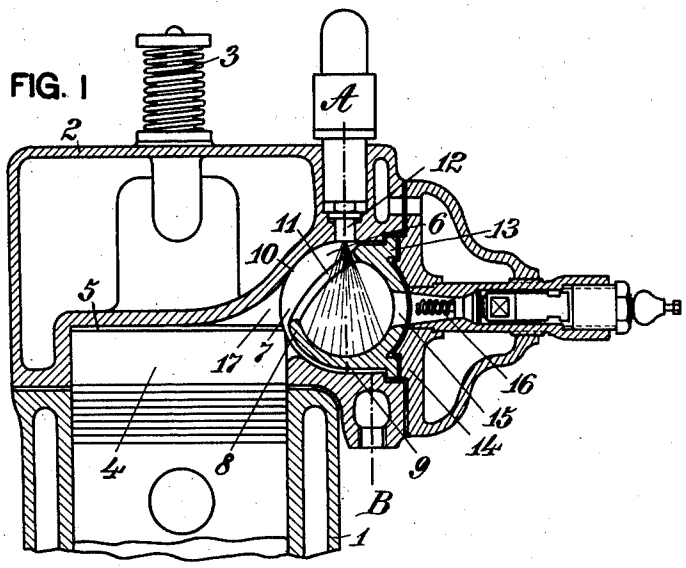
April 10, 1934. F. OBERHAENSLI 1,954,644

HEAVY OIL ENGINE

Filed March 30, 1931

FIG. 1



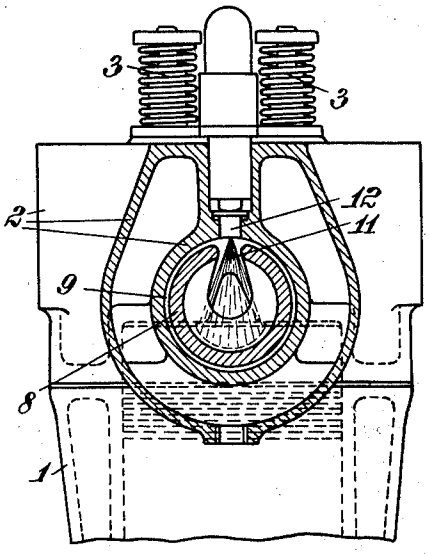


FIG. 2

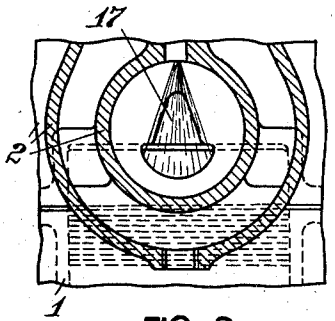


FIG. 3

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HEAVY-OIL ENGINE

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Application March 30, 1931, Serial No. 526,490
In Germany April 9, 1930

4 Claims. (Cl. 123—32)

This invention relates to an improvement in the internal combustion engine shown and described in the United States Patent 1,758,460. In said patent the oil jets are atomized in a separate compression space communicating with the cylinder through a short and narrow passage formed by a partial covering of the aperture between the cylinder and said compression space by means of the bell-shaped incandescent igniting body. Due to this construction, there is no directive guidance for the air currents during their entrance into the compression space. On account of this the air currents will mainly flow into the compression space without reaching the orifice of the fuel nozzle. The formation of the mixture therefore does not begin at points immediately adjacent said orifice so that the time available for the formation of the mixture is not fully utilized.

According to the present invention there is provided for the connection between the cylinder and the mixing chamber which is located in front of the entrance opening of the incandescent body a special guide passage, the direction of which is such that the air engages the oil jets directly in front of the nozzle orifice. In order to enable the air currents to form a uniform and thorough mixture, the sectional area of the guide passage is made to conform to the shape of the entrance opening of the igniting body. This formation can be attained in a particularly simple manner by placing the compression space so far above and to the side of the working space of the cylinder that said guide passage can extend from the cylinder axis through the cylinder head to the nozzle orifice.

The invention is illustrated diagrammatically and by way of example in the accompanying drawing in which Fig. 1 is a longitudinal section through the cylinder of a four-cycle engine designed according to this invention; Fig. 2 is a section on the line A—B of Fig. 1, seen from the right, and Fig. 3 is a similar section, the incandescent body being, however, omitted.

In the drawing, 1 denotes the cylinder, 2 the cylinder head with its inlet and outlet valves 3 for the air and the combustion gases; 4 is the piston, 5 the cylinder working space, 6 the compression and combustion space which communicates with said cylinder space through the opening 7. 8 denotes the incandescent body which is bell-shaped and acts as evaporator and igniter and within which is located the combustion space; it is held in proper position laterally by means of a flange 13 retained in place by a cover 14. 11 denotes the entrance opening in the incandescent member for the oil jets, 12 is the oil nozzle, and 16 is an incandescent helical member located in a space communicating with the interior of the incandescent body 8 through a passage 15. The member 16 serves for starting the engine. 9 is a gap below the incandescent body and 10 is a mixing space provided between this body and the cylinder space.

Now, according to this invention, the connection between the cylinder space 5 and the mixing space 10 is effected by a special guide passage 17 by which the direct air currents flowing in through the neck opening are so guided and directed prior to their entrance into the combustion space that they engage the oil jets directly at the nozzle orifice. This guide passage has essentially a triangular cross section (Fig. 3) conforming as nearly as possible to the opening 11 in the incandescent body (Fig. 2). Said passage extends from the cylinder axis in a gentle curve so as to direct the air across the mixing space 10 to the orifice of the injection nozzle 12, which is mounted above, and at the side of, the cylinder.

I claim:

1. In a heavy oil motor comprising a cylinder, a piston slidable therein, an air inlet valve, a hollow member associated with said cylinder and defining a compression space located at least in part above and to one side of said cylinder into which a charge of air is adapted to be forced and compressed during the compression stroke of the piston, said space communicating with the interior of said cylinder through a constricted passageway, a bell-shaped body provided with an opening and positioned within said member at least partially in spaced relation thereto, whereby an intermediate space between said body and said member is formed, and a fuel nozzle arranged to spray a stream of fuel into the interior of said body through the opening thereof, said body being adapted to become incandescent during the operation of the motor to vaporize and ignite said fuel, a channel formed in the top wall of said cylinder connecting the interior of said cylinder and said compression space, said channel being shaped to direct air flowing therethrough against the mouth of said fuel nozzle.

2. In a motor as claimed in claim 1, said channel extending to the cylinder axis.

3. In a motor as claimed in claim 1, said channel being of substantially the same form as the opening in the bell-shaped body.

4. In a motor as claimed in claim 1, said channel being of substantially the same form as the opening in the bell-shaped body and extending to the cylinder axis.

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