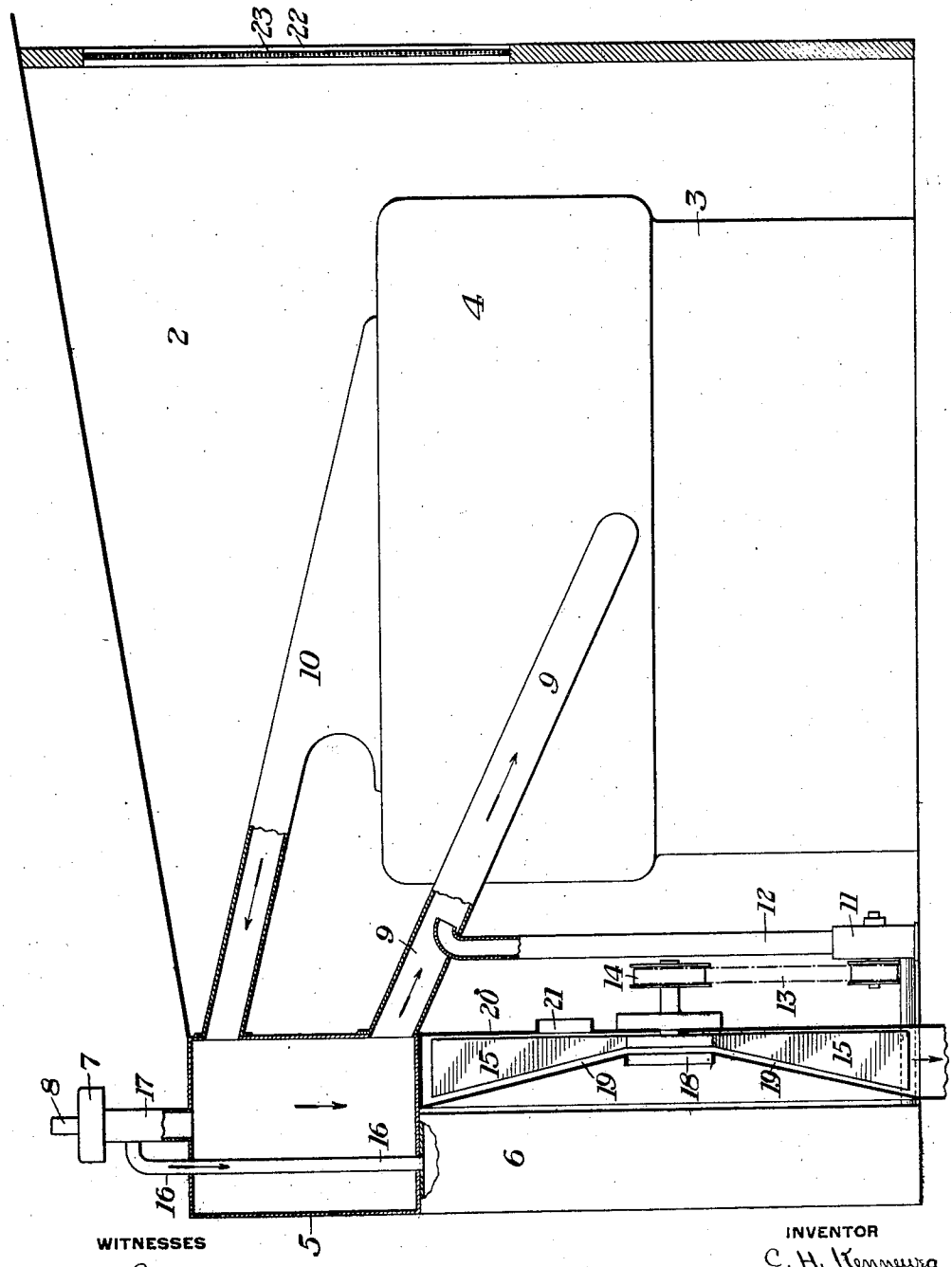
C. H. KENNEWEG.

INTERNAL COMBUSTION ENGINE.

APPLICATION FILED JULY 18, 1917.

1,323,366. Patented Dec. 2, 1919.



WITNESSES

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INTERNAL-COMBUSTION ENGINE.

1,323,366. Specification of Letters Patent. Patented Dec. 2, 1919.

Application filed July 18, 1917. Serial No. 181,434.

