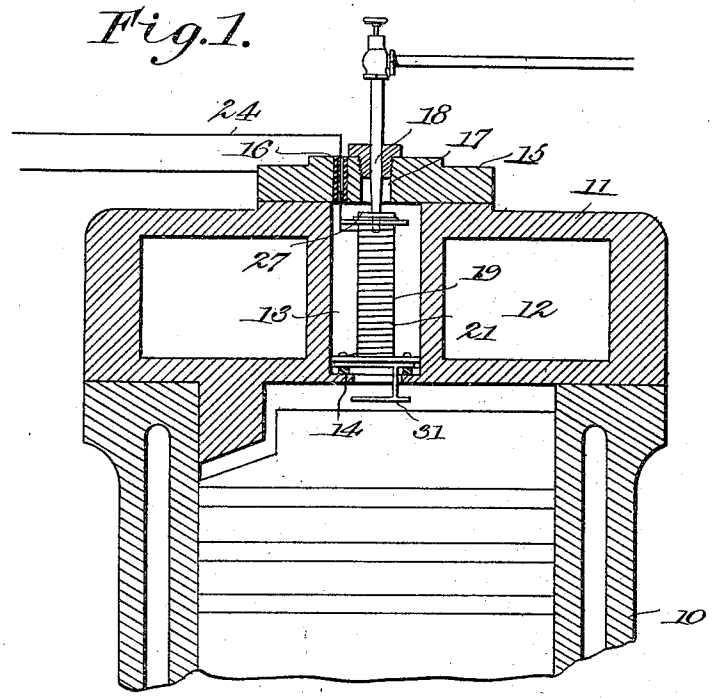
June 10, 1924. 1,497,390

T. O. STRAUSS

FUEL IGNITING DEVICE

Filed March 31, 1922

Fig. 1.



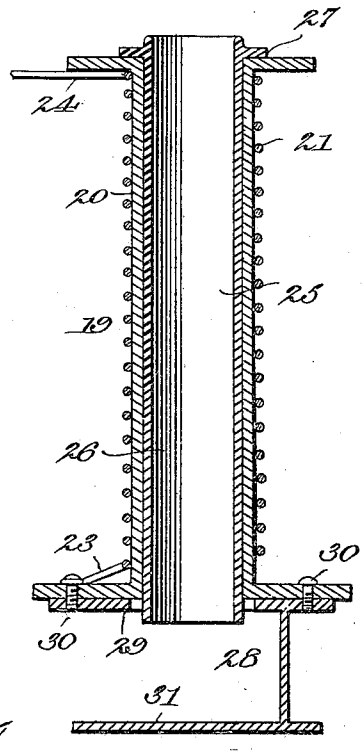


Fig. 2.

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Patented June 10, 1924. 1,497,390

UNITED STATES PATENT OFFICE.

THEODORE O. STRAUSS, OF NEW YORK, N. Y.

FUEL-IGNITING DEVICE.

Application filed March 31, 1922. Serial No. 548,463.

To all whom it may concern:

Be it known that I, THEODORE O. STRAUSS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Fuel-Igniting Devices, of which the following is a specification.

This invention relates to fuel igniting devices.

More particularly the invention relates to fuel igniting devices such as are used in connection with internal combustion engines which utilize a crude oil fuel.

Some of the objects of the present invention are: to facilitate the starting of an engine utilizing crude oil fuel by employing a fuel igniting device which may be heated quickly; to produce a device which is of such construction and which is employed in such a manner that the device will effectually ignite fuel under a comparatively increased working pressure which results in a better thermal efficiency than hitherto obtained; to provide means for electrically heating a burner tube forming a part of the device of the present invention; to employ a carbon accumulator which defines a fuel passage; to employ means for effecting an even distribution of the fuel. With these and other objects in view the invention resides in the particular provision, construction and relative disposition of parts hereinafter fully described and illustrated in the accompanying drawing, in which:

Figure 1 is a sectional view of a part of an internal combustion engine showing the device of the present invention applied thereto.

Figure 2 is an enlarged sectional view through the device.

