

March 3, 1936.

R. P. WRIGHT

2,032,822

LUBRICATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Filed July 19, 1933

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FIG. 1.

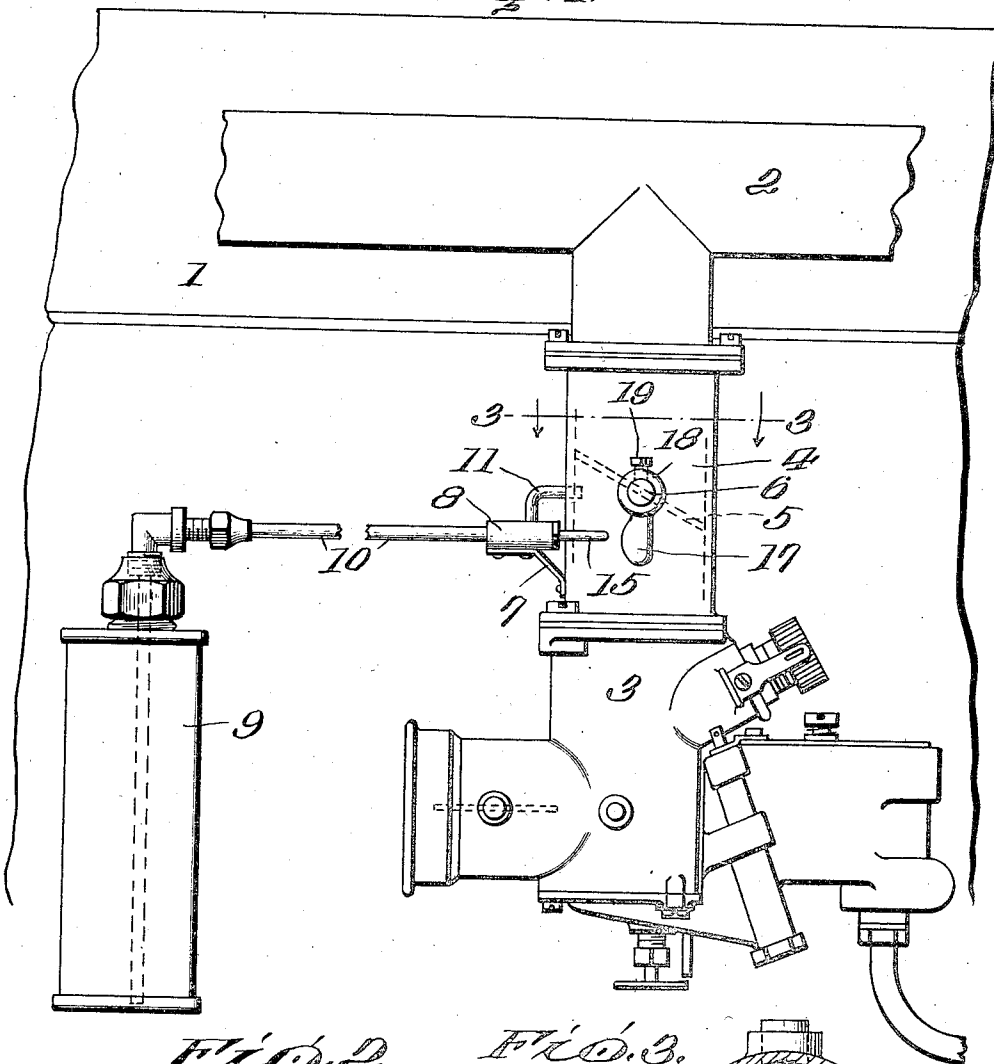
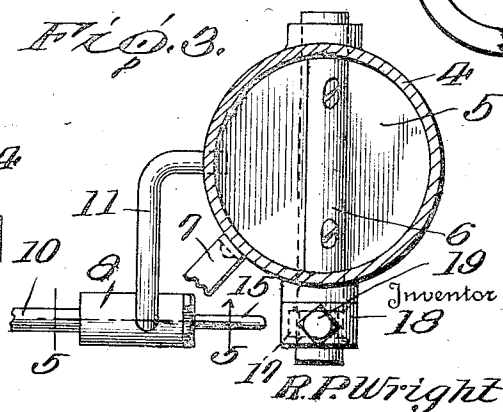
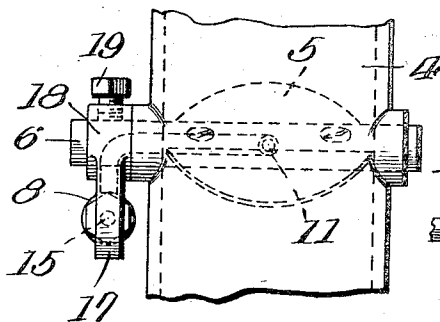


FIG. 2.

