June 29, 1926. 1,590,677

W. FALCON

MOTOR

Filed June 22, 1925

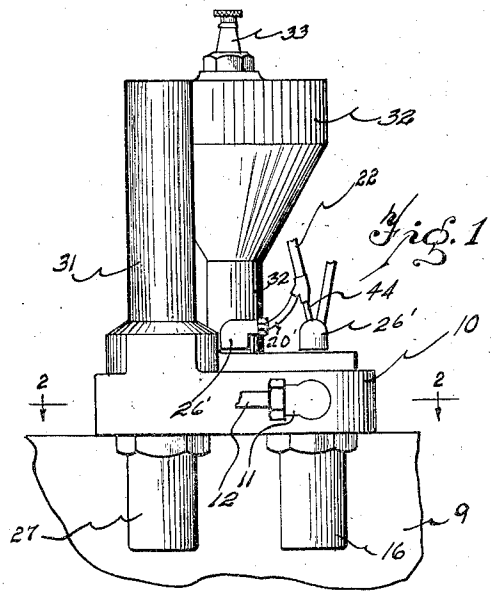


Fig. 1

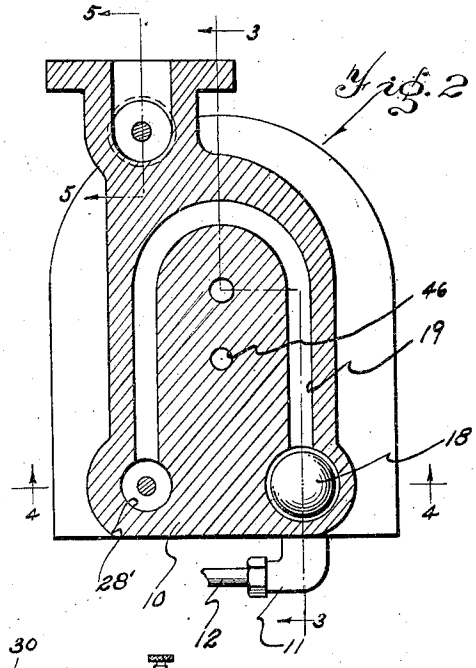


Fig. 2

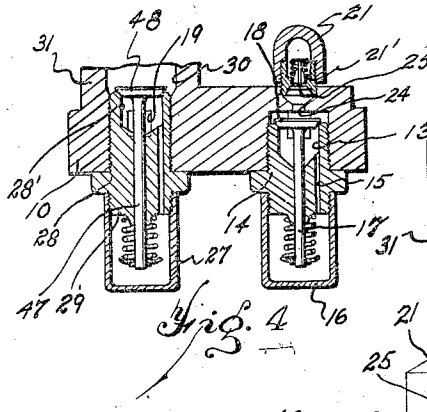


Fig. 4

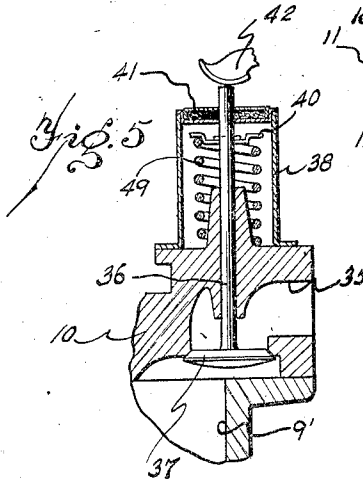


Fig. 5

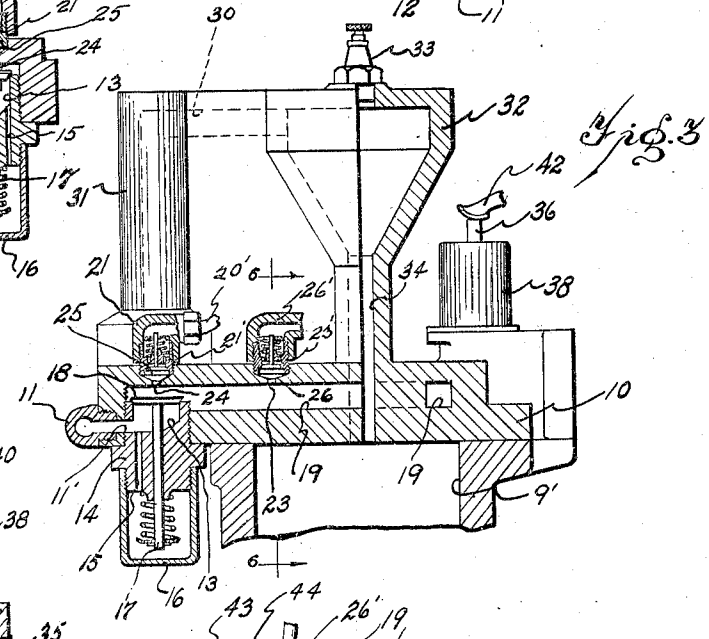


Fig. 3

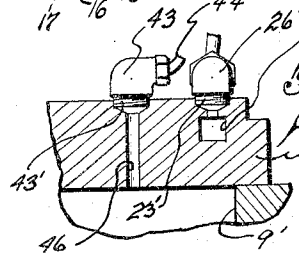


Fig. 6

INVENTOR.
WILLIAM FALCON
By Thos. Donnell
ATTORNEY.

Patented June 29, 1926. 1,590,677

UNITED STATES PATENT OFFICE.

WILLIAM FALCON, OF WARREN, MICHIGAN.

MOTOR.

Application filed June 22, 1925. Serial No. 38,627.

My invention relates to a new and useful invention in an attachment for use with internal combustion engines, and has for its object, the provision of an attachment whereby the fuel delivered to the combustion engine may be a low-grade oil, such as kerosene, and the like, and whereby air and steam may be delivered to the combustion chamber at substantially the same time as the delivery of the fuel thereto.

Another object of the invention is the provision of an attachment of this class, having a passageway formed therein for the travel of water or steam therethrough and communicating with the combustion chamber of the engine, so that the water delivered to the passage is converted into steam before entry into the combustion chamber.

Another object of the invention is an attachment of this kind which will render more efficient the operation of an internal combustion engine and reduce considerably the consumption of fuel.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood from a reference to the accompanying drawings, which form a part of this specification and in which,

Fig. 1 is a side elevational view of the invention, showing, in fragment, the engine with which used.

Fig. 2 is a sectional view taken on substantially line 2—2 of Fig. 1,

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2,

