S. I. FEKETE.

INTERNAL COMBUSTION ENGINE.

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1,343,668.

Patented June 15, 1920.

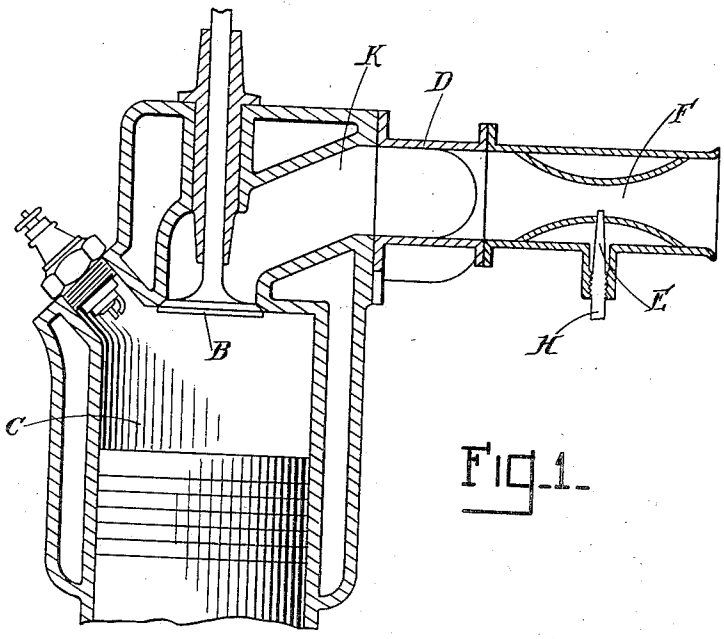


Fig. 1.

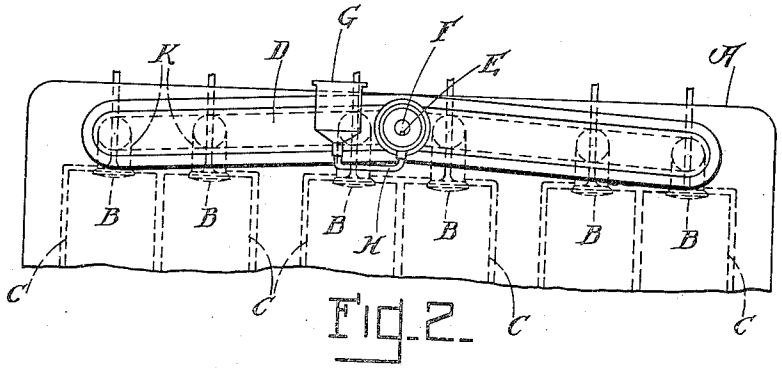


Fig. 2.

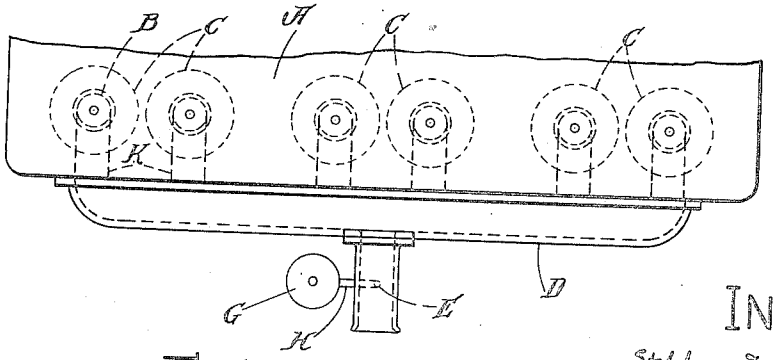


Fig. 3.

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UNITED STATES PATENT OFFICE.

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INTERNAL-COMBUSTION ENGINE.

1,343,668. Specification of Letters Patent. Patented June 15, 1920.

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To all whom it may concern:

Be it known that I, STEPHEN IVAN FEKETE, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Internal-Combustion Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to internal combustion engines having a plurality of cylinders and particularly of the type in which the inlet valve is located on the top of the cylinder, this type of valve being ordinarily known as an overhead valve. Great difficulty is being experienced at the present time in starting engines of this type as a result of the fact that the liquid fuel obtainable is composed of a mixture of light and heavy oils.

