

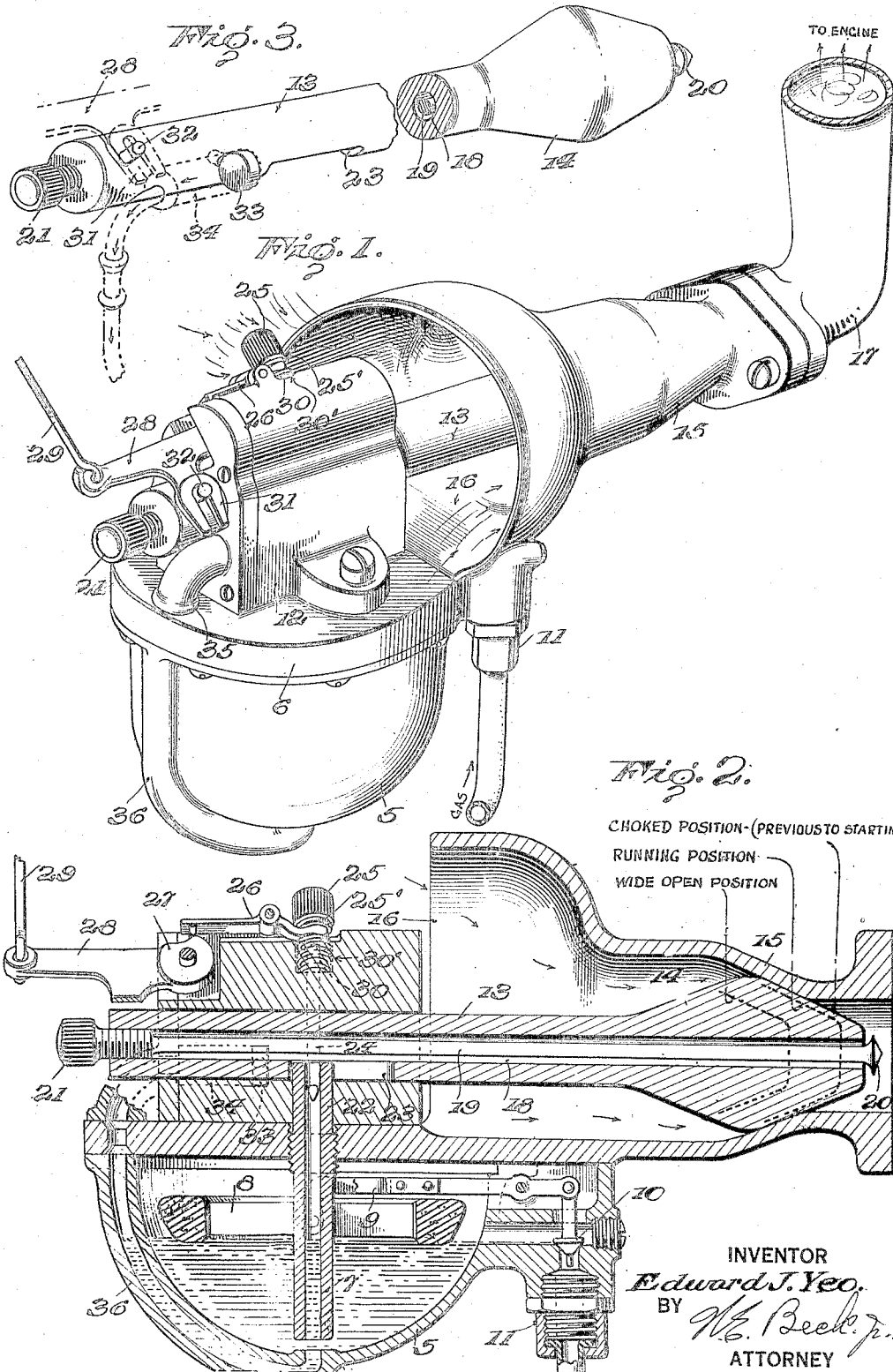
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CARBURETOR

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## UNITED STATES PATENT OFFICE.

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## CARBURETOR.

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My invention relates to carburetors for internal combustion engines and has for its object to provide a device of this character designed to more efficiently vaporize the fuel before supplying the same to the engine; to eliminate the so-called "flat-spot" commonly occurring in motors at the beginning of the period of sudden acceleration due to the momentary unbalancing of the fuel mixture; to provide means formed integrally with the carburetor adapted to supply a primary charge of fuel to the motor before the same is started and to control the flow of fuel in proportion to the air by a valve mechanism actuated by the movements of the control throttle.

A further object resides in the assembly of the various working parts in a neat and compact manner and protecting the fuel chamber from the admission of dirt and dust, to limit the construction to few working parts and arrange the same in an efficient operating relation and thereby to reduce the cost of manufacture to a minimum.