FIG. 3.



By *Patterson Wright & Patterson*
Attorneys

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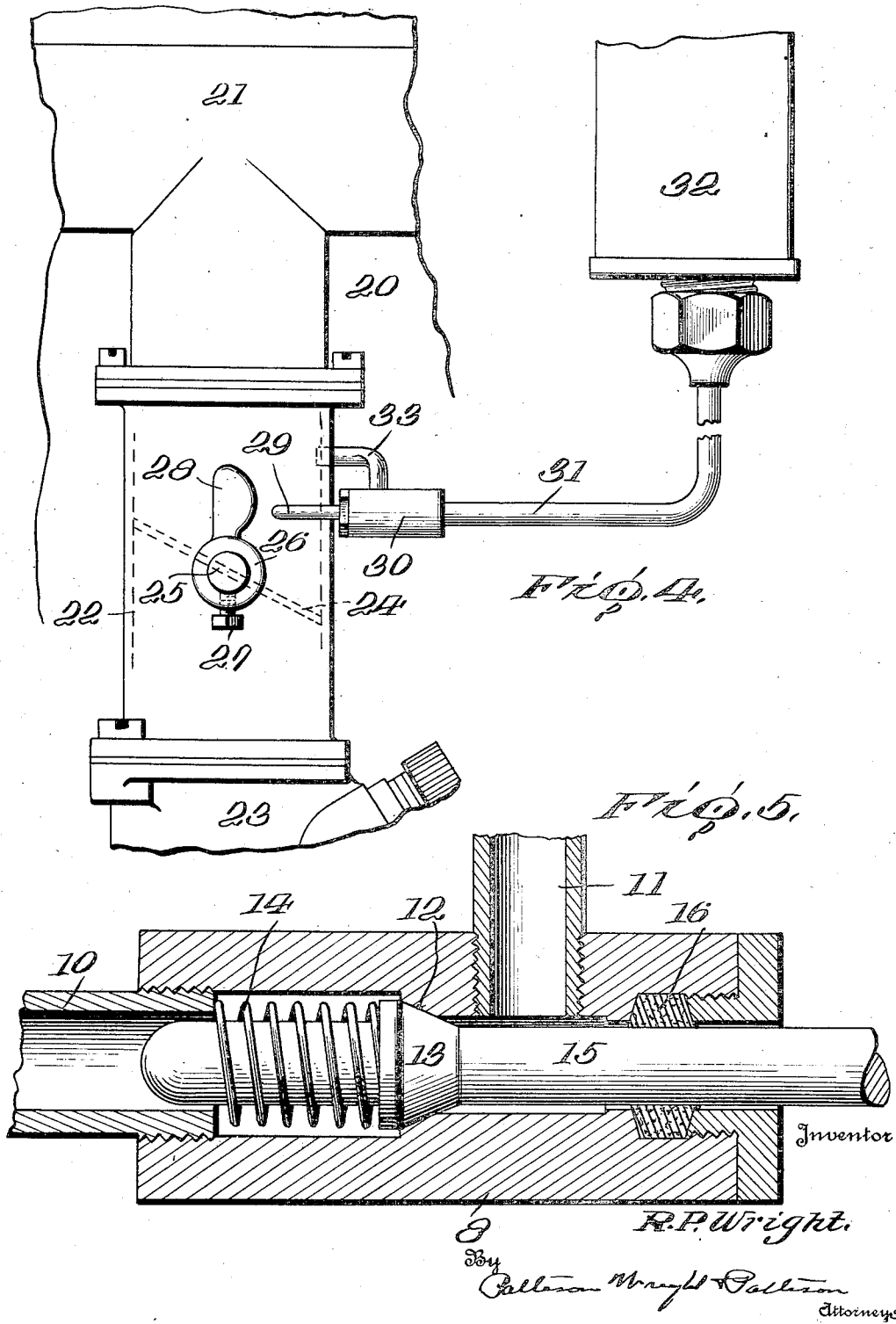
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UNITED STATES PATENT OFFICE

2,032,822

LUBRICATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Rea P. Wright, Chevy Chase, Md., assignor to
Emerol Manufacturing Co., New York, N. Y., a
corporation of Illinois

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4 Claims. (Cl. 123—196)

This invention relates to certain new and useful improvements in a lubricating system for internal combustion engines, the object being to provide positive means actuated by the movement of the throttle valve for controlling the supply of lubricant for lubricating the pistons and valves of the engine at a predetermined time whereby the lubricant will be supplied when desired and cut off when it is not necessary for an additional supply to be furnished the engine.

