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CARBURETER.

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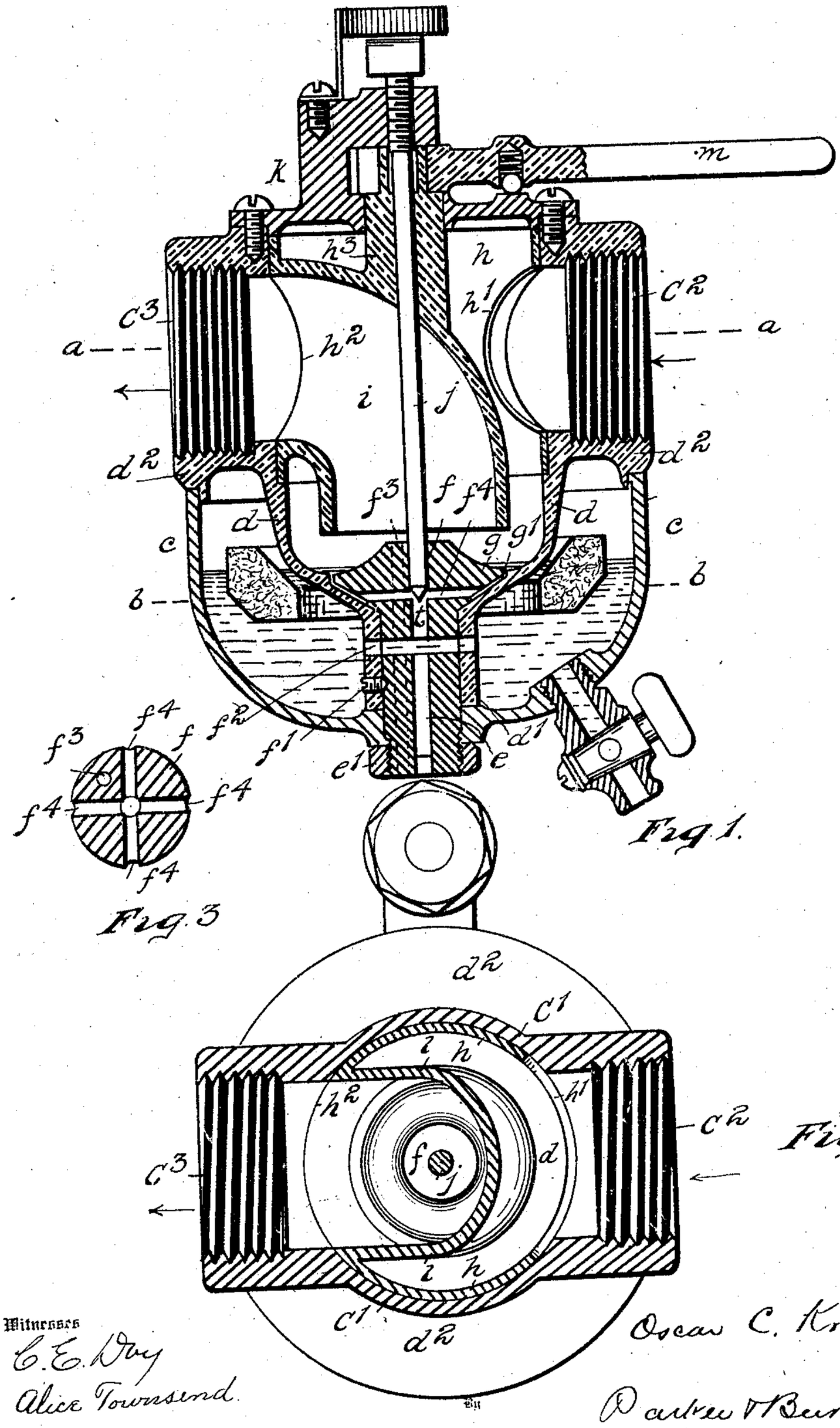

Fig. 1.

Fig. 3

Fig. 2.

Witnesses

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CARBURETER.

976,813. Specification of Letters Patent. Patented Nov. 22, 1910

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To all whom it may concern:

Be it known that I, OSCAR C. KREIS, Jr., a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Carbureters, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to carbureters, and consists in the improvements hereinafter described and pointed out in the claims.

In the accompanying drawing, Figure 1, is a section on a vertical plane of an apparatus embodying my invention. Fig. 2, is a plan view of the same in section on the line *a*, *a*, Fig. 1. Fig. 3, is a detailed sectional view of the plug *f*, taken on the line *b*, *b*, Fig. 1.

c, *c*, is the gasolene reservoir; *d*, *d*, is a basin extending into the reservoir *c* concentric therewith. The reservoir *c* has a concentric opening *e* in its bottom.

d^1 is a hollow cylindrical projection extending downward from the basin *d*; the interior of the basin around the opening from the projection d^1 is finished accurately conical and provided with an annular ridge g^1 concentric therewith and bounding the accurately finished conical surface of the bottom of said basin.

f is a plug formed to fit in the interior of the projection d^1 and having a flaring conical head adapted to fit against the bottom of the basin *d* adjacent to the opening of the projection d^1 and between the contiguous portions of the bottom of the basin and of the head of said plug and the ridge g^1 the lower conical portion of said head is cut away, by turning in a lathe, so as to leave a surface parallel and closely adjacent to the surface of the bottom of said basin, as shown in Fig. 1. The periphery of the head of said plug is so formed that it shall form a vertical cylindrical surface adjacent and parallel to the ridge g^1, as indicated in said figure. The lower end of the plug *f* is screw-threaded and protrudes below the bottom of the reservior *c* and is fitted with a nut e^1 by which the basin is securely fastened in position upon the reservoir *c*.

