Nov. 13, 1923. 1,474,219

R. M. WATSON

PRIMING ATTACHMENT FOR INTERNAL COMBUSTION ENGINES

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Fig. 1.

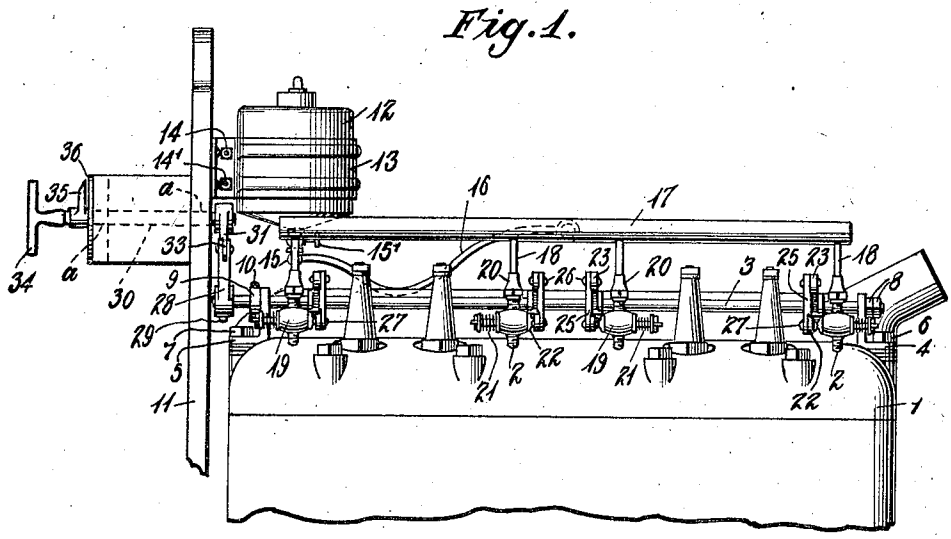
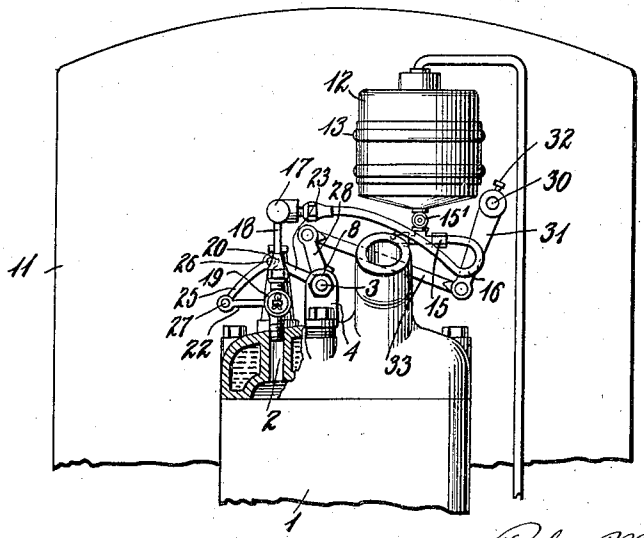


Fig. 2.



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Fig. 3.

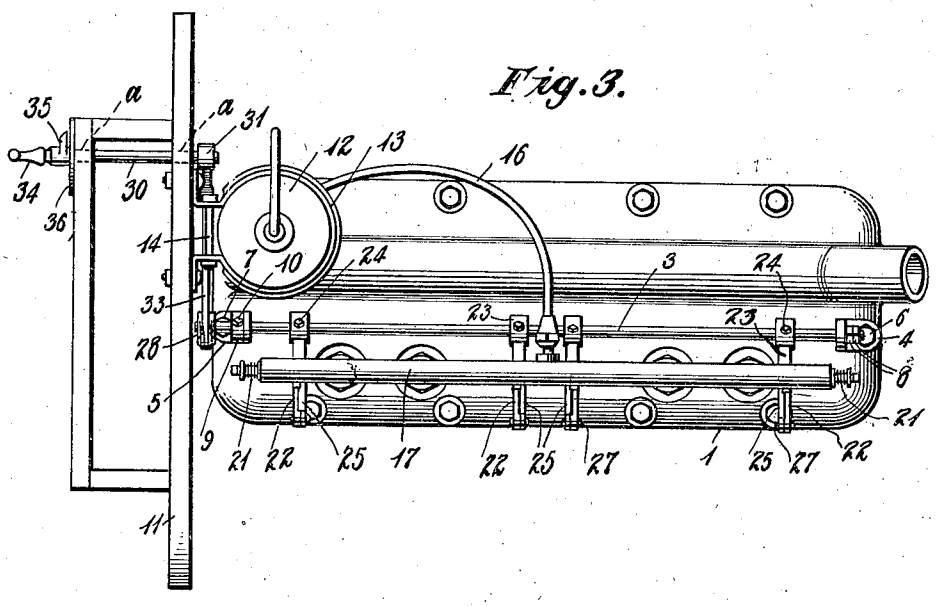


Fig. 4.

