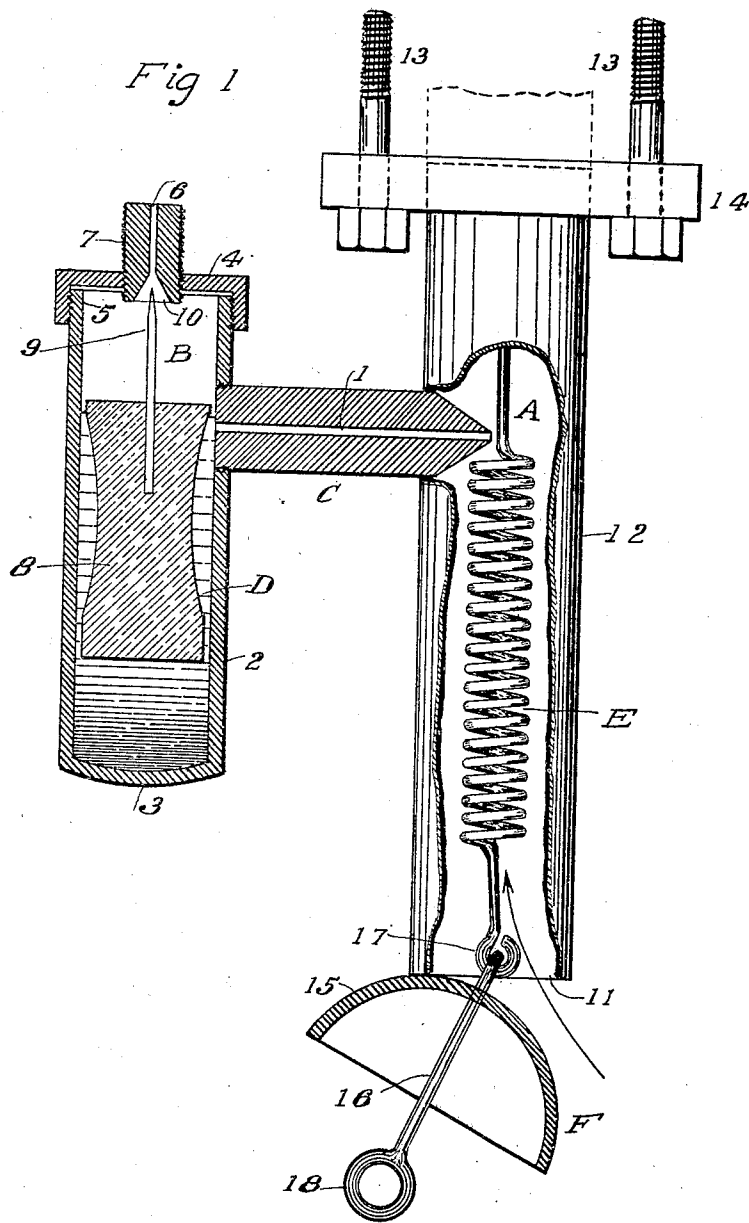


936,118.

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CARBURETER.
APPLICATION FILED JULY 10, 1906.

Patented Oct. 5, 1909.
3 SHEETS—SHEET 1.

