T. A. SWARTS.

CARBURETER.

APPLICATION FILED MAY 19, 1910.

996,897.

Patented July 4, 1911.

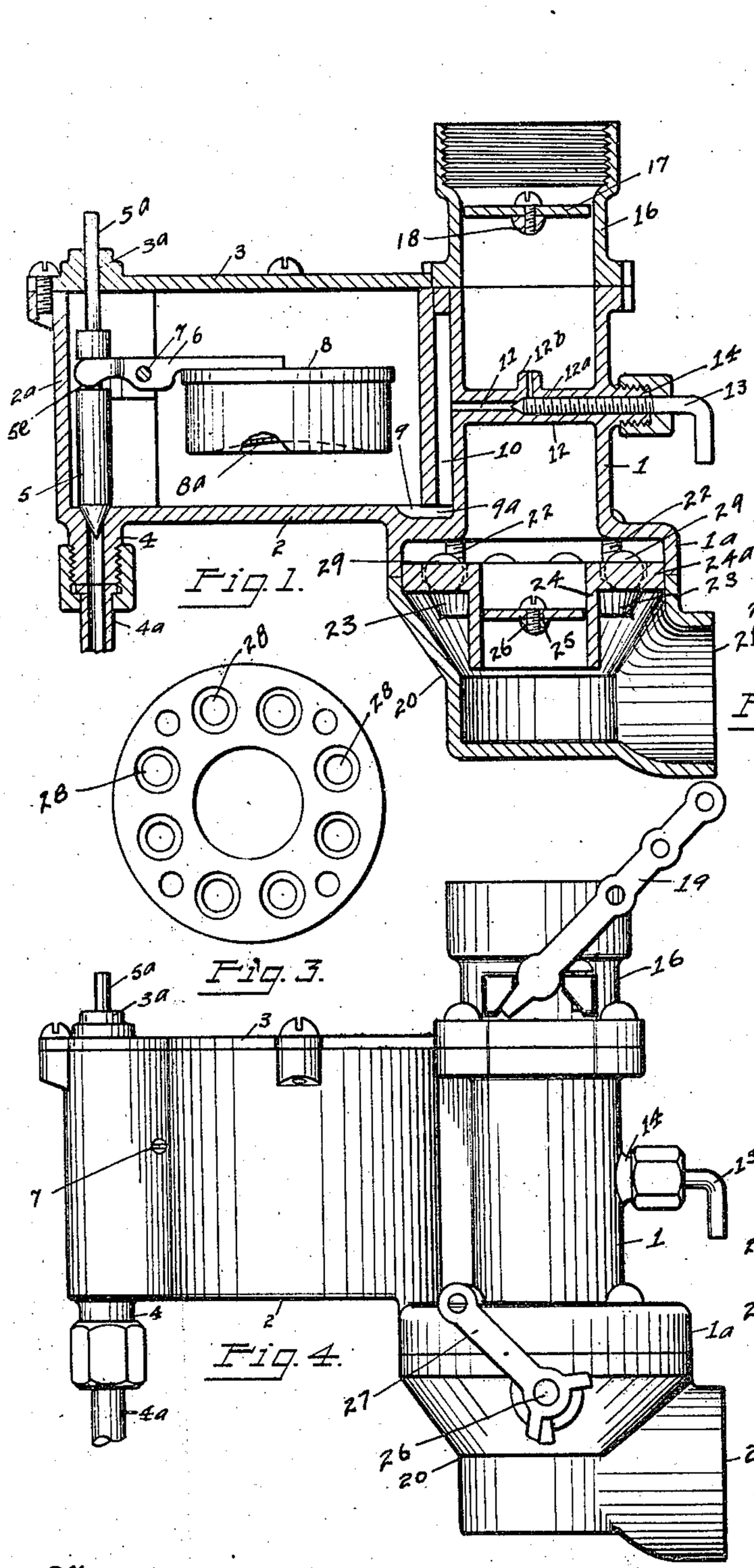

Fig. 1.