A set-screw f^1 may pass through the projection d^1 into the plug *f* to hold the latter firmly in position.

f^2, f^2 are horizontal apertures formed through the plug *f* and registering with corresponding apertures through the projection d^1 so as to form a passage for the gasolene from the reservoir *c*.

t is a vertical passage from the aperture f^2 having a valve seat at its upper end against which the end of a needle valve *j* is adapted to fit to regulate the size of the opening through the passage *t*.

f^4 (Figs. 1 and 3) indicates apertures formed horizontally through the plug *f* so as to open at their outer ends at the lower conical surface of the head of said plug, which is slightly raised from the bottom of the basin *d*. The passage *t* opens into the aperture f^4.

d^2 is a flange extending outward from the top of the basin *d*, and resting upon the upper edge of the reservoir *c*.

C^1 is a hollow cylindrical projection or extension from the top of the basin *d*.

C^2, C^3 are cylindrical screw-threaded apertures adapted to receive conductor pipes, which apertures open through the wall of the cylindrical projection C^1 opposite each other.

h is a cylindrical shell fitting closely and adapted to turn in the projection C^1 and have opposite apertures h^1, h^2 through its wall, which apertures are adapted to register respectively with the openings from the apertures C^2, C^3.

k is a cover secured to the cylindrical projection C^1 and adapted to close the upper end of the same.

h^3 is a cylindrical stem extending from a part *i* of the shell *h* through a corresponding aperture in the cover *k*.

m is a handle secured to the outer end of the stem h^3 by which the shell *h* may be rotated in the projection C^1.

i is an elbow forming a part of the shell *h*, its lower end being concentric with said shell and opening downward below the same and adjacent to the top of the plug *f*. The upper end of the elbow *i* opens horizontally through the shell *h* around the aperture h^2 in the wall of said shell. The needle valve *j* extends through the stem h^3 concentric therewith and is provided with screw-threads taking into the screw-threads of a lug on the cover *k*.

The operation of the above described device is as follows: The gasolene is fed to the reservoir *c* and is maintained, in any well-known manner, at a level which is slightly above the upper edge of the ridge g^1 as indicated in Fig. 1 of the drawing. The gasolene flows through the apertures f^2, passage *t*, and passages f^4, into the narrow conical space between the head of the plug *f* and the bottom of the basin *d*, and from thence into the vertical cylindrical space between the periphery of the head of said plug and the vertical wall of the ridge g^1. The cylindrical space between the periphery of the plug and the wall of the ridge g^1 forms the delivery mouth for gasolene into the basin *d*. The intake pipe from the engine is secured so as to draw through the aperture C^3 and air is taken through the aperture C^2. On the suction stroke of the engine, the air enters C^2, descends around the lower end of the elbow *i*, mixes with the gasolene in the basin *d*, or from the gasolene passage opening thereinto, and ascends as an explosive mixture through the elbow *i*, and into the suction pipe to the engine. The rate of delivery of gasolene is regulated by adjusting the needle valve *j* in the usual way. The delivery mouth for gasolene is of a somewhat less diameter than the outside of the lower end of the elbow *i* so that the descending current of air does not strike directly against it, but is first deflected by the bottom of the basin *d*, so that it passes at right angles to the direction of delivery of the gasolene.

A passage f^3 is formed vertically through the plug *f*, its upper end opening at the highest portion of the head of said plug. The passage f^3 serves to take the overflow should the automatic apparatus for maintaining the level of the gasolene fail. The level of the gasolene is so adjusted that it shall be a little above the delivery mouth of the basin *d* so that a small portion of gasolene will be within the basin *d*, at the first stroke of the engine and serves to prime the same.

It will be obvious to those conversant with the art, that the direction of motion of the air may be reversed, that is that the intake pipe from the engine may be connected with the opening C^2 instead of C^3, and still have the same mode of operation and be within my invention, the radial motion of the air across the gasolene opening being, then, from within outward, instead of from without inward, and this form is intended to be covered by the following claims as an obvious equivalent.

Claims.

1. In a carbureter, the combination of a passage for air having its intake end opening downwardly, said passage being adapted to have the charge drawn through it, means for directing the current of air to be drawn into said intake downward along the outer wall of said passage and inward to the intake to said passage, and a delivery opening for gasolene located below the intake to said passage and in the current of air moving inward to the intake to said passage, said delivery opening being so constructed that it shall deliver the gasolene at right angles to the current of air moving inwardly to the intake to said passage, substantially as described.

