

No. 706,600.

Patented Aug. 12, 1902.

J. RUSH.
CARBURETER.

(Application filed Feb. 26, 1901.)

(No Model.)

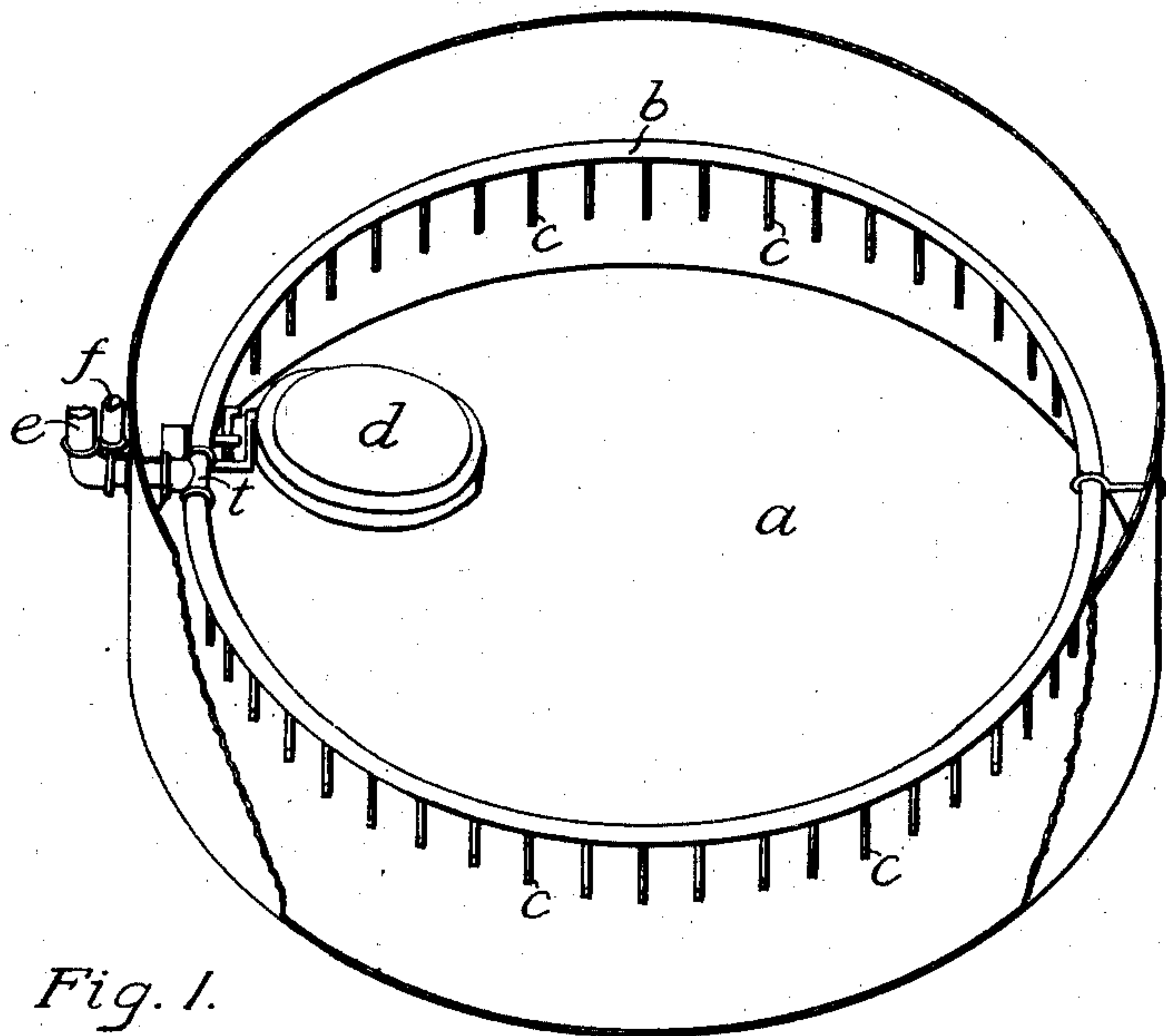


Fig. 1.