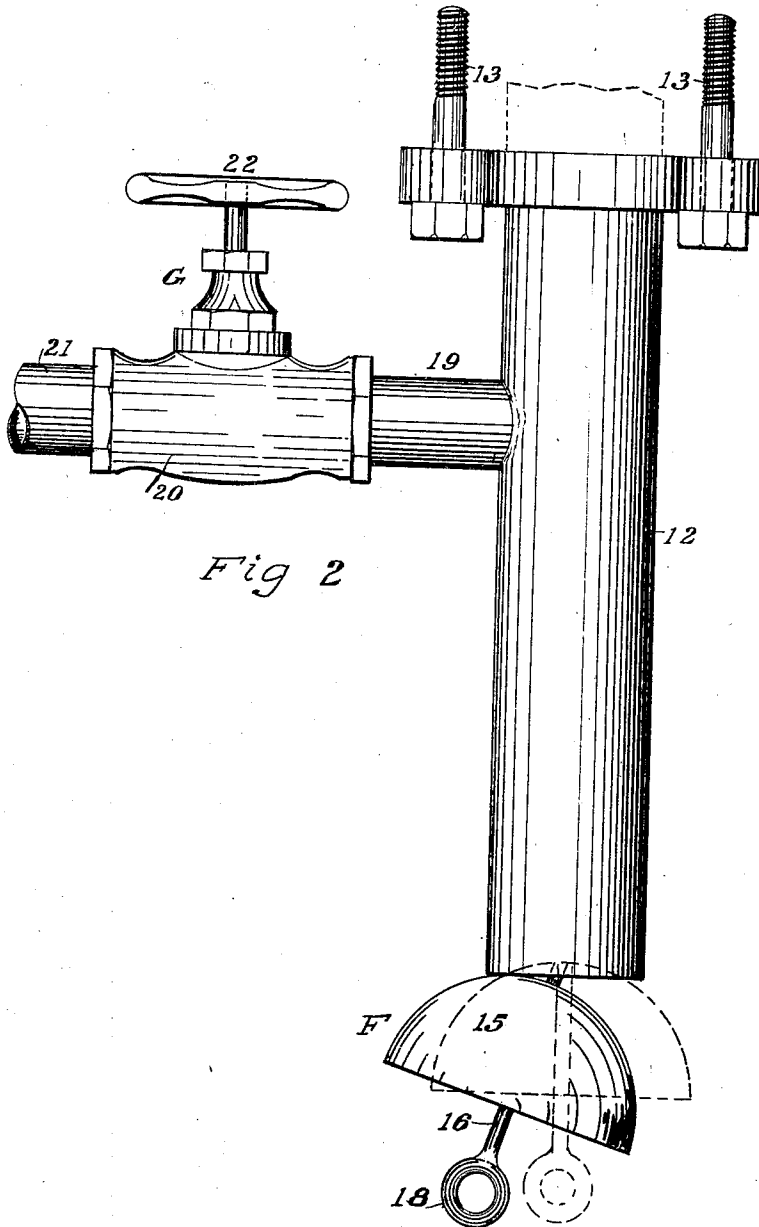


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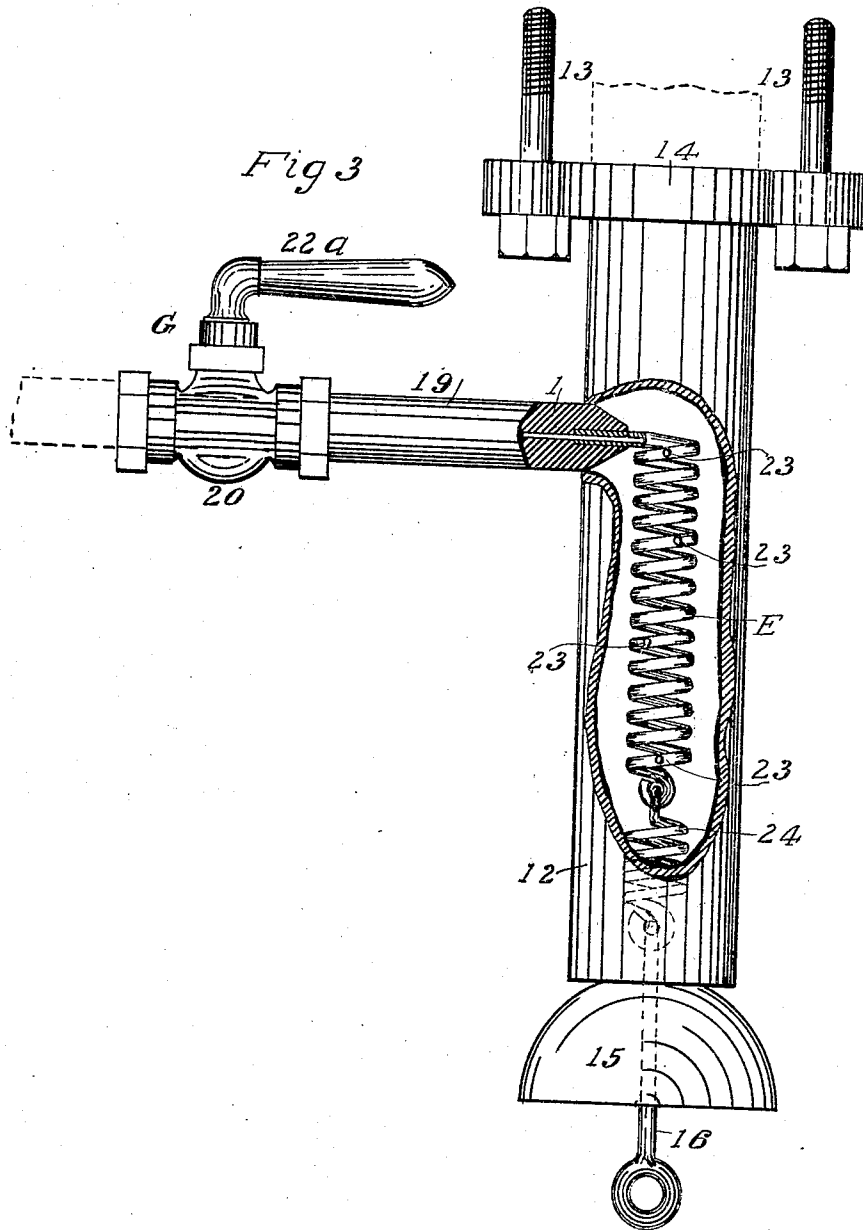
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CARBURETER.