2. In a carbureter, the combination of a passage for air having a circular intake end opening downward, said passage being adapted to have a charge drawn through it, means for directing the current of air to be drawn into said intake downward along the outer wall of said passage and inward to the intake to said passage, and an annular delivery opening for gasolene so located below the intake to said passage that the air shall be drawn radially across said annular opening when the current of air is moving inward to the intake to said passage.

3. In a carbureter, the combination of a passage for air having an intake end bounded by a circular wall opening downward, said passage being adapted to have the charge drawn through it, means for directing the current of air to be drawn into said intake downward along the outer wall of said passage and inward to the intake of said passage, and an annular delivery opening for gasolene axially in line with the bounding wall of said intake and located below the wall of said intake so that the current of air shall pass radially across said annular opening.

4. In a carbureter, the combination of a hollow inclosure C^1 having apertures C^2, C^3 through its wall, a casing *h* adapted to fit against the interior wall of said inclosure and turn therein, for the purpose described, and having apertures h^1, h^2 adapted to register with the apertures C^2, C^3, and an elbow *i* having its opening at one end corresponding to one of the apertures in the shell *h*, the other end opening within said inclosure, said inclosure being provided with a delivery mouth for gasolene located opposite the end of said elbow opening into said inclosure, and means for drawing air into said elbow through the opening of the elbow in said inclosure.

5. In a carbureter, the combination of a hollow inclosure C^1 having apertures C^2, C^3 through its wall, a casing *h* adapted to fit against the interior wall of said inclosure and turn therein, for the purpose described, and having apertures h^1, h^2 adapted to register with the apertures C^2, C^3, and an elbow *i* having its opening at one end corresponding to one of the apertures in the shell *h*, the other end opening downward in said

casing, means for connecting the intake passage of an engine with the upper end of said elbow, and means for feeding liquid fuel to said inclosure below the end of the elbow *i* which opens into said casing, for the purpose described.

6. The combination of a reservoir *c*, a basin *d* adapted to fit on the upper edge of said reservoir and having an opening through its bottom, said reservoir being provided with an opening through its bottom in line with the opening through the basin *d*, said basin *d* having a conical bottom, the plug *f* having its head shaped to correspond to the conical bottom of the basin *d*, a portion of the surface of said plug being shaped so that a narrow conical passage will be formed by said portion of the head of the plug and the adjacent surface of the bottom of the basin *d*, and means for supplying gasolene to said passage from said reservoir.

7. In a carbureter, the combination of a reservoir *c*, a basin *d* concentric with said reservoir, an aperture *e* through the bottom of said reservoir, a co-axial aperture through the bottom of the basin *d*, the bottom of the basin *d* being provided with a ridge g^1 surrounding said aperture, a plug adapted to pass through said aperture and the aperture *e* and to be secured to the reservoir and having a head provided with a periphery that shall lie adjacent and opposite to the ridge g^1 to form a delivery mouth for gasolene, and means for supplying gasolene to said passage from said reservoir.

8. In a carbureter, the combination of a passage for air having its intake end opening downward, said passage being adapted to have the charge drawn through it, means for directing the current of air to be drawn through said intake downward along the outer wall of said passage and inward to the intake to said passage, and an annular delivery opening for gasolene located vertically below the annular edge bounding said intake, and a surface adapted to deflect the current of air at right angles to the delivery direction of the gasolene before it reaches the gasolene delivery opening.

9. In a carbureter, the combination of a hollow cylindrical inclosure C^1 having apertures C^2, C^3 through its wall, a casing *h* adapted to fit against the interior wall of said inclosure and turn therein, for the purpose described, and having apertures h^1, h^2 adapted to register with the apertures C^2, C^3, and an elbow *i* having its opening at one end corresponding to one of the apertures in the shell *h*, the other end opening downward in said casing, means for connecting the intake passage of an engine with the upper end of said elbow, and means for feeding liquid fuel to said inclosure below the lower end of the elbow *i* for the purpose described, a valve stem extending co-axially with the casing *h* and adapted to regulate the rate of flow of the liquid fuel.

10. In a carbureter, an inclosure having an open upper end and a closed lower end, an air passage communicating with said upper end, a conduit extending into the open end of said inclosure and having an opening in said inclosure and adapted to have air drawn through said opening, said inclosure being provided with an annular delivery opening for gasolene located below the opening of said conduit in said inclosure, the parts being so arranged that the air shall be drawn radially to said annular opening across the same.

11. In a carbureter, an inclosure having an open upper end and a closed lower end, a conduit extending into the open end of said inclosure and having an opening in said inclosure and adapted to have air drawn through said opening, said inclosure being provided with an opening for gasolene located below the opening of said conduit in said inclosure, the parts being so arranged that the air shall pass across said opening for gasolene at right angles to the direction of delivery of the gasolene.

In testimony whereof, I sign this specification in the presence of two witnesses.

OSCAR C. KREIS, JR.

Witnesses:
VIRGINIA C. SPRATT,
ELLIOTT J. STODDARD.