Fig. 4 is a sectional view taken on substantially line 4—4 of Fig. 2,

Fig. 5 is a sectional view taken on substantially line 5—5 of Fig. 2,

Fig. 6 is a sectional view taken on substantially line 6—6 of Fig. 3.

As shown in the drawings, the device is adapted for attachment to an internal combustion engine of ordinary make, having a cylinder block 9, in which are formed cylinders 9′. The device comprises a base 10 having a substantially U-shaped passageway 19 formed therein. Threaded into the base 10 is a nipple 11, which is connected by the pipe 12 to a suitable source of compressed air. This nipple 11 communicates with a passageway 11′, so as to establish communication between the source of air supply and the pocket, or recess, 13, which is formed in the plug 14, threaded into an opening formed in the base 10. Threaded upon a projection of the plug 14 is a cap 16, to provide a housing, the interior of which communicates through the passage 15 with the pocket or recess 13. Slidably mounted in the plug 14 is a valve stem 17, which carries the valve 18 normally spring-held in closing position. Threaded onto a nipple 21′ which projects upwardly from the upper surface of the base 10 is an L 21 which communicates by the pipe 20′ with a suitable water supply. A passageway 24 is formed, which establishes communication between the L 21 and the passageway 19, a normally closed springheld valve 25 being mounted in the nipple, to open and close communication between the L and the passage 19. Communicating with the passage 19, through a passageway 23, is a nipple 23′, which projects from the upper surface of the base 10 and is provided with a springheld normally closed valve 26, so as to open and close communication between the passage 19 and the L 26′ which is attached to the nipple 23′. This L 26′ communicates by suitable piping with a source of fuel supply, such as kerosene.