In the construction disclosed in this application a valve is disposed between the source of supply and the carbureting passage leading to the engine, which valve is positively actuated by the movement of the throttle valve whereby the lubricant can be supplied to the induction pipe of the engine either by gravity or suction as by having a valve controlling said supply, the conduit leading from the source of supply will be maintained closed until it is opened at the proper time to admit lubricant.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings,

Figure 1 is a side elevation of a portion of an internal combustion engine showing the application of my improved construction of lubricating system thereto;

Figure 2 is a detail elevation of a portion of the charge forming device showing the means for operating the valve by the movement of the throttle;

Figure 3 is a section taken on line 3—3 of Figure 1;

Figure 4 is a side elevation of a portion of an internal combustion engine showing the application of a slightly modified form of lubricating system connected thereto in which the lubricant is fed to the carbureting passage above the throttle by gravity; and

Figure 5 is an enlarged section taken on line 5—5 of Figure 3 showing the valve controlling the supply of lubricant.

In Figure 1 of the drawings I have shown the application of my improved construction of lubricating system to an internal combustion engine wherein the suction created by the displacement of the piston of the engine draws fuel out of a reservoir so as to lubricate the pistons and valves of the engine.

Referring to Figure 1, 1 indicates an internal combustion engine, 2 the intake and 3 a charge forming device connected to the intake by a

riser 4 and as herein shown, the riser 4 is provided with a throttle valve 5 carried by a shaft 6 for controlling the passage of explosive mixture from the charge forming device to the respective cylinders of the engine. While I have shown the throttle valve disposed within a riser 4, it is, of course, understood that my improved construction of lubricating system is adapted to be used in connection with a charge forming device in which the throttle valve is mounted within the carbureting passage of the charge forming device instead of the riser and therefore I do not wish to limit myself to the use of any particular construction of charge forming device so long as a throttle valve is used for controlling the admission of the explosive charge to the engine.

In the embodiment of my invention as herein shown, I secure a bracket 7 to the riser 4 for supporting a valve casing 8 which is connected to a reservoir 9 by a conduit 10 and is provided with an outlet 11 which is in communication with the carbureting passage of the riser below the throttle valve 5. The valve casing 8 is provided with a valve seat 12 against which is held a valve 13 by a coiled spring 14, said valve being provided with a stem 15 extending outwardly through a stuffing box 16 and arranged within the path of travel of a cam 17 carried by a collar 18 adjustably mounted on the throttle shaft 6 by a set screw 19.

The suction created by the displacement of the pistons of the internal combustion engine causes the lubricant arranged in the reservoir 9 to be drawn into the cylinders of the engine with the explosive charge in a similar manner as disclosed in the Pierce application above referred to.

In the operation of this construction the cam 17 is set at the desired position on the throttle shaft 6 so that when the throttle reaches a predetermined position, it is brought into engagement with the valve stem 15 so as to open the valve and allow the lubricant to be drawn from the reservoir 9 through the conduit 10 into the valve casing out through the outlet 11 into the riser so that it will be drawn into the top of the cylinders so as to lubricate the valves and pistons of the engine.

By adjusting the cam 17 on the throttle valve shaft, the valve can be made to open at a predetermined speed of the internal combustion engine whereby the lubricant will be completely cut off at low speeds and allowed to be delivered to the engine at high speeds so as to thoroughly lubricate the valves and pistons of 55

the engine. This provides positive means for opening and closing the communication between the source of lubricant supply and the induction pipe of the engine.

In the modification shown in Figure 4 an internal combustion engine 20 is shown provided with an intake 21 to which is connected a riser 22 having a charge forming device 23 connected thereto. The riser is provided with a throttle valve 24 carried by a stem 25 on which is adjustably secured a collar 26 by a set screw 27, said collar carrying a cam 28 which is adapted to engage a valve stem 29 of a valve casing 30 constructed substantially the same as shown in the preferred embodiment of my invention.

The valve casing 30 is provided with a fuel conduit 31 extending from a reservoir 32 for supplying lubricant to the valve casing by gravity and said casing is connected by a pipe 33 to the riser as clearly shown above the throttle valve so that the lubricant is delivered to the induction pipe of the engine above the throttle valve instead of below the throttle valve as shown in Figures 1, 2 and 3.

In this construction when the throttle valve moves a predetermined distance in its opening movement, the cam 28 is brought into engagement with the valve stem 29 so as to move the valve into open position in order to allow the lubricant from the reservoir 32 to flow by gravity through the conduit 31 through the valve casing and out the pipe 33 into the induction pipe where it will be drawn into the respective cylinders of the engine so as to lubricate the pistons and valves.

In the operation of a fuel lubricating system constructed in accordance with my invention, the lubricant is fed to the induction pipe of an internal combustion engine through a valve casing provided with a spring actuated valve which is normally held closed and is opened by the movement of the throttle valve so as to allow the lubricant to be delivered into the induction pipe at high speed and to be completely cut off at low speeds.