Now referring to Figure 1 it will be apparent that there has been shown an internal combustion engine piston-cylinder 10 which has attached to the top thereof a head 11 having a chamber 12 for a cooling fluid, and a chamber 13 arranged centrally thereof, and which chamber 13 communicates with the interior of the piston-cylinder 10. At the bottom of the chamber 13 and formed as a part of the head 11 is a flange 14. The upper end of the chamber 13 is closed by a removable cover plate 15 which has an insulator bushing 16 extending therethrough, and which also has a fuel inlet port 17 extending therethrough centrally thereof. Fuel such as petroleum is fed through the inlet port 17 with a nozzle 18 in connection with a fuel supply, and means for forcing the fuel out through said nozzle.

In order that the fuel which is fed through said inlet port 17 may be ignited to bring about the necessary combustion for piston operation, there is provided a fuel igniting device 19 which is arranged in the chamber 13. This device 19 includes a burner tube 20 open at each end and made of suitable non-combustible material capable of being made red hot. The tube 20 has a flange at either end thereof. An electric resistance 21 surrounds the burner tube 20, the said resistance being in the nature of a series of windings of suitable gauge copper wire one terminal 22 of which is grounded as at 23, and the other terminal 24 of which extends through the bushing 16 to a suitable source of electrical energy (not shown), which is electrically connected to the plate 15 to complete a circuit through the resistance 21.

In order to maintain the thermal efficiency of the burner tube 20, a tubular member 25 of some suitable non-combustible material is disposed in the tube 20, and the member 25 has an external diameter substantially equal to the internal diameter of the tube 20, and therefore fits within the same. The member 25 defines a fuel passage 26 which extends through the device. The member 25 maintains the thermal efficiency of the tube 20 because all carbon from combustion accumulates on the wall of the member 25. The member 25 is removable and therefore access may be had to the interior of the member for the removal of the carbon accumulation. Carbon allowed to accumulate on the wall of the tube 20 would minimize the thermal efficiency thereof. The heated tube 20 sends heat to the member 25, both tube and member 25 being heated to the same degree—red hot. A flange 27 at the upper end of the member 25 holds the same in place.

In order to effect an even distribution of the fuel and in order to promote a more thorough combustion of the fuel there is employed an element 28 comprising an attaching part 29 which receives fastening means 30 also received by the lower flange of the tube 20 for the attachment of the element; and a baffle 31 connected to the part 29, which baffle traverses the fuel passage 26. If desired the element 28 may be omitted.

The fuel passes from the nozzle 18 into the passage 26 since the nozzle is arranged in alinement with the said passage. The fuel is fed in a manner to obtain the desired result. The tube 20 may be heated within a comparatively short time to start the engine and after the engine has been started, the current to the resistance 15 may be and is cut off—the tube 20 remaining heated by combustion action. If desired the member 25 may be omitted.

From the foregoing, it will be manifest that, the chamber 13 is in open communication with the interior of the piston-cylinder, therefore the forces of combustion will be equal interiorly and exteriorly of the device 19. That is desirable because it obviates "blow-outs" such as occur with "bulbs" a form of device used in connection with crude oil engines; and it allows the engine to operate under a greater working pressure.

What is claimed is:

1. A fuel igniting device for internal combustion engines utilizing crude oil fuel comprising an electric resistance, a non-combustible burner tube through which the fuel passes surrounded by said electric resistance, and a removable carbon accumulator surrounded by said non-combustible burner tube.

2. In combination with an engine having a piston-cylinder, a water-cooled head on said piston-cylinder, said water-cooled head having a chamber which is opened to said piston-cylinder, a fuel igniting device within said chamber, said device comprising an electric resistance, a non-combustible burner tube surrounded by said electric resistance to be heated thereby, a tubular removable carbon accumulator fitting within said non-combustible burner tube and defining a passage for the fuel, and a fuel inlet in said head for the introduction of fuel to said passage.

3. A fuel igniting device for internal combustion engines utilizing crude oil fuel comprising an electric resistance, a non-combustible burner tube having a flange, a non-combustible removable carbon accumulator fitting within said burner tube and defining a fuel passage, and a baffle removably attached to said flange, a part of said baffle traversing said fuel passage.

In testimony whereof I hereby affix my signature.

THEODORE O. STRAUSS.