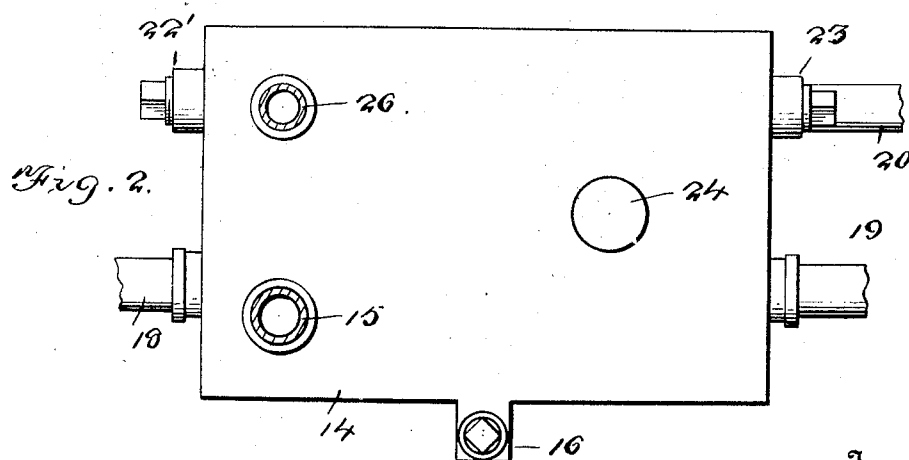
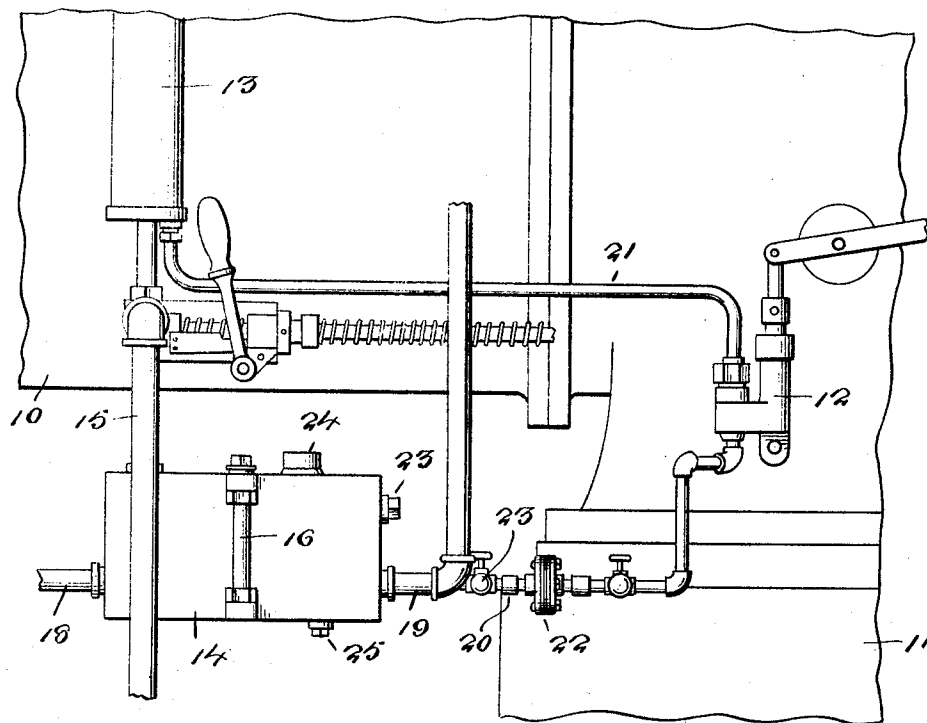


1,406,766.

Fig. 1.



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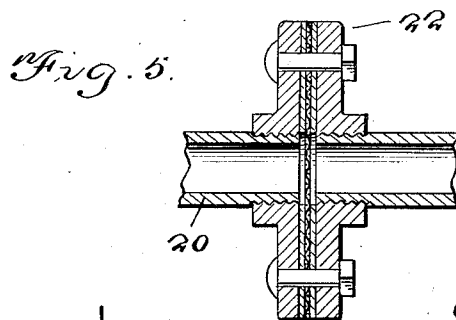
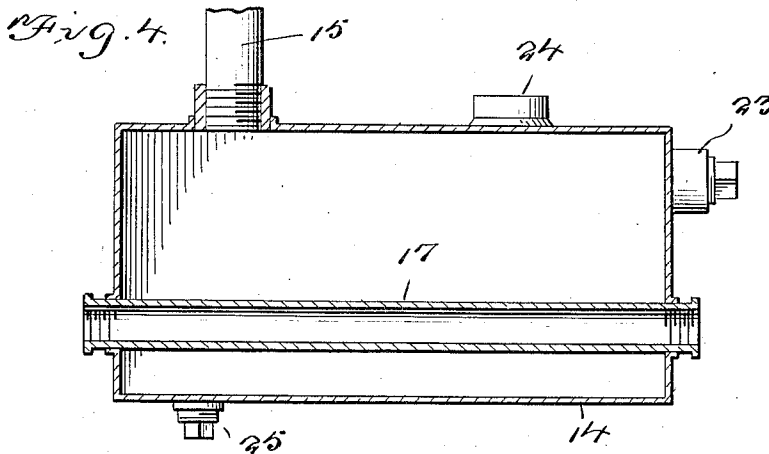
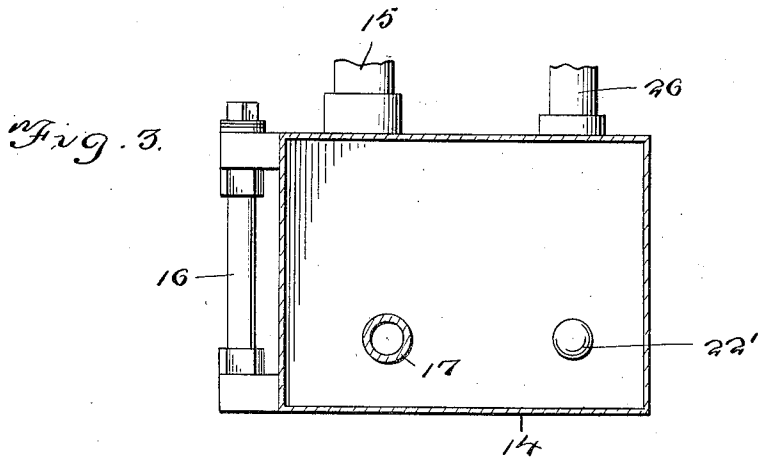
By *Victor J. Evans*
Attorney