936,118.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE T. GLOVER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters for motor vehicles.

10 Objects of my invention are, to rapidly and thoroughly saturate the air within the mixing chamber with gasoline; to provide within the mixing chamber a comparatively large area of surface over which the gasoline supplied from suitable supply means is distributed and at the same time to permit free flow of air through the mixing chamber; to provide a throttle which can be opened by lateral draft from any desired direction; to utilize means for permitting the distribution of gasoline over a comparatively large area of surface in the mixing chamber as a means for closing the throttle; to provide the feed chamber with a simple and improved valve; to insure the closing action of the valve in a simple and effective way; to provide a simple and durable construction of feed and mixing chambers and adjuncts; to insure a suitable supply of gasoline from the feed chamber to the mixing chamber; and to provide features of detail, combination and arrangement, involving a simple and efficient construction.

15 In the accompanying drawings: Figure 1 represents partly in vertical central section and partly in elevation a carbureter embodying the principles of my invention, a portion of the tubular mixer shell or casing being broken away for convenience of illustration. Fig. 2 shows the mixer in elevation and illustrates in dotted lines the throttle in position to close the opening at the lower end of the mixer or mixing chamber, the throttle as shown in full lines in Figs. 2 and 3 being open. In Fig. 2, the feed chamber formed as shown in Fig. 1 is omitted and also a different form of valve is employed. Fig. 3 shows the tubular mixer shell or casing in elevation with a portion broken away. In this view, the valve or cock illustrated in Fig. 2 has a slightly different form of handle,

and the valve chamber and arm 19 are modified merely as to proportions. In this figure the gasoline is supplied to a spiral coil 23 of perforated bent tubing and the throttle is attached to the lower end of a spiral spring 29, which is suspended from the coil 23. In this figure the throttle is closed.

20 In Fig. 1 the mixing chamber A of the carbureter is supplied with gasoline from a feed chamber B, connection between the two chambers being established by an arm or body-frame member C arranged lateral to the chamber and having a small longitudinal bore or passage forming a duct 1 which opens into each chamber. The casing 2 of the feed chamber B is tubular and upright, and one end of the lateral duct arm C is secured thereto in any suitable way at a point relatively nearer the upper than the lower end wall of this tubular or cylindrical feed chamber, which as shown has a lower end wall 3, and an upper end wall formed by a cap 4 which is screwed onto the upper threaded end portion 5 of the casing 2. The cap or upper end wall of this chamber is also provided with an inlet duct 6 for the admission of gasoline from any ordinary or desired main supply tank or chamber which is understood to be present on a motor vehicle provided with my improved carbureter, and which is also understood to be connected with the inlet duct for the feed chamber B in any ordinary or desired mechanical way. As shown, the duct 6 is formed through an externally threaded plug or coupling 7 secured to and extending through the center of the upper end wall or cap 4 of the feed chamber.

25 The supply of gasoline to the feed chamber B is controlled by a float valve D comprising a float 8 of cork or otherwise made so as to have suitable buoyancy, and provided with an upwardly projecting seating portion formed by a stem 9 having its upper end beveled or pointed and practically constituting a needle valve on the float 8. The duct 6 is for a portion of its length of such diameter that it can be closed by the insertion therein of the upper end of the stem or needle 9, and in order to insure the entrance of the needle valve portion into this small

