

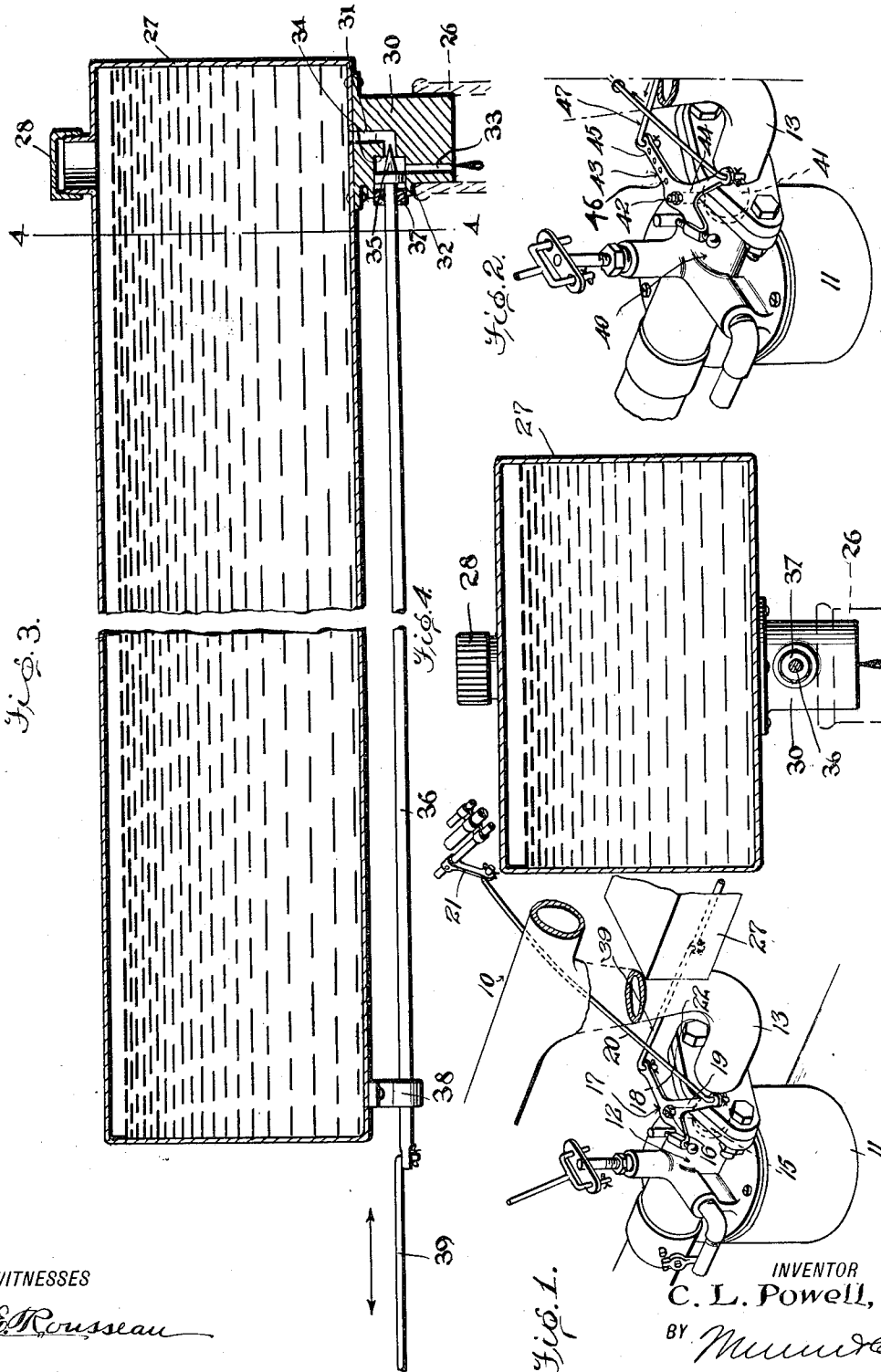
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LUBRICATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

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LUBRICATING SYSTEM FOR INTERNAL-COMBUSTION ENGINES.

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To all whom it may concern:

Be it known that I, CLAUDE LACY POWELL, a citizen of the United States, and a resident of Alamo, in the county of Crockett and State of Tennessee, have invented certain new and useful Improvements in Lubricating Systems for Internal-Combustion Engines, of which the following is a specification.

The present invention relates to lubricating systems for internal combustion engines, and has for its object to provide a system of this character wherein the lubricant is supplied to the engine in proportion to the speed at which the engine is running thereby insuring a proper supply of lubricant at all times, the supply of lubricant being entirely shut off when the engine is stopped to preclude any possibility of an excess supply of oil and consequent waste.

Another object is to provide a system of this character which is adapted to utilize the various grades of oil with equal efficiency and which is in general of simple and durable construction, reliable in operation and easy and inexpensive to manufacture and install.

Other objects and advantages of the invention reside in certain novel features of construction, combination and arrangement of parts which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawings forming part of this specification, and in which:

Figure 1 is a perspective view, illustrating the invention embodied in the internal combustion engine of an automobile;

Figure 2 is a fragmentary view, showing a slightly modified form of the invention, only the carbureter of the internal combustion engine being shown;

Figure 3 is a detail view in longitudinal vertical section of the oil reservoir and associated valve mechanism; and

Figure 4 is a view in transverse section on line 4-4 of Figure 3.

