

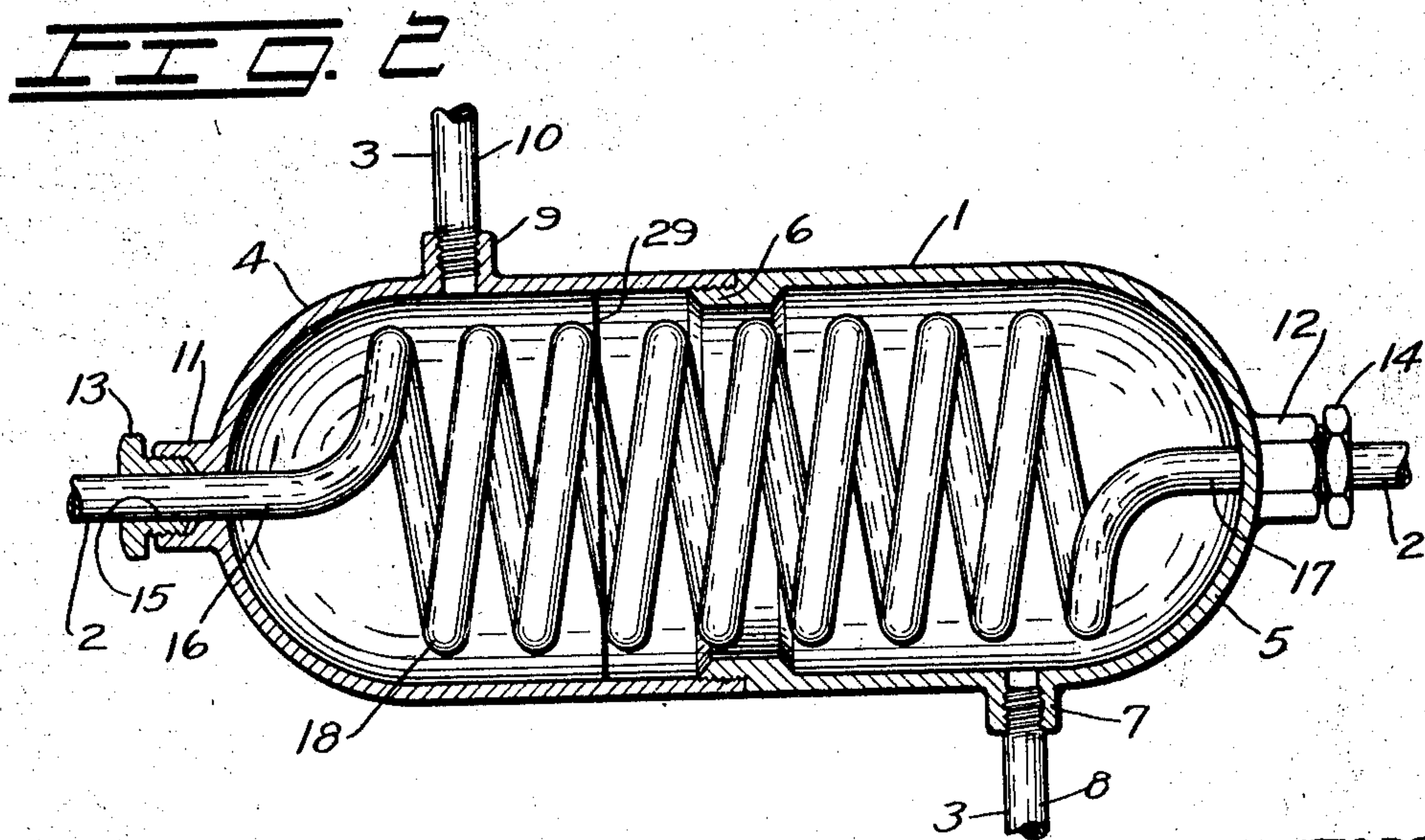
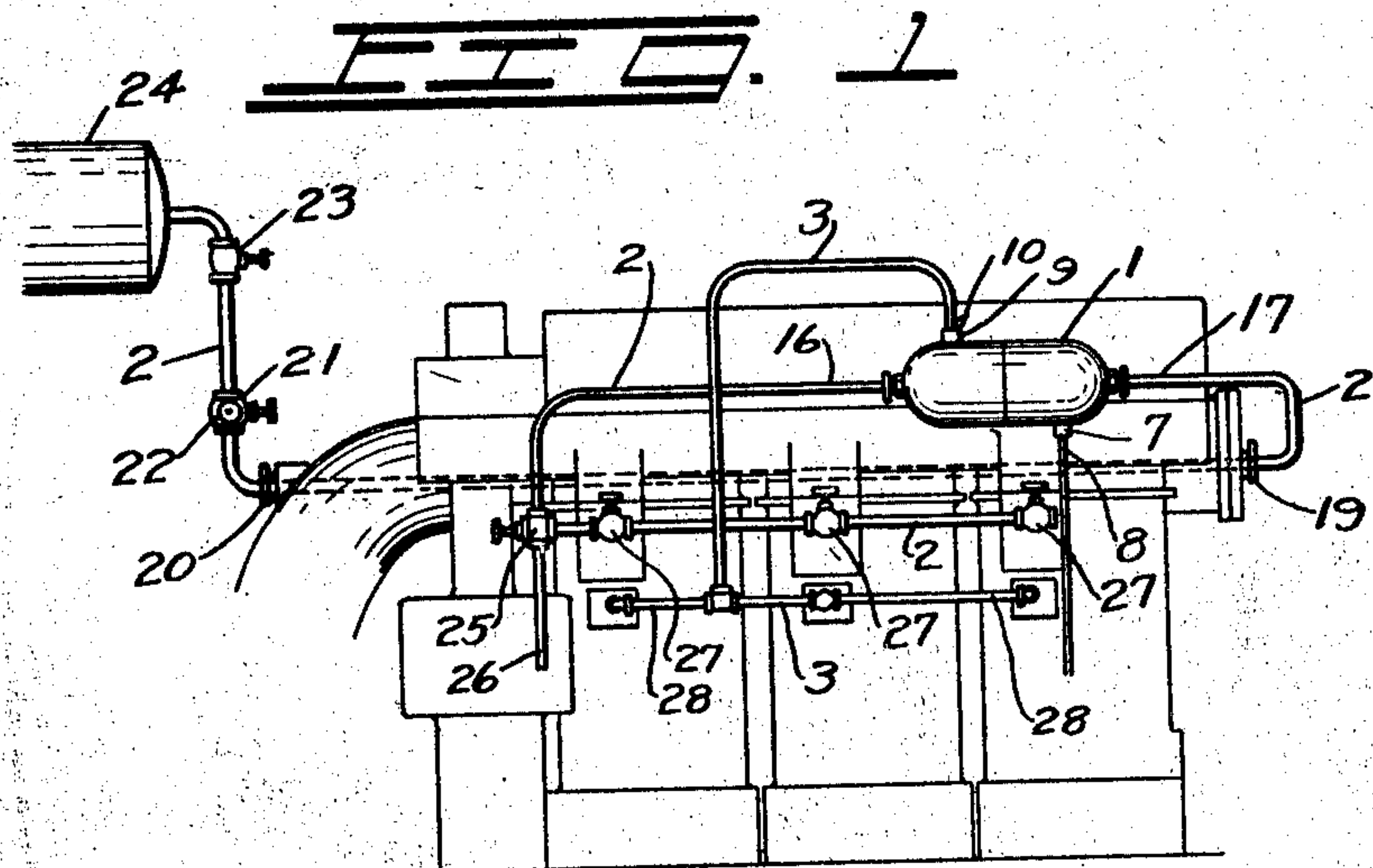
Feb. 2, 1926.