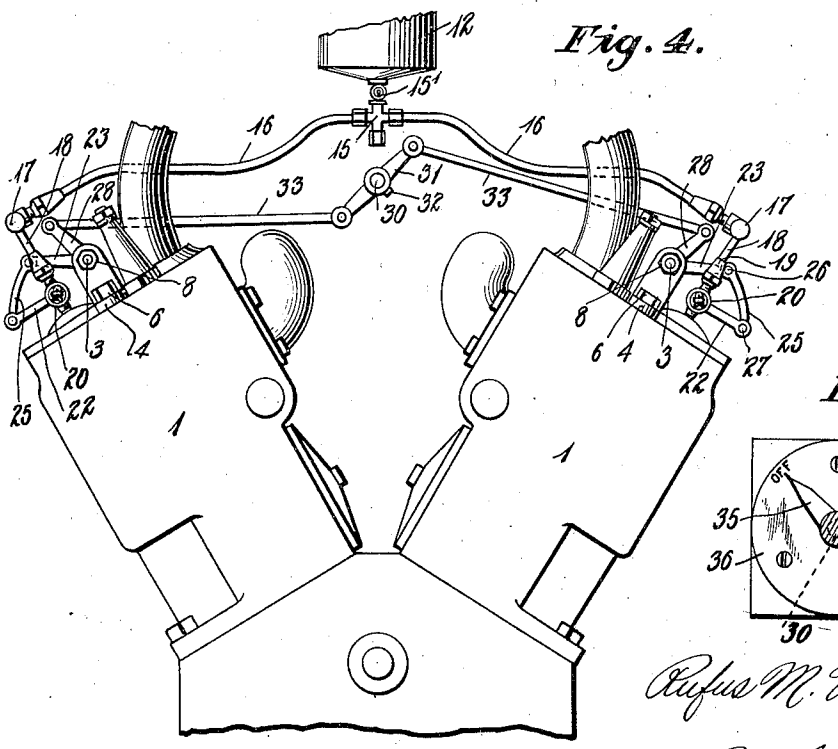
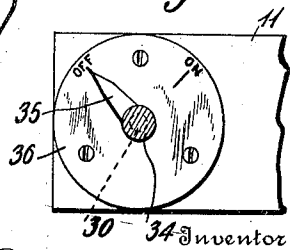


Fig. 5.



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UNITED STATES PATENT OFFICE.

RUFUS M. WATSON, OF NORFOLK, VIRGINIA.

PRIMING ATTACHMENT FOR INTERNAL-COMBUSTION ENGINES.

Application filed April 10, 1922. Serial No. 551,145.

To all whom it may concern:

Be it known that I, RUFUS M. WATSON, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Priming Attachments for Internal-Combustion Engines, of which the following is a specification.

The invention relates in general to priming attachments for internal combustion engines, and has particular reference to a priming attachment of a very simple and efficient character which may at small expense be applied to and used in connection with automobile engines.

One of the objects of the invention is to provide a priming attachment the parts of which may be readily applied to automobile engines of standard make, without necessitating the use of special parts and appliances for individual types.

A further object of the invention is to provide a priming attachment designed to supply a priming fuel to the respective cylinders of an automobile engine, and in equal amounts to all cylinders, the apparatus being designed to maintain a supply of priming fluid, such as gasoline, the admission of which to the priming inlets on the motor casing is controlled from the dashboard of the automobile, thus insuring convenience and accuracy in operation and the admission of the priming fluid immediately and without the delay in flow of the same frequently found among devices of the same general type.

A further object of the invention is to provide a priming apparatus designed to be attached to automobile engines of either four or six cylinder block type, or of the V-type such as is found with engines of the eight or more cylinder variety. And the fittings of the apparatus to these different type engines above mentioned is accomplished without altering the general arrangement of the primer actuating mechanism.