Threaded into an opening formed in the base 10 is a plug 28, having a neck 29, upon which is threaded a cap 27, to form a housing. Slidably mounted in the plug 28 is a valve stem 47 having the valve 48 mounted thereon, and normally spring held in closed relation, so as to open and close communication between the passage 19 and the interior 30 of the tubular projection 31, which projects upwardly from the base 10. This tubular member 31 communicates with the dome 32 into which is projected a suitable spark plug 33 for igniting the fuel therein. A neck 34 serves to support the dome 32 and the dome 32 communicates through the

neck 34 with the interior of the cylinder 9'. An exhaust passageway 35 is formed in the base 10 and communicates with the cylinder 9', upon the opening of the normally closed springheld valve 37, the stem 36 of which projects upwardly from the base 9 and through a housing 38, secured to the base, the valve being normally held in closed relation by the spring 39, which engages against the collar 40, which is mounted upon the valve stem 36. The housing 38 is formed with a removable cover 41, having an opening formed therein, through which the valve stem 36 projects, this cover 41 being so constructed as to permit the mounting of packing around the valve stem 36.

Secured to a nipple 43', which projects upwardly from the base 10 is an L 43, which connects by a suitable delivery pipe 44 to the source of water supply. A normally closed springheld valve 45 serves to open and close communication between the L 43 and the cylinder 9', the communication being through the passageway 46 formed in the base 10.

In operation, when the engine is being started, a supply of easily vaporized fuel, such as gasolene, may be delivered to the cylinders in any desired manner, so as to set the engine into operation.

When the engine has been running for a short time, suitable controls, which control the flow of fuel and water to the engine, may be operated. These controls are not shown, as they, of themselves, do not constitute the invention and may be of any conventional type.

When the engine is on its exhaust stroke, the rocker arm 42, which is operated by the cam shaft of the engine, and properly timed for the various cylinders, will serve to move the valve 37, so as to establish communication between the exhaust passage 35 and the cylinder 9'. This will permit an escape of the exhaust gases and a satisfactory scavenging of the cylinder. At the same time, the valve 18 will be moved to open position, to permit the entry of air into the passageway 19, and the valves 26 and 25 will be moved to open position to permit the entry of fuel and water into the passageway 19. Likewise, the valve 45 will be moved to open position to permit the flow of water or steam into the cylinder. The air entering the passageway 19 is caused to traverse this passageway and enter the cylinder through the tube 31, and the dome 32, the engine being a two-cycle one, the exhaust stroke serving to effect the intake of the fuel, a thorough mixing of the air, water, and fuel taking place during this traversing.

The timing is such that, after the exhaust stroke is completed, the fuel in the dome is ignited to deliver the power to the piston and cause the power stroke of the engine.

The fuel and water may, if desired, be delivered to the passageway 19 by means of an injector, the style and kind of injector being left optional, as its particular formation forms no part of this invention. If desired, some other means of delivery of fuel and water to the passageway may be used. The water is vaporized while passing through the passageway 19, or at least, upon entering the dome 32, on account of the heat generated, when the fuel is exploded.

While I have illustrated and described the preferred form of structure, I do not wish to limit myself to the precise form of structure shown, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

What I claim is:

1. An attachment for internal combustion engines of the class described, comprising a base having a substantially U-shaped channel formed therein; means for conducting fuel into said channel; means for conducting moisture into said channel; means for conducting air into said channel; a dome mounted on said base and an upwardly extending tubular member communicating with said channel and communicating with said dome, said dome being adapted for positioning in communication with the cylinder of the engine.

2. An attachment for internal combustion engines of the class described, comprising a base having a substantially U-shaped channel formed therein; means for conducting fuel into said channel; means for conducting moisture into said channel; independent control means for each of said conducting means; a dome mounted on said base in communication with the cylinder of the engine; and an upwardly projecting tubular member communicating with said passage and said dome, said dome providing additional combustion space for combustion of the fuel.

3. An attachment for internal combustion engines of the class described, comprising a base having a substantially U-shaped channel formed therein; means for conducting fuel into said channel; means for conducting moisture into said channel; independent control means for each of said conducting means; a dome mounted on said base in communication with the cylinder of the engine; an upwardly projecting tubular member communicating with said passage and said dome, said dome providing additional combustion space for combustion of the fuel, said base having an exhaust port communicating with said cylinder; and a valve for controlling said exhaust port.

4. An attachment for internal combustion engines, comprising a base having a substantially U-shaped channel formed therein; a plurality of delivery means for conduct-

ing fuel, air and moisture separately into said channel; individual control means for each of said delivery means; a dome mounted on said base, said dome communicating, through an opening formed in said base, within the U described by said channel with a cylinder of the engine; and a tubular member projecting upwardly from said base and adapted for establishing communication between said channel and said dome.

In testimony whereof, I have signed the foregoing specification.

WILLIAM FALCON.