This provides positive means for controlling the supply of lubricant to the valves and pistons of the engine and while in Figures 1 to 3 I have shown the lubricant delivered to the induction pipe below the throttle valve from a reservoir arranged below the point of delivery, I am aware that this reservoir can be elevated so that the lubricant will flow by gravity to the induction pipe below the throttle valve when the throttle valve is moved into position to open the valve controlling the supply of lubricant and therefore I do not wish to limit myself to the use of a reservoir located at any definite position as I am aware that my invention is capable of being used in connection with a source of lubricant supply arranged in a plane above the point of delivery or arranged in a plane below the point of delivery.

I also do not wish to limit myself to the point of delivery into the induction pipe as I have shown in Figure 4 a construction wherein the lubricant is delivered above the throttle valve and while in this figure I have shown the lubricant delivered by gravity, I am aware that the reservoir can be arranged in a plane below the point of delivery so that the suction created by the piston displacement will draw the lubricant out of the reservoir and deliver it into the induction pipe above the throttle valve.

In all of the forms herein shown, the valve

casing is closed to the atmosphere and through which air is prevented from passing as the valve casing is sealed by the packing 16 at one end and in the construction shown in Figure 1 the lubricant supply pipe is submerged in the reservoir 9 and in the form shown in Figure 4, the lubricant is drawn from the bottom of the reservoir 32 so as to prevent air from being drawn into the manifold with the lubricant to change the explosive mixture produced by the charge forming device. This enables the device to be used on a charge forming device without changing the proportion of fuel to air produced by the charge forming device as it will be apparent from the drawing that only lubricant is drawn from the reservoir.

From the foregoing description it will be seen that I have provided a lubricating system for an internal combustion engine wherein a reservoir is arranged to supply lubricant to the induction pipe through a valve casing provided with a valve which is normally held closed and which is moved into open position by the movement of the throttle valve so that the lubricant will be supplied to the valves and pistons of the engine at high speed of the engine and therefore I do not wish to limit myself to the use of any particular form of reservoir or any particular form of valve for controlling and supplying the lubricant to the induction pipe of an internal combustion engine as my invention consists broadly in providing means for controlling the supply of lubricant by a valve which is normally held closed and which is actuated by the movement of the throttle valve to open the valve to allow lubricant to be supplied to the pistons and valves of the internal combustion engine after the engine reaches a predetermined speed.

While in the drawings and specification I have failed to show any means for operating the throttle valve of the charge forming device, it is, of course, understood that the throttle valve is to be operated in the well known manner from the throttle control on the wheel or the accelerator and therefore I wish it to be understood that my invention is adapted to be used in connection with any of the well known forms of charge forming devices now in use on automobiles wherein the fuel mixture is controlled by a throttle valve which in turn is manually operated for increasing and decreasing the speed of the engine to which the device is attached.

What I claim is:

1. In a lubricating system for internal combustion engines, the combination with an internal combustion engine having an intake manifold and a charge forming device connected thereto for producing an explosive mixture of the proper proportion of fuel to air, of a throttle valve for regulating the passage of explosive mixture to said engine, a valve casing closed to atmosphere having a spring actuated valve disposed adjacent said intake manifold and through which air is prevented from passing, said valve casing being in communication with the intake manifold, a source of lubricant supply connected to said valve and means carried by said throttle valve for actuating said valve to allow lubricant to pass through said valve casing into the intake of said engine.

2. In a device for lubricating the cylinders, pistons and valves of an internal combustion engine, the combination with an internal combustion engine having an intake manifold and a charge forming device connected thereto, a throttle valve for regulating the passage of

explosive mixture to said engine, a stem carrying said valve, a collar adjustably mounted on said stem provided with a cam, a source of lubricant supply in communication with said intake through a valve, said valve being arranged to be engaged by said cam for opening said valve after the throttle valve has moved into open position a predetermined distance.

3. In a device for lubricating the cylinders, pistons and valves of an internal combustion engine, the combination with an internal combustion engine having an intake manifold and charge forming device connected thereto, a throttle valve for regulating the passage of explosive mixture to said engine, a source of lubricant supply in communication with said intake manifold through a valve controlled passage and means carried by said throttle valve for opening said valve after

the throttle valve has moved a predetermined distance.

4. In a device for lubricating the cylinders, pistons and valves of an internal combustion engine, the combination with an internal combustion engine having an intake manifold and charge forming device connected thereto, a throttle valve for regulating the passage of explosive mixture to said engine, a valve casing disposed adjacent said intake manifold provided with a spring actuated valve, said valve casing being provided with an outlet in communication with the intake manifold, and an inlet in communication with a source of lubricant supply and a cam carried by said throttle valve for engaging said valve to move said valve into open position when the throttle valve has moved a predetermined distance.

REA P. WRIGHT.