Referring to the drawings wherein for the sake of illustration is shown the preferred embodiment of the invention, the numeral 10 designates generally an internal combustion engine having a carbureter 11 provided with an outlet pipe 12 which is connected with an intake manifold 13. The outlet pipe 12 and the intake manifold 13 constitute the fuel inlet of the internal combustion

engine. A butterfly or throttle valve 15 is operatively arranged in the pipe 12 and is provided with a stem 16 which extends exteriorly of the pipe 12 and which is rigidly connected to the elbow 17 of a bell crank lever, designated generally at 18. An arm 19 of the bell crank lever is pivotally secured to one end of a link 20, the other end of which is pivotally connected to a crank 21 fixed to the lower end of the controlling shaft which is actuated from the throttle control lever provided as usual on the steering wheel.

The engine includes a crank case 25 having an opening 26 constituting an oil inlet.

An oil reservoir or tank 27 is arranged on the crank case and includes a removable filling cap 28. A valve block 30 depends from the oil reservoir and is fitted into the oil inlet 26. In the valve block 30 an oil passage 31 is provided which leads from the outlet of the oil reservoir to a valve cavity 32 also provided in the valve block and communicating with a second oil passage 33 which leads through the valve block from the valve cavity to the oil inlet of the crank case. At the point where the passage 31 communicates with the valve cavity, a valve seat 34 is provided and a conical needle valve 35 coacts with this valve seat and operates in the valve cavity 32. The needle valve 35 regulates the flow of the lubricant from the reservoir to the engine. The needle valve 35 is provided with an elongated valve stem 36 which slidably extends through a stuffing box 37 carried by the valve block and through a bearing 38 carried by the oil reservoir at a point remote from the valve block. A connecting rod 39 has one end pivotally secured to the free end of the valve stem 36 and has its other end pivotally secured to the arm 22 of the bell crank lever 18.

When the engine is running, the throttle valve is open to a greater or lesser degree, the bell crank 18 having been moved to open the throttle valve. This movement of the bell crank lever is transmitted to the needle valve 35 to open the valve by means of an arm 22 connecting rod 39 and valve stem 36. It is obvious that the needle valve is thus constrained to partake of corresponding motion with the throttle valve so that as the throttle valve is opened, the needle valve is open and as the throttle valve is closed the needle valve is closed. From this it follows

that when the engine is speeded up the supply of oil is increased since the needle valve is moved away from its seat and permits the flow of lubricant through the oil passages of the valve block and on the other hand when the throttle valve is closed the needle valve is closed and entirely shuts off the flow of lubricant.

In Figure 2 the invention is shown equipped with means whereby it may be readily adapted for use with oils of different viscosity. In this form the fuel inlet is shown as comprising a pipe 40 in which the throttle valve designated at 41 is arranged. The stem 42 of the throttle valve is rigidly connected to the bell crank lever 43 including arms 44 and 45. The arm 45 is provided with a series of openings designated at 46, the openings being selectively connected with a connecting rod 47 which corresponds with the connecting rod 39. It is obvious that by securing the connecting rod with the openings 46 nearer to the center the throw imparted by the bell crank to the needle valve will be decreased. When oils of relatively high viscosity are utilized the rod is connected with the openings at the extreme outer end of the arm so that a relatively great throw is imparted to the needle valve whereby it is opened to a maximum extent. On the other hand when oils of relatively low viscosity are utilized the connecting rod is associated with openings adjacent the axis of swing of the bell crank lever so that the needle valve is open only to a slight extent.

I claim:

1. In combination with an internal combustion engine having a lubricating system and also having a fuel inlet, a throttle associated with the fuel inlet and governing the supply of fuel flowing therethrough to the engine, operating means positively and di-

rectly connected to the throttle for controlling and adjusting the same throughout its range of movement, means for supplying lubricant to the lubricating system of the engine and including an oil reservoir having a directly and downwardly extending connection projecting into the engine casing, a valve incorporated in said connection and operable to shut off or to permit in varying degrees the flow of lubricant from said oil reservoir to said engine under the influence of gravity, said valve being directly connected to and controlled by the operating means for the throttle whereby to be shut off when the throttle is shut off and opened as and when and in proportion to the degree to which the throttle is opened.

2. In combination with an internal combustion engine having a lubricating system and also having a fuel inlet, a throttle associated with the fuel inlet and governing the supply of fuel flowing therethrough to the engine, said throttle having a stem about the axis of which it rotates, operating means positively controlling said throttle and including a bell crank lever fastened to the stem and having a pair of arms, means for supplying lubricant to the lubricating system of the engine and including an oil reservoir having a directly and downwardly extending connection projecting into the engine casing, a valve incorporated in said connection and adapted to shut off or to permit in varying degrees the flow of lubricant from said oil reservoir to said engine under the influence of gravity and motion transmission means between one of the arms and the bell crank lever and said valve whereby when the throttle is opened the valve will be opened to a proportionate extent and when the throttle is closed the valves will be closed.

CLAUDE LACY POWELL.