1,571,663

C. FOSS ET AL

OIL ENGINE HEATER

Filed Sept. 4, 1923



INVENTORS

Carl Foss

Simon O. Foss

By *Harry Bowen*
ATTORNEY

UNITED STATES PATENT OFFICE.

CARL FOSS AND SIMON O. FOSS, OF SEATTLE, WASHINGTON.

OIL ENGINE HEATER.

Application filed September 4, 1923. Serial No. 660,717.

To all whom it may concern:

Be it known that we, CARL FOSS and SIMON O. FOSS, citizens of the United States, residing at Seattle, county of King, and State of Washington, have invented a new and useful Oil Engine Heater; and we do hereby declare that the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention is an attachment for internal combustion engines that will make it possible to burn a low grade of fuel oil with a high degree of efficiency.

The object of the invention is to raise the specific gravity of fuel oil by heating it to a high temperature, so that it will practically vaporize as it enters the intake manifold.

Another object of the invention is to provide a heater in which the gravity of fuel oil may be raised by raising the temperature of the oil by heat from steam that is generated in a pipe passing through the exhaust manifold of an internal combustion engine.

And a further object of the invention is to provide a means for straining oil that may have passed through a heater, as it passes from the heater to the intake manifold.

With these ends in view the invention embodies a cylindrical shaped heater having a pipe coil in it, one end of which is connected to a pipe that passes through the exhaust manifold, and into which water may be admitted so that as it passes through the manifold it will be converted into steam, and the other end of which is connected to the intake manifold. The heater has an opening at one end through which oil may be admitted to it and another opening adjacent the opposite end which is connected by a pipe to the carburetor so that the heated oil may pass into the carburetor. The water pipe that passes through the exhaust manifold is provided with a drip valve at the intake end, so that water may be admitted to it drop by drop, and this pipe is provided with a drain valve at its opposite end so that condensation may be drained out of it before it passes to the intake manifold.