To all whom it may concern:

Be it known that I, CHRISTIAN H. KENNEWEG, a citizen of the United States, residing at Millvale, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Internal-Combustion Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a view partly in vertical section and partly in side elevation, largely diagrammatic, of apparatus embodying my invention.

My invention has relation to internal combustion engines and is designed to provide means for maintaining a relatively high temperature of the engine, while maintaining the temperature substantially constant and preventing its rising materially above the desired maximum.

A further object of the invention is to provide means whereby the engine space or compartment is rendered substantially dust proof.

The nature of my invention will be best understood by reference to the accompanying drawing in which I have illustrated a preferred embodiment thereof, and which will now be described, it being premised, however, that various changes may be made in the details of construction and arrangement in the combination of the parts, without departing from the spirit and scope of my invention, as defined in the appended claims.

In this drawing the numeral 2 designates the engine compartment or space in which is mounted the engine block 3. 4 designates the water jacket of the engine. 5 designates a water tank located over the condenser or radiator 6 and having the usual filler cap 7 and blow-off 8. 9 is a water inlet pipe leading from the lower part of the water tank 5 to the water jacket 4; and 10 is an overflow or return pipe leading back from the upper portion of the water jacket to the upper portion of the tank 5. 11 is a water pump for returning the water of condensation from the radiator back into the system. In the arrangement shown, the delivery pipe 12 of this pump leads into the water inlet pipe. The pump may be driven by belt connection 13 and pulley 14 on the shaft of the fan 15. 16 is a steam pipe which leads from the filler tube 17 into the upper portion of the radiator or condenser.

The fan 15 is of the blower type, taking its supply of air at its central eye 18, this air passing through the condenser and through the conical chamber 19 which leads it to the eye 18. The rear wall 20 of the fan chamber or compartment is entirely closed with respect to the engine compartment 2, with the exception of the small opening 21 near the center of the fan and which provides ventilation for the motor compartment. The motor compartment is also entirely closed except for the air inlet opening 22 in its rear wall, which provides for the entrance of air for carbonization, etc.; but this opening is rendered dust proof by means of an air screen 23 of any suitable character. In this manner, the compartment 2 is rendered substantially dust proof and all the dirt from the outside is effectually prevented from entering. This is an important feature which greatly increases the efficiency of the engine, particularly on road vehicles, tractors, and the like.

It will be noted that there is no positive circulation of the water, or other cooling fluids, through the water jacket 4; and that such circulation as takes place is purely a heat circulation. There will be practically no circulation until the temperature of the water approaches or reaches the boiling point. When this occurs, steam will be formed in the upper portion of the water tank 5, and this steam will escape by the pipe 16 and pass through the condenser. None of the water (except such as may be carried by the steam) passes into or through the condenser.

It will be readily understood that my invention provides means whereby an engine may be maintained at a substantially high but relatively constant temperature, thus especially adapting it for use with kerosene or other relatively heavy oils as a fuel. The only water circulation is that of a thermo-siphon system which becomes effective when the desired maximum temperature is reached. Inasmuch as only the steam generated is circulated through the condenser, a relatively small condensation surface is necessary and which can be effectively air cooled by the operation of the fan. By using oil or other liquid of a relatively high vaporizing temperature, the constant temperature at which the engine is maintained could be made considerably higher than when water is used as the cooling medium.

While I have used the term "water tank" herein and in the appended claims, to designate the reservoir for the cooling fluid, I desire this term to be understood as including a tank for any circulating medium which may be used.

I claim:

1. A cooling system for internal combustion vehicle driving engines, comprising, in combination with an engine and its water jacket and radiator, a water tank above the radiator, a thermo-siphon circulating system connecting said tank with the water jacket of the engine, the return side of said system where it connects with said tank being at a materially higher level than the highest portion of said jacket, said tank having a communicating steam chamber, a steam connection between said chamber and the radiator, and a fan for maintaining an air circulation through the radiator; substantially as described.

2. A cooling system for internal combustion vehicle driving engines, comprising, in combination with an engine and its water jacket and radiator, a water tank above the radiator, a thermo-siphon circulating system connecting said tank with the water jacket of the engine, the return side of said system where it connects with said tank being at a materially higher level than the highest portion of said jacket, said tank having a communicating steam chamber, a steam connection between said chamber and the radiator, and a fan for maintaining an air circulation through the radiator, together with a water return connection leading from the condensation chamber of the radiator, a pump for operating said connection, and a driving connection for said pump; substantially as described.

In testimony whereof, I have hereunto set my hand.

CHRISTIAN H. KENNEWEG.