Other objects and advantages reside in the construction, combination and arrangement of the various elements forming the invention as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming part hereof, wherein like numerals refer to like parts throughout the specification and in which

Figure 1 is a perspective view showing the exterior design of the device,

Figure 2 is a vertical longitudinal sectional view, and

Figure 3 is a detailed perspective view of the tubular air control valve.

Referring now to the drawing wherein for the purpose of illustration I have shown a preferred form of my invention, I provide a carburetor bowl 5, preferably cup-shaped, and having a cover plate 6 fitted thereover and from the center of which a fuel feed tube 7 is suspended within the bowl with its lower end spaced slightly above the bottom thereof. An annular float 8 is arranged in the bowl, to which is attached one end of a pivotally mounted arm 9 extending laterally of the bowl and having its opposite end connected with a valve 10 adapted to seat within the fuel feed passage formed at one side of the bowl and communicating with the intake pipe 11 leading to the supply tank, thereby providing for maintaining a proper amount of fuel in the bowl.

Upon the cover plate 6 I provide a block 12, which may be of any suitable shape and having a bore extending horizontally there-through within which is slidably fitted an elongated tubular air control valve stem 13 extending outwardly from the block at each end. At one end of the stem is formed a tapered head 14 adapted to have its sides seat into and close a reduced neck 15 of an air intake 16 which is formed integrally with the cover plate 6 and constitutes an extension thereon, the end of the head extending beyond the closed neck. The necked end of the air intake is connected with the intake manifold pipe 17 of the engine and the opposite end is open and of sufficiently increased diameter to permit the circulation of air entirely around the stem 13 and head 14.

The stem and head have a bore 18 extending longitudinally therethrough within which is arranged a fuel adjusting valve stem 19 having a head 20 adapted to close the end of the bore 18 extending beyond the closed neck and the opposite end of the valve stem 19 is provided with an adjusting screw 21 formed integrally therewith.

The tube 7 is provided with an extension 22 leading upwardly through the base of the block 12 and communicating with the bore 18 through a longitudinal slot 23, the slot permitting the limited sliding movement of the stem 13 with respect to the tube extension.

A needle valve 24 is arranged in the end of the extension 22, and protrudes laterally of the block where its outer end is provided with a knurled head 25. Near the outer end of the needle valve is arranged a collar 25' to which is attached one end of a pivotally mounted arm 26 having its opposite end contacting with a cam 27 formed on a lever 28 to which the throttle control rod 29 is attached. A coil spring 30 is mounted on the upper end of the needle valve 24 and seated in a recess 30' formed in the block with the upper end of the spring abutting the collar 25' and operating to open the needle valve with the opening of the throttle. The cam 27 carried on the throttle lever and engaging the arm 26 operates to close the needle valve with the closing of the throttle.

At one edge of the lever 28 is formed a yoke 31 engaging a pin 32 carried on the end of the stem 13 opposite from the head 14, so that the movement of the throttle will cause the longitudinal sliding of the stem 13 thus moving the head 14 into and out of

seated position in the neck of the air intake.

Upon one side of the stem 13 I provide a small disk 33 constituting a plunger adapted to be slidably arranged in a cylinder 34 formed in the block 12, the cylinder having an air opening. An air passage 35 extends from the cylinder to a hollow rib 36 formed on the wall of the bowl 5 and opening into the bowl immediately beneath the lower end of the tube 7. Thus the sliding movement of the stem 13 will operate to move the plunger in the cylinder thereby forming an air compression in the passage and forcing the fuel upwardly in the tube 7 and into the bore 18 leading to the intake manifold. It is obvious that the throttle may be opened and closed before the engine has been started and by so doing a priming charge of fuel is forced into the engine thereby enabling the instant starting of the same as soon as the ignition is turned on.

I claim:

1. A carburetor comprising a fuel bowl and an air intake, a slidably mounted valve for said intake with a head at one end for controlling communication through the intake and having a bore extending there-through with an outlet beyond the head of

said valve, a fuel tube connecting the bowl with the bore, a valve controlling communication through the tube, a stem formed on said air intake valve, air compressing means carried by said stem actuated by the movement thereof and communicating with said tube and control means connected with said tube valve and said stem for simultaneous movement of the valves.

2. A carburetor comprising a fuel bowl, an air intake, a slidably mounted valve for said intake including a head adapted to close one end of the intake and a stem formed thereon, said head and stem having a bore extending therethrough, a block carried on the bowl for slidably supporting the stem, a fuel feed tube connecting the bowl and the bore, a valve arranged in said tube, a cylinder formed in said block, a plunger carried by the stem and operatively arranged in the cylinder and actuated by the movement of the stem, a hollow rib formed on the bowl and effecting communication between the cylinder and the tube and a control lever operatively attached to the stem and the tube valve for the simultaneous movement thereof.

In testimony whereof I affix my signature.

EDWARD J. YEO.