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OIL HEATER FOR ENGINES.
APPLICATION FILED MAY 23, 1919.

1,406,766.

Patented Feb. 14, 1922.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES E. SHIPP, OF DETROIT, TEXAS.

OIL HEATER FOR ENGINES.

1,406,766.

Specification of Letters Patent. Patented Feb. 14, 1922.

Application filed May 23, 1919. Serial No. 299,172.

To all whom it may concern:

Be it known that I, CHARLES E. SHIPP, a citizen of the United States, residing at Detroit, in the county of Red River and State of Texas, have invented new and useful Improvements in Oil Heaters for Engines, of which the following is a specification.

This invention relates to internal combustion engines of that type in which crude oil is employed as a fuel.

The object of the present invention is the novel means for pre-heating the oil before it is fed to the combustion chamber, so that it will be more susceptible to vaporization and therefore more readily combustible.

Another object of the invention is to utilize the water of the water circulating system of the engine for this pre-heating operation, the construction being such that by rearranging the pipes of the water circulating system and the oil supply, the tank, which forms a part of the pre-heating apparatus, may be either used in an over-head or underground position.

Another object is to provide for removing all extraneous matter from the oil before it reaches the combustion chamber and for this purpose a filter or strainer is included in a feed pipe, so that oil will pass there-through on its way to the engine.

Other objects and advantages of the invention will appear as the following description is read in connection with the accompanying drawings.

In the drawings:

Figure 1 is a side elevation of a portion of an internal combustion engine equipped with the present invention.

Figure 2 is a plan view of the same.

Figure 3 is a transverse section through the fuel heater.

Figure 4 is a longitudinal section of the same.

Figure 5 is an enlarged section through the strainer or filter.

Referring to the drawings in detail, wherein like characters of reference denote corresponding parts, the numeral 10 indicates a portion of the cylinder of an internal combustion engine, which is mounted upon a base 11. This engine is of the crude oil type and for this purpose includes the usual pump 12, which is included in the feed pipe and the pump or ejector 13, which sprays the oil into the combustion chamber.

As is well known, engines employing crude oil as a fuel operate through spontaneous combustion and for this purpose it is necessary to bring the fuel to a high temperature, so that when the gases are compressed spontaneous combustion will occur.

It is the purpose of the present invention to pre-heat the fuel before it enters the combustion chamber, and to accomplish this, there is provided a receptacle 14, into which the fuel is conducted from a suitable source through the medium of a pipe 15. A sight glass 16 is provided upon the receptacle, so that the amount of fuel therein may be determined.

Passing longitudinally through the receptacle 14, is a pipe 17, each end of this pipe being connected to the water circulating system of the engine through the medium of pipes 18 and 19, so that the water heated in the water jacket of the engine will circulate through the receptacle to heat the fuel therein.

Extending from one end of the receptacle is a pipe 20, which is connected to the pump 12, the said pump forcing the fuel through the pipe 20 and through a pipe 21 to the pump or ejector 13. Positioned intermediate the ends is a strainer or filter 22, so that fuel passing through this pipe must also pass through the filter. A valve 23 is located in the pipe between the filter or strainer 22 and the receptacle 14, and by this means the flow of fuel may be interrupted and the filter or strainer taken apart and cleaned without interrupting the operation of the engine, there being sufficient fuel within the pump or ejector 13 to operate the engine during this cleaning operation.

If desired, the water from the water jacket of the engine may be fed directly to the interior of the receptacle 14 and fuel passed through the pipe leading through the receptacle. In this event, the amount of water in the receptacle will be indicated by the glass 16. To accomplish this, the fuel will be passed through the pipe 17 and the water will enter the receptacle through a pipe connected to a nipple 22, and be conducted from the receptacle through a pipe connected to a nipple 23. The receptacle is further provided with upper and lower clean out openings 24 and 25.

In order to prevent waste of fuel, an overflow pipe 26 connects the pump or ejector 13

with the interior of the receptacle, so as to conduct the waste oil back to the receptacle for use.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

10 Having described the invention, what is claimed is:

The combination with an internal combustion engine, of a fuel receptacle, a supply

pipe arranged therein, a sight glass provided upon the receptacle, a water circulating pipe 15 passing longitudinally through the receptacle, said pipe having its end connected to the water circulating system of the engine, a pair of pipes forming said connection, a feed pipe extending from one end of the 20 receptacle and connected to the engine, a strainer positioned intermediate the ends, said receptacle having upper and lower cleanout openings.

In testimony whereof I affix my signature. 25
CHARLES E. SHIPP.