straight portion of the duct, the latter has its lower end portion flared outwardly and downwardly as at 10, thereby providing an annular inverted funnel-shaped wall, which will direct the needle 9 into the smaller upper portion of duct 6, at a point above and contiguous to the upper terminal to its said flaring wall portion. When therefore the motor or engine is arrested and the chamber B fills to a suitable extent with gasoline, the float 8 will rise until its needle valve portion 9 enters the contracted lower end of duct 6 and closes the same. The greatest diameter of the float 8 is a little less than the diameter of chamber B, so as to permit the passage of gasoline between the two, it being understood, however, that the space between the float and the inner wall of the feed chamber is sufficiently limited to permit the wall of the feed chamber to afford a guide for the float during the rise and fall of the latter, and particularly, to so direct it during its upward movement that when it rises to close the inlet, the beveled or pointed end of its needle valve portion 9 must enter the lower flaring portion 10 of the inlet 6. I also find it extremely desirable and advantageous to contract the float from its ends toward its middle portion substantially as shown, so that when the main body portion of the float is opposite the inlet end of duct 1, suitable space will be left between the float and this inlet end of the duct, it being seen that this space increases the capacity of the feed chamber by decreasing the diameter of the float, while at the same time it leaves the float with enlarged ends of less diameter than the diameter of the feed chamber, but of sufficient diameter to permit the wall of the feed chamber to generally direct or guide the float in its up and down movement.

The mixing chamber A is open at its lower end as at 11, and is preferably formed by a tube or tubular casing 12 which is arranged in an upright position and secured to the vehicle in any suitable way, for example, by bolts 13 attached to a cross head 14, which is in turn secured to the upper end of the tube or tubular casing 12. The mixing chamber which is thus provided with an opening 11 for the admission of air, contains a longitudinally arranged spiral spring or coil spring E. This spring, which broadly considered is a wire or analogous spiral coil, and the discharge end of duct 1, are relatively arranged within the mixing chamber so that gasoline discharged into the mixing chamber from the duct 1 will flow on to the wire coil. As shown, the discharge end of duct 1 is just over the upper end of the coil. When therefore the gasoline is fed onto this coil, it will rapidly distribute itself over the coil and thereby expose to the incoming air

a comparatively large area of surface of gasoline, it being a fact that with this arrangement a comparatively small quantity of gasoline will distribute itself over a comparatively large area of coiled surface, and that when the engine or motor is at work, this exposure of the gasoline to air flowing upwardly through the mixing chamber A, will permit such air to rapidly and effectively take up the gasoline and thereby form a highly desirable gas which is free from various common objectionable features.

The spring E is suspended centrally within the mixing chamber, and to the lower end of the spring in Fig. 1, is hung or attached by a jointed connection a throttle F for opening and closing the inlet port 11 of the mixing chamber. This valve or throttle F is provided with a convex seating and closing face 15, which is rounded in conformity with the surface portion of about one-half of a ball or sphere. Of course the throttle might be a complete spherical body, but it is only practically necessary to make it in the form of about one-half of a sphere, and it also may be hollow or concavo-convex as illustrated. This rounded throttle is provided with a stem 16, and as shown, the stem 16 has one end portion projecting from the convex face of the throttle and formed as an eye which is hung upon a hook-shaped portion 17 of the spring, the lower end of said stem 16 being provided with an eye 18 to which any suitable operating rod or cord can be attached and extended to a point within convenient reach of the driver or chauffeur of an automobile or motor vehicle containing my improvement. A particular advantage of this rounded throttle which is a sort of ball valve, is, that it can be operated to open the port 11 from any direction, that is to say—a rod or link or cord or chain attached to the eye 18 of stem 16 of the throttle may be extended laterally therefrom in any direction whatsoever. The rounded throttle F is caused to normally close port 11 by the retractile energy of spring E, said spring being expanded when the throttle is opened as in Fig. 1, and also as shown in full lines in Fig. 2, which said figure illustrates the throttle in closed position in dotted lines. When suitable lateral pull is exerted upon the lower end portion of the throttle stem 16, the throttle will open the port 11 as shown, and in so doing, it will bear and tilt or rock upon an edge portion of the lower end of the tubular casing 12, and no matter in which direction this lateral pull is thus exerted upon the throttle stem, the throttle will tilt or rock upon some portion of the lower end of casing 12, and also tilt in direction to open the inlet port 11 of the mixing chamber.

