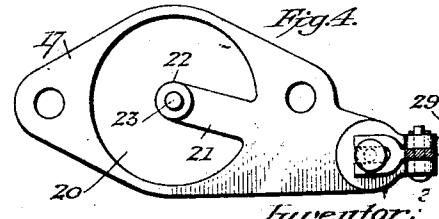
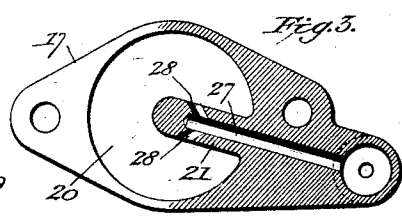
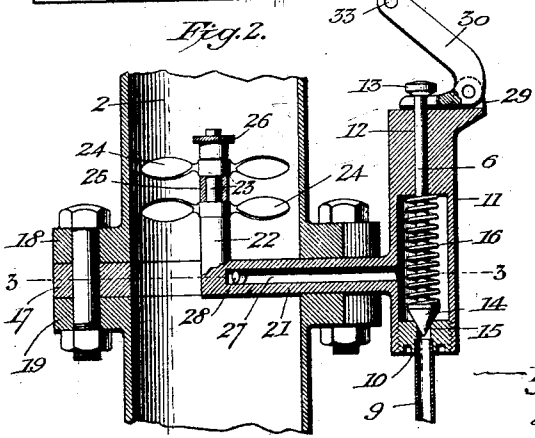
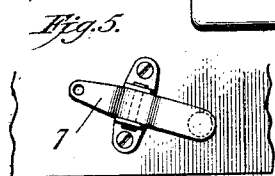
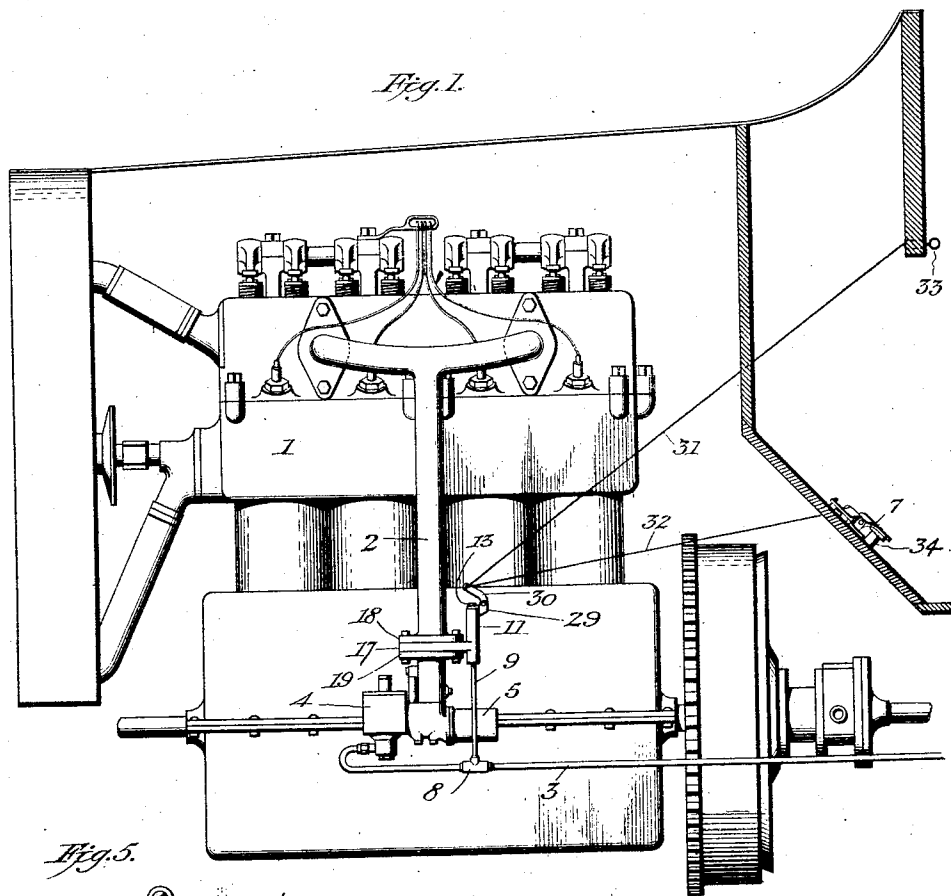


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1,544,748

H. T. HASKINS ET AL
 COMBINED EXPLOSIVE MIXTURE VAPORIZING AND PRIMING MECHANISM
 FOR AUTOMOBILE AND OTHER INTERNAL COMBUSTION ENGINES
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UNITED STATES PATENT OFFICE.