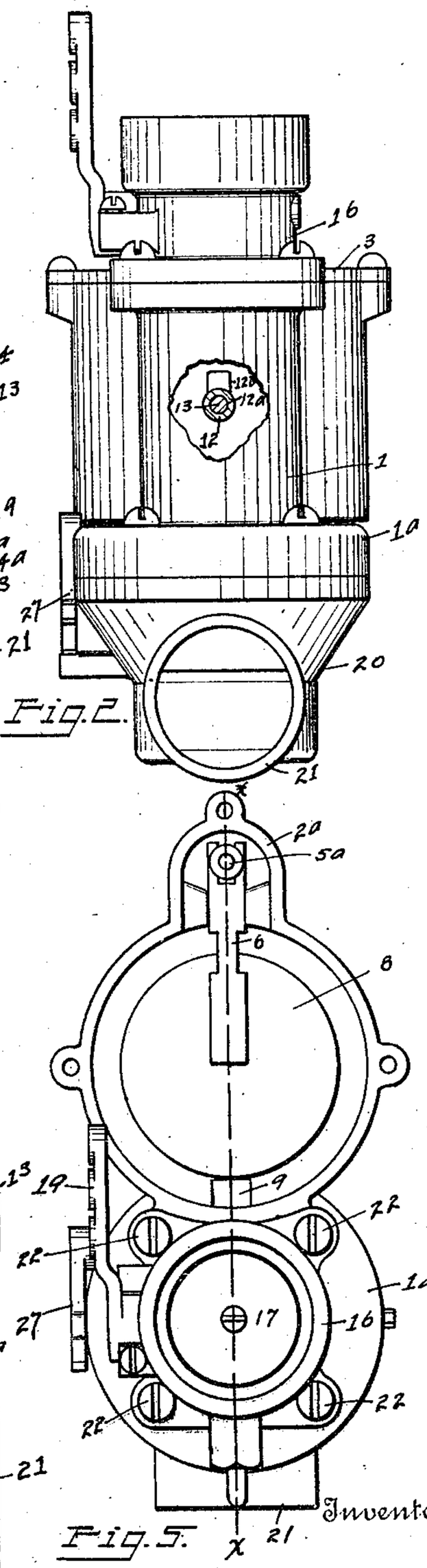

Fig. 2.

Fig. 4.

Fig. 5.

Witnesses

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CARBURETER.

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To all whom it may concern:

Be it known that I, THOMAS A. SWARTS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to carbureters of that class which are adapted for use in connection with gasolene engines, and the objects of my invention are to provide a carbureter of improved construction and arrangement of parts; to so construct my improved carbureter as to insure a thorough and proper mixture of air and gasolene; to provide improved means for automatically supplying air in quantities as desired for use; to provide improved means for conveying gasolene from the float chamber to the mixing chamber, so constructed as to insure a charge of gasolene to the mixing chamber so long as there is gasolene in the float chamber; to provide means for maintaining an air cushion beneath the float and to produce other improvements the details of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawing, in which—

Figure 1 is a central vertical section of my improved carbureter taken on line *x*—*x* of Fig. 5, Fig. 2 is an end elevation of the carbureter, Fig. 3 is a plan view of the ball valve plate which I employ, Fig. 4 is a side elevation, and Fig. 5 is a plan view.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention, I employ an upright casing body 1 from which extends laterally a substantially cup-shaped float chamber or reservoir 2, the latter having a detachable top plate 3. Extending beneath a lateral extension 2^a of the float chamber, is a hollow threaded boss or nipple 4 with which is connected a gasolene supply pipe 4^a. The upper end of the central passage of the boss 4 is formed with a flaring enlargement which serves as a seat for the conical lower end portion of a needle point valve 5, the latter extending upward and having its upper reduced stem extension 5^a slidably supported in an opening 3^a in the cover plate 3. The needle valve 5 in its upper portion is provided with a peripheral recess 5^e which is engaged by the outer end of a normally horizontal lever 6 which lever is pivoted in the reservoir extension as indicated at 7. The inner end portion of the lever 6 is connected with a suitable form of float body 8, the underside of which is concaved as indicated at 8^a.