A further object of the invention is to provide an apparatus of the character described in which the amount of fuel to the priming cups may be readily controlled by the operator from the dash, and which amount is indicated to the eye as will be hereafter described,

A still further object of the invention is to provide an apparatus of the character described consisting of few parts and which may be manufactured at low cost, and which may be readily assembled by persons not greatly skilled in mechanical knowledge.

With such objects in view as well as other advantages which may be incident to the use of the improvements the invention consists in the parts and combinations thereof hereinafter set forth and claimed, with the understanding that the elements constituting the same may be varied in proportions and arrangement without departing from the nature and scope of the invention as hereinafter described and claimed.

In order to make the invention more clearly understood there are shown in the accompanying drawings means for carrying the same into practical effect without limiting the improvements in their general applications to the particular constructions which for the purpose of explanation have been made the subject of illustration.

In said drawings:

Figure 1 is a side elevation of the apparatus illustrated and attached to a four cylinder motor of the Dodge type.

Fig. 2 is an end elevation of the same.

Fig. 3 is a plan view of the apparatus.

Fig. 4 is an end view of the apparatus shown as attached to an eight cylinder V-block motor.

Fig. 5 is a detail view of the dial with which the apparatus is equipped and which is located on the dash.

Referring to the drawings:

1 indicates the motor block or casing illustrated as in Figs. 1, 2 and 3 as of the Dodge type and in Fig. 4 as of the well known V-block type. 2 are the pet cock openings in the casing, which openings are provided in usual types of motors. Arranged above the pet cock openings 2 are a plurality of pet cock valves 19 of well known construction, each valve having screwed into the upper portions thereof the lower ends of fuel pipes 18. The upper ends of the fuel pipes 18 are suitably connected at various points intermediate the length of an auxiliary fuel container reservoir or manifold 17 extending longitudinally of the motor casing. Fuel tight connections are provided between the pipes 18 and the valves 19 in the form of nuts 20 screwed onto the

upper extremities of the valves 19. It will be observed that this construction forms a firm supporting structure for the manifold 17 above and in line with the pet cock openings, the pipes 18 being arranged as desired and connected with the reservoir 17 at points directly over such pet cock openings. The valves 19 are of well known pet cock character having springs 21 thereon to insure the tightness of their closure and are provided at one side with pet cock levers 22 of standard construction, the outer ends of which are apertured for a purpose to be described. 11 represents the ordinary dash-board construction of an automobile having a fuel containing tank 12 mounted on the inner side thereof by means of a bracket 13 and bolts 14 and 14'. The tank 12 is preferably the vacuum tank commonly used in most automobile structures and where it is arranged as illustrated, but it will be understood that the priming fluid may be drawn from other suitable gasoline supply, such as the supply pipe to the carbureter. The usual drain cock at the lower end of the tank 12 is removed and a T-joint 15 is screwed into the drainage opening in place of said drain cock, and this T-joint has a flexible metal pipe connection 16 joined therewith. The opposite end of the flexible gas pipe or tube 16 is suitably connected to the auxiliary priming fuel reservoir or manifold 17 at a point preferably substantially the mid-portion thereof. 15' is a cut-off valve located at the lower end of the tank 12 to regulate the cut-off supply of fuel to the reservoir 17.

3 represents a rock shaft, preferably of metal, which shaft is disposed longitudiually of the motor casing substantially parallel with the reservoir 17 and is illustrated as supported on the motor casing by means of brackets 4 and 5 bolted to the casing by means of bolts 6 and 7. The end of the rock shaft 3 projecting through the bracket 4 is preferably threaded and held against longitudinal displacement by means of nuts 8 screwed thereon. Similar means to prevent longitudinal displacement of the rock shaft 3 are provided on the outer side of the bracket 5 in the form of a collar 9 having a set-screw 10 located thereon. Disposed at intervals along the length of the rock shaft 3 are a plurality of adjustable rocker arms 23, one of these rocker arms being provided for each cylinder of the engine. After being assembled on the rock shaft 3, the rocker arms 23 are clamped in place by means of set-screws 24 and by means of which said arms may be firmly locked in any desired position on said rock shaft, depending upon the location of the cylinder pet cocks. The outer ends of the rocker arms 23 are apertured and links 25 are disposed to connect the outer ends of the pet cock levers 22, pins 26, 27 being provided to maintain the engagement of the connecting links as described.

It will be observed that by this arrangement the adjustment of the rocker arms 23 may be made to any angular position to insure the desired openings of the pet cock valves to any predetermined extent.