In engines of this type the inlet manifold ordinarily runs along the tops of the cylinders and the carbureter is located on the side below the top of the engine. The particles of fuel must therefore be lifted from the carbureter by the air and by it carried up into the inlet manifold, thence along the inlet manifold in either direction and past the inlet valves into the various cylinders. When the engine is cold the entire fuel will not be mixed with air or vaporized but on the contrary only the lighter oils will be vaporized while the heavier oils will remain in liquid condition or will condense on the walls of the passage. The movement of the air through the inlet manifold will not be sufficient to lift the particles of heavy fuel up from the carbureter to the level of the inlet valves. Furthermore, when the engine is running normally the particles of light oil and the particles of the heavy oil will have different momentum and will tend to separate from each other. The particles of heavy fuel having less momentum will tend to fall into the first inlet valve which is reached while the particles of lighter oil will be carried on to the cylinders which are farthest away. The result is that there is a slight difference in the carburetion of the gas at the cylinders which are nearer the carbureter and at those which are farther away so that difficulty is experienced in adjusting the carbureter to produce uniform explosions in all the cylinders. The foregoing troubles are characteristic of engines having overhead valves.

My invention remedies these defects without adding to the expense or complicating the engine.

The invention will be fully understood from the following description taken in connection with the accompanying drawings and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings, Figure 1 is a sectional elevation of one cylinder, an inlet manifold and a carbureter.

Fig. 2 is a view in elevation of a block of six cylinders together with the inlet manifold and carbureter.

Fig. 3 is a plan view of the parts shown in Fig. 2.

Referring now to the drawings, at A is shown a block of six cylinders, inlet valves of the overhead type being indicated at B. One of the cylinders C is shown in section in Fig. 1. The inlet manifold is designated D and lies at one side of the line of inlet valves B B instead of over the top of them as has heretofore been the ordinary construction with engines of this type. At E is shown the fuel jet nozzle of a carbureter and at F the air passage of the carbureter, the same being constructed in the shape of a Venturi tube. At G is shown a float chamber of the carbureter connected by a pipe H through which the fuel passes to the fuel orifice. Any form of carbureter may be used. In the drawings, only the essential elements of a carbureter are shown.

It will be seen that the level of the fuel jet is above the inlet valve B and the passage through which the mixture of gas and air passes to the engine is nowhere inclined upwardly at all, but on the contrary is throughout downwardly inclined or horizontal. It will also be seen that the inlet manifold D, which lies along side the inclined passages K leading down to the inlet valves, slopes downwardly in both directions from its central part at which the fuel is admitted, so that any unvaporized hydrocarbon or heavy particles thereof will flow downward toward the inlet valves. In other words, the improved construction is such that the explosive mixture of gas and air emerging from the air passage of the

carbureter moves downward to the cylinders of the engine and there are no pockets into which the heavy particles may drop and accumulate neither are there any upwardly inclined places over which the heavy particles of fuel require to be lifted. The result is that the engine practically primes itself since all the fuel discharged from the fuel jet finds its way at once into the cylinders of the engine.

In addition, when the engine is running there is no separative action causing the heavy particles to enter the cylinders near the inlet manifold and the light particles to enter the cylinders at a distance. On the contrary a uniform mixture in all the cylinders is produced thus making it possible to adjust the carbureter more satisfactorily and producing uniform explosions in all the cylinders. Increased economy also results from the uniform accurate mixture of fuel and air in all of the cylinders.

What I claim is:

1. An internal combustion engine having a plurality of cylinders, an overhead valve in the top of each cylinder, a fuel inlet manifold sloping downwardly in each direction from a fuel admission point midway of the cylinders, and downwardly inclined passages leading from said manifold to said valves, combined with a carbureter the air inlet pipe of which enters the inlet manifold at the said point midway of said cylinders, said carbureter having a fuel jet nozzle located above said midway point.

2. An internal combustion engine having a plurality of cylinders and an overhead inlet valve at the top of each cylinder, said engine being provided with a fuel inlet manifold arranged above the level of the said inlet valves and sloping downwardly from its central part, downwardly inclined passages leading from said manifold to said valves, combined with a carbureter communicating with said central part of said manifold, a fuel jet nozzle leading from said carbureter, and an air inlet pipe into which said nozzle projects with its end above the level of the bottom of said manifold and from which nozzle the bottom of said air inlet pipe slopes downward toward the bottom of said manifold.

In testimony whereof I affix my signature.

STEPHEN IVAN FEKETE.