In the floor of the chamber 2 at the junction of said chamber with the vertical casing body 1, I provide an outlet opening 9 which leads through a short recess or passage 9^a to the lower end of a vertical passage 10 which is formed in the wall between the casing 1 and reservoir 2. This vertical passage 10 communicates with one end of a smaller horizontal passage 11 which is formed in the central portion of a horizontal valve casing member 12 which intersects the casing body 1 at a point near the center of the height thereof. The outer end of the passage 11 communicates with and forms an extension of the needle valve opening 12^a of the casing member 12, this needle valve opening having threads which engage corresponding threads on a needle valve 13 the outer unthreaded end portion of which extends through a boss 14 on the outer side of the casing 1. At or adjacent to the meeting points of the passages 12^a and 11, the valve casing member 12 is formed with an upwardly extending nozzle 12^b.

The casing body 1 is surmounted by an outlet valve casing 16 which communicates with the casing 1 and in which is provided a suitable form of rotary valve 17, this valve being adapted to be turned to open or close or partially open or close the passage through the casing 16 by means of a horizontally disposed valve stem 18 which is journaled in the casing 16 and on one of the outer ends of which is affixed an operating lever 19. The casing 1 in its lower side is provided with a downward extension 20 having an air inlet opening 21. The casing extension 20 is of greater diameter than the body of the casing 1 and is connected with a lower end enlargement 1^a of the casing 1 through the medium of vertical bolts or screws 22, the lower ends of which engage internal enlargements or lugs 23 cast with the body of the member 20. The bolts or screws 22 also pass through the circular rim or horizontal top flange 24^a of a vertical tubular valve casing 24, the latter being thus supported above the internal projections 23 of the casing member 20. In the valve casing 24 is provided a valve 25 which is intended to regulate the passage of air through

said member 24. This valve is carried upon a horizontal stem 26 which extends outward through openings in the members 24 and 20 and which carries on its outer end portion a suitable valve operating lever 27. The valve casing flange 24ª has formed therein in circular arrangement, a plurality of openings 28, these openings having flaring upper ends which form seats for valve balls 29.

In operation the gasolene is supplied to the float chamber or casing 2 through the central passage of the casing member 4, the needle valve 5 being raised off its seat owing to the lowered position of the float 8. It is obvious, however, that as the gasolene rises in the float chamber and elevates the float, the needle valve 5 will descend and gradually cut off the supply of incoming gasolene. From the float chamber the gasolene passes through the opening 9 and into the passages 9ª and 10 to the passage 11, from which the needle valve 13 being sufficiently open, it may escape through the nozzle 12ᵇ. In order to effect the proper spraying of the gasolene at the outlet of the nozzle 12ᵇ, air is admitted at the casing extension opening 21 and the valve 25 being open or turned to a partially open position, it is obvious that the air will pass upward into the casing 1 about the member 12 and create the desired spray of gasolene at the nozzle 12ᵇ. The gasolene thus broken into minute particles or converted into gaseous form and mixed with the air, is carried upward by the air draft through the valve casing 16, from which it is piped in the usual manner to an engine cylinder manifold. As the volume of gas consumed in the engine cylinders is increased and the suction of air upward from the intake, is likewise increased, it is obvious that the ball valves 29 will be raised off their seats, thus not only providing additional air above the valve 25, but resulting in separating the incoming air into currents, which has been found an effective process in producing the desired mixture with the gas by more effectually breaking the gasolene into minute particles or molecules.

It will be understood that the outgoing mixture of gas and air may be regulated by the operation of the valve 17 and that the discharge of gasolene at the nozzle 12ᵇ may be regulated by the position of the needle valve.

It will be observed that the gasolene outlet 9 of the valve chamber, is located at the bottom of said chamber, thus preventing air escaping from the float chamber through the gasolene passages to the discharge nozzle 12ᵇ in case there is sufficient gasolene within the chamber to cover the outlet 9.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claim.

What I claim, is—

In a carbureter, the combination with a carbureting chamber having a valve controlled gasolene discharge nozzle therein, and means for conducting gasolene thereto, of an air inlet casing communicating with said carbureting chamber, a valve casing in said air inlet casing, a valve in said casing, a ring about said valve casing, said ring having a plurality of openings, and ball valves normally closing said openings.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS A. SWARTS.

Witnesses:
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