Other features and advantages of the invention will appear from the following de-

scription taken in connection with the drawings, wherein:—

Figure 1 is a part side view of an engine showing the device installed.

Figure 2 is a cross section through the oil heater.

In the drawings I have shown my device as it would be installed wherein numeral 1 indicates the heater, numeral 2 the water pipe, and numeral 3 the oil pipe.

The heater 1 may be constructed of a cylindrical casing with two sections 4 and 5, one of which is threaded on the interior and the other of which has a threaded lug 6 extending around its interior, upon which the former section may be screwed. On the lower side of the section 5 is a boss into which a section 8 of the pipe 3 may be screwed which forms the oil inlet of the heater, and on the section 4 is a boss into which a section 10 of the pipe 3 may be screwed, which will form the oil outlet. In the ends of the heater are bosses 11 and 12, the exterior surface of which is hexagonally shaped, and into these bosses nuts 13 and 14 may be screwed to form stuffing boxes, which will prevent oil in the heater leaking out of the ends. Holes 15 are placed through the nuts 13 and 14 at the bosses 11 and 12, and through these holes the sections 16 and 17 of the pipe 2 may be placed. The sections 16 and 17 of the pipe 2 may be bent to form a coil 18 inside of the heater through which steam may circulate to heat oil in the heater.

The section 17 of the pipe 2 may extend outward, around the end of the engine through the exhaust pipe on the opposite side. Stuffing boxes 19 and 20 may be placed in the end of the exhaust pipe to seal the holes through which the pipe 2 passes. The opposite end of the section 17 will have a drip valve 21 in it, which will be provided with a glass 22 so that the drip may be seen and regulated, and beyond this valve is another valve 23, by which the water may be shut off without disturbing the drip valve. The pipe may then extend to a tank 24, or any other suitable water supply.

The section 16 of the pipe 2 may have a drain valve 25 in it by which water that condenses in the pipe may be drained to any suitable point through a pipe 26, and from

this valve the pipe 2 will extend to the intake manifold into which steam in the pipe may be admitted by the valves 27.

The section 8 of the pipe 3 may be connected to an oil tank or any suitable means for supplying oil to the heater, and the section 10 of the pipe 3 may extend to the carburetor through the sections 28, so that the oil will first pass into the heater and after it is heated by steam passing through the coil 18, it may pass directly to the carburetor.

A fine screen 29 may be placed in the heater between the inlet and outlet so that oil passing through the heater may be screened.

It will be understood that changes may be made in the construction without departing from the spirit of the invention, one of which changes may be in the location of the heater, another may be in the means for connecting the steam supply pipe from the exhaust manifold to the heater and to the intake manifold, and still another may be in the means for connecting oil from the heater to the carburetor.

The construction may be readily understood from the foregoing description. To use the device it may be installed as shown in Figure 1, or in any other suitable arrangement, and as the engine is started the water may be allowed to drip into the pipe that passes through the exhaust manifold by opening the valve 23 and regulating the drip by the valve 21, and as the pipe that passes through the manifold will be red hot this water will immediately be converted into steam and the steam will pass through the coil in the heater and raise the temperature of the oil to a very high degree. The heated oil and steam will then intermingle in the intake manifold and thereby supply a gas of a very high efficiency to the cylinders. This will make it possible to burn a low grade of fuel oil with practically the same results that are obtained by the use of gasoline.

Having thus fully described the invention

what we claim as new and desire to secure by Letters Patent, is:

1. A fuel oil heater for internal combustion engines having an intake manifold, an exhaust manifold, and a carburetor, a tank having pipe coils in it, means for supplying crude oil to the tank, other means for conveying the oil from the tank to the intake manifold, and suitable means for generating steam by passing a small amount of water through the exhaust manifold and conveying it through the pipe coil to raise the temperature of the oil in the tank.

2. A fuel oil heater for internal combustion engines having an intake manifold, an exhaust manifold, and a carburetor, a receptacle for holding oil, means for feeding oil to the receptacle from a supply tank and from the receptacle to the intake manifold, and another means for conveying water through the exhaust manifold and from there through a pipe coil in the receptacle, said coil having an exhaust outlet which is also connected to the intake manifold.

3. A fuel oil heater for internal combustion engines having an intake manifold, an exhaust manifold, and a carburetor, a cylindrical shaped tank having a pipe coil in it, a means for feeding oil to the lower side of the tank, and from the upper side of the tank to the carburetor; and other means for feeding steam from a generator in the exhaust manifold to one end of the pipe coil, and from the opposite end of the pipe coil to the intake manifold.

4. In a means for preparing fuel oil for combustion, a means for conveying a small amount of water through the exhaust manifold of an engine, a means for bringing super-heated steam generated thereby into contact with oil that is being fed to the carburetor of the engine before it reaches the carburetor, and other means for permitting some of the super-heated steam to enter the intake manifolds of the engine.

CARL FOSS.
SIMON O. FOSS.