HARRY T. HASKINS AND JOHN ILGAUDAS, OF DENVER, COLORADO.

COMBINED EXPLOSIVE-MIXTURE VAPORIZING AND PRIMING MECHANISM FOR AUTOMOBILE AND OTHER INTERNAL-COMBUSTION ENGINES.

Application filed January 25, 1923. Serial No. 614,914.

To all whom it may concern:

Be it known that we, HARRY T. HASKINS and JOHN ILGAUDAS, citizens of the United States of America, residing at the city and county of Denver, and State of Colorado, have invented a new and useful Combined Explosive-Mixture Vaporizing and Priming Mechanism for Automobile and Other Internal-Combustion Engines, of which the following is a specification.

Our invention relates to a combined explosive mixture vaporizing and priming mechanism for use on all automobile passenger cars, trucks, marine and aviation internal combustion engines, and the objects of our invention are:

First: To provide rotating means in the manifold of the engine, that is operated by the suction stroke of the engine to atomize and vaporize the explosive mixture flowing into the manifold from a carburetor.

Further: To provide means for supplying fuel to the intake pipe independently of the carburetor, and simultaneously with the pushing of the starter button, and rotatable means in said intake pipe, and operated by the suction action of the engine, for atomizing said fuel, said atomized fuel acting as a rich priming mixture to facilitate the starting of the engine.

We attain these objects by the mechanism illustrated in the accompanying drawings, in which:

Fig. 1 is a side view of an automobile engine, showing the application of the improved priming mechanism.

Fig. 2 is a vertical sectional view—full size—through the improved priming device and showing how the same is clamped between the lower end of the intake pipe and the upper end of the carburetor.

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a plan view of the device, the rotary atomizing blades being omitted, and

Fig. 5 is a plan view of the foot lever for operating the lever arm of the primer.

Similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings:

The numeral 1 designates the engine or motor of an internal combustion automobile engine, and 2 designates the intake manifold thereof. 3 designates the supply pipe which extends from the gasoline supply tank,

which we do not illustrate, to a carburetor 4, from which the explosive mixture flows into the lower end of the manifold. The carburetor is provided with a large air inlet pipe 5. We place a by-pass needle valve 6 in the gasoline line between the gasoline supply tank, which we do not illustrate, and the carburetor 4, and we arrange this needle valve so that it can be raised by a foot of the driver of the car, by pressing down a foot lever 7, secured to the floor of the car, and we also provide means by which this needle valve can be operated from the instrument board by the driver of the car, independently of the foot lever.

The construction of this needle valve and its operative connections with the gasoline supply pipe and with the interior explosive mixture passageway through the manifold and its operating connections with the floor of the car in position to be raised by the foot of the driver of the car and its connections that enable it to be raised by the hand of the driver of the car, is as follows:

A T 8 is placed in the gasoline supply pipe 3 at a short distance from the carburetor, and a pipe 9 extends upwardly from the T and is connected to an apertured plug 10, which is screwed into the lower end of a needle valve holding tubular housing cylinder 11, which is preferably about two inches long, but may be made longer or shorter, as desired. The upper end of the needle supporting housing or cylinder is closed but is provided with a small axial aperture 12, which forms a supporting slideway for the stem portion of the needle valve 6, which is reciprocally mounted in it and extends through it a short distance, and has a flange or head 13 formed on its upper end. The lower end of the valve stem is provided with a conical valve head 14 which fits a gasoline entrance tapering valve seat 15, that forms a part of the axial aperture in the plug 10 in the lower end of the needle valve housing 11, and in this aperture is secured the upper end of the by-pass gasoline pipe 9.

The conical valve head 14 of the needle valve forms a shoulder at the lower end of the stem, and a coiled expansion spring 16 is placed around the stem and bears at one end against the shoulder of the head of the valve and at its opposite end against the upper closed end of the housing 11. The

needle valve housing forms an integral part of a plate or bolt flange 17, which is adapted to be clamped between the bolt flange 18 of the intake pipe, and the bolt flange 19 of the carburetor, so that the installation of the improved primer device, does not necessitate any change of construction or additions to either the carburetor or the intake pipe. The bolt flange 17 has an aperture 20 of the same diameter as that of the intake pipe, and an integral arm 21 projects from the wall of this aperture and terminates in a vertical post 22 which projects a short distance into the intake pipe 2 and in the axial center of the same.