A rocker arm 28 similar in construction to the rocker arms 23 is adjustably located on the inner end of the rock shaft 3 by means of set-screw 29. 30 is a rock shaft preferably extending through the dash and mounted in a bearing *a* thereon and located adjacent the fuel tank 12 and having on its outer end a rocker arm 31 adjustably mounted thereon by means of set-screw 32. The lower end of this rocker arm is pivotally connected to the upper end of the rocker arm 28 by means of the link 33. 34 is an operating handle located on the inner end of the hand lever 30 and providing convenient means to rotate the latter. An indicating hand pointer 35 is located on the shaft 30 adjacent the dash and arranged to register with the dial 36 on said dash to effect visible means of determining the extent of the opening and closing of the pet cock valves and amount of priming fluid admitted to the cylinders.

The operation of the priming apparatus is as follows:

When conditions necessitate the admission of raw fuel into the cylinders to insure the immediate starting of the motor, such as extreme cold weather etc., the parts are normally in position as shown in full lines in the drawings with the valves closed. The operator turns the hand lever 34 to the right thus moving the rocker 31 to the left. The link 33 at the lower end thereof moves the rocker arm 28 in a corresponding direction with the result that the rock shaft 3 is rotated on its axis to the left and its connections 23 move the pet cock levers 22 to upright position, thus opening the valves 19 and admitting fuel from the manifold 17 immediately through the pet cock openings 2 to the respective cylinders simultaneously. A reverse movement of the hand lever 34, i. e., to the left, results in the valves being closed by a reverse movement of the parts above mentioned, after a sufficient amount of fuel has been admitted to the cylinders and the engine is ready to start.

It will be observed by the structure as described there is always a supply of gas or priming fuel, such as gasoline, in the auxiliary reservoir or manifold 17, which manifold is designed to contain an amount of fuel in excess of that desired to prime the cylinders with the result that there is no delay in admitting the fuel to the cylinders immediately upon the opening of the valves 19, and the fuel in the manifold 17 is im-

mediately replenished, when the valves 19 are closed, from the tank 12 through the gasoline fuel line or tube 16.

What is claimed is—

1. A priming attachment for automobile engines and the like, comprising in combination: a series of cylinders having priming inlets, a main fuel reservoir, an auxiliary fuel reservoir manifold communicating therewith, fuel connections from said manifold to the priming inlets of said cylinders, pet cock valves having longitudinal axes located intermediate said fuel connections transversely swinging arms mounted on said pet cock valves, a rock shaft mounted longitudinally of said series of cylinders, transversely swinging arms fixed to said rock shaft, a plurality of links pivotally connected to the transversely swinging arms of said pet cock valves and pivotally connected at their other ends to the swinging arms of said rock shaft, and manually operated means located on the dash and operatively connected to said rock shaft whereby said valves are simultaneously actuated to admit a quantity of fuel to the respective cylinders or cut off said fuel thereform.

2. A priming attachment for automobile engines and the like, comprising in combination: a main fuel reservoir, an auxiliary fuel reservoir manifold connected thereto, a plurality of pipes connecting said auxiliary manifold with the priming inlets of the respective cylinders, pet cock valves having longitudinal axes and disposed between said valve connections and said priming inlets, a rock shaft mounted and disposed longitudinally of the motor casing, a plurality of pet cock levers extending from said valves, a plurality of links connecting said rocker arms with said pet cock levers, a hand rock shaft located on said dash, a rocker arm adjustably mounted on the outer end of said hand rock shaft, and a link connecting said rocker arm with the rocker arm on said hand rock shaft whereby the actuation of said hand rock shaft will control the actuation of said pet cock valves and the admission of priming fluid to the respective cylinders.

3. A priming attachment for automobile engines and the like, comprising in combination a main fuel reservoir, an auxiliary fuel reservoir manifold connected thereto, a plurality of pipes connecting said auxiliary manifold with the the priming cups of the respective cylinders, pet cock valves disposed between said valve connections and said priming cups, a rock shaft mounted and disposed longitudinally of the motor casing, a plurality of pet cock levers extending from said valves, a plurality of links connecting said rocker arms with said pet cock levers, a hand lever and rock shaft located on said dash, a rocker arm adjustably mounted on the outer end of said rock shaft, and a link connecting said rocker arm with the rocker arm on said rock shaft of the hand lever, whereby the actuation of said hand lever will control the actuation of said pet cock valves and the admission of priming fluid to the respective cylinders, and indicating means located on said dash and operatively connected to said rock shaft whereby the arrangement of the actuation of said valves is visible to the operator.

In testimony whereof I affix my signature.

RUFUS M. WATSON.