It is understood that in Fig. 2 the external

and internal construction of parts is the same as in Fig. 1, with the exception that in Fig. 2 the arm or member 19 corresponding with the arm or member C in Fig. 1, connects with one end of a valve chamber 20, the opposite end of said valve chamber being connected with a supply duct or pipe 21, which is understood to lead to a suitable main supply tank or reservoir. Also that in Fig. 2 the duct through the members 19, 20 and 21, is opened and closed by an ordinary valve or cock G, having a small hand wheel 22 for adjusting the same.

In Fig. 3 the spiral coil E' consists of a small tube bent to form the spiral coil and having its upper end portion extending laterally from the coil and fitted in the arm 19, so as to adapt its passage to connect with the duct 1. With this arrangement the spirally coiled tube E' is provided with small apertures or perforations 23 opening through the inner or outer side of the coil or both, so that gasoline admitted into such tube will pass out the perforations and trickle down the spiral coil. Preferably the spiral coil E' is sufficiently resilient to form a spiral spring, but in case material not sufficiently springy is used, the throttle 15 can be connected with the coil by a suitably resilient spiral spring 24 which is suspended from the spiral coil E', the stem 16 being with this arrangement attached to the lower end of the spring 24. In Fig. 3 the members 12, 19, 20 and G correspond with members having like reference numerals in Fig. 2, it being observed that in Fig. 3 the members 19 and 20 are merely of slightly different proportions, and that the valve or cock G has an operating arm or handle 22^a in place of a hand wheel.

The construction and arrangement of the tubular feed and mixing chambers with a needle float valve in one and a spiral spring coil in the other, provides an exceedingly simple organization which is not liable to get out of repair, and which is exceedingly effective.

It is understood that the mixing chamber is suitably connected with the explosion chamber of a suitable engine, and that when used the engine and carbureter are suitably arranged as parts of a motor vehicle. It is understood that the delivery pipe or passage connects with the upper end portion of the mixing chamber at a point above the outlet end of the duct 1, and that a pipe or tube forming such delivery passage may be connected in any suitable way with the upper end of the tube 12 which provides a mixing chamber. During the operation of the engine a current of air will be induced upwardly through the mixing chamber and take up the gasoline from the surface of the spiral coil E, it being evident that the

arrangement of this coil presents a large area of surface and at the same time it permits a free circulation of air.

As illustrated in Figs. 1 and 3, the spiral coil composed of wire or tubing is an open spiral coil shaped after the manner of an open cylindric or analogous coil spring having a longitudinal central passage circumscribed by the convolutions and communicating with the mixer chamber space about the coil structure by way of space between the convolutions. By this arrangement the coil has an upright central passage free for the circulation of air. The mixing chamber forms an upright passage within which the coil is suspended, and whether the gasoline drips upon the coil as described in connection with Fig. 1, or is supplied as in Fig. 3, the result will be a distribution of gasoline over a large area of coil surface.

What I claim as my invention is:

1. In a carbureter, a mixing chamber forming an upright passage for the upward circulation of air; an open spiral coil structure suspended within said passage and having a longitudinal, central, open passage circumscribed by the convolutions of the coil and communicating with the chamber space about such coil structure by way of space between the convolutions; and means for supplying gasoline from a source of supply to the exterior surface of the coil.

2. In a carbureter, a mixing chamber; a spiral coil formed of bent tubing and arranged within the mixing chamber, and means for supplying gasoline to said coil, the coil tubing being perforated to form outlets, and having its upper end portion connected with a supply port.

3. In a carbureter, a mixing chamber having a bottom opening for the admission of air and adapted higher up for connection with an explosion engine; a spiral spring suspended within the mixing chamber, and a throttle having a convex seating face for closing the bottom opening of the mixing chamber, the throttle being connected with and normally held closed by the spring.

4. In a carbureter, a mixing chamber having a bottom opening for the admission of air and adapted higher up for connection with an explosion engine; a spiral spring suspended within the mixing chamber; a throttle having a convex face for closing the bottom opening of the mixing chamber, the throttle being connected with and normally held closed by the spring; and means for supplying gasoline from a suitable source of supply to the outer surface of the spring.

5. In a carbureter, a mixing chamber consisting of a passage formed by an upright tubular casing open at its lower end and adapted for connection at a point higher up

with a suitable explosion engine; a pendent spiral spring within the mixing chamber; means for supplying gasolene from a suitable source of supply to the outer surface of the spiral spring; and a throttle having a convex seating face for opening and closing the lower end of the tube or tubular casing,

the throttle being provided with a central stem and suspended from the spiral spring.

GEORGE T. GLOVER.

Witnesses:

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