From the upper end of the post 22, projects a stem 23, upon which are mounted the hubs of one or more propellers or atomizers 24, which are separated by a spacing sleeve 25, and the propellers are held upon the stem 23, by a thumb nut 26, which is screwed upon the upper end of the stem, but so as not to impede the motion of the propellers.

A passage 27 extends from the interior of the valve housing 11 through the flange 17 and arm 21 and terminates a short distance from the end of the said arm, and lateral holes 28 extend from the passage 27 through opposite sides of the said arm 21. The propellers 24 comprise the hubs which are mounted on the stem 23, and lateral blades or wings which are inclined in the usual manner so as to be operated by the air which is drawn up through the intake pipe by the suction action of the engine.

As shown in Fig. 2, the blades of one propeller are oppositely inclined from those of the other propeller so that the draft of air through the intake pipe will cause the said propellers to rotate in opposite direction, by which a more thorough and effective atomizing of the fuel is accomplished, as will be understood.

The pipe 9, the needle valve 6, the passage 27, and the holes 28, provide an independent by-pass passageway for gasoline from its supply pipe 3, into the manifold, that is entirely independent of the supply of explosive mixture that flows into it from the carburetor, and this auxiliary supply of gasoline is drawn into the manifold by the suction strokes of the pistons in the cylinders of the engine when the needle valve is raised, and thus opened by the driver of the car, either by hand or by foot.

The mechanism that enables the driver to raise the needle valve is as follows:

A pair of apertured ears 29 is formed on the upper end of the needle valve housing 11, and a bell crank 30 is pivotally secured to these ears, and the lower member of this bell crank is provided with a bifurcated end that extends under the head 13 of the needle valve and straddles its stem 6 thus to

lift the needle valve when the other member of the crank is pulled back from the inside of the car, which movement is accomplished by the wire rods 31 and 32, one end of each of which is secured to an aperture 33 formed in the upper end of the vertical end of the crank arm. The wire rod 31 extends through the dash-board and also through the instrument board at a point where it will be within easy reach of the driver of the car, and a hand grasping member is formed on its end, which may consist of a loop or ring 33. The wire rod 32 extends to and through the dash-board at a point a few inches above the floor of the car, and its end is connected to the apertured end of the foot lever 7 that is pivotally secured at its center to lugs or ears that are secured to the floor of the car. The pedal end of the foot lever 7 extends over the top of a starter button 34 that is operatively arranged and secured to the bottom of the car, and is operatively connected by any suitable mechanism to the starting mechanism of the car. By this arrangement, the pressing of the starter button and the lifting of the primer valve 6 are accomplished simultaneously but the primer may be operated independently of the starter, whenever necessary, by drawing upon the wire 31.

In operation, the mechanism is arranged as shown in the drawings, and when it is desired to start the engine, the driver presses upon the foot lever 7, which draws upon the wire 32, thereby operating the bell crank 30, which lifts the primer valve 6. The pressure of the lever 7 also acts to press the starter button, and the engine is thereby started, and fuel is drawn into the intake pipe, through the passage 27 and holes 28, and is broken into fine particles or atomized by the action of the propellers, which are rotated by the air draft through the intake pipe, and thus a rich priming mixture is delivered to the engine cylinders. As soon as the foot lever 7 is released, the valve 6 is thrown by its spring 16 to cut off the inflow of fuel from the pipe 9, and the fuel is then carried through the carburetor, in the regular course, but the mixture is subjected to the action of the propellers which thoroughly atomizes all the heavier particles.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

In a device of the character described, the combination with a combustion engine having an intake pipe provided with a carburetor, of a tubular housing having an integral bolt flange which is interposed between the bolt flanges of the intake pipe and of the carburetor, said bolt flange having an axial hole of the same diameter as

the bore of the said pipe, an integral arm
extending from the margin of said axial
hole to the center thereof and terminating
in an upwardly projecting stem, a passage
5 being formed through said arm and flange
which connects the tubular housing with the
interior of the pipe, a pipe for connecting
said tubular housing with a fuel supply, a
spring controlled valve in said housing for
10 normally cutting off the fuel supply there-
to, a manually operated lever for opening
said valve to introduce liquid fuel into the

intake pipe independently of the carbure-
tor, and propellers on said upright stem
which are rotated by the suction action of 15
the engine and serve to atomize the fuel
passing through said intake pipe.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

HARRY T. HASKINS.
JOHN ILGAUDAS.

Witnesses:

G. SARGENT ELLIOTT,
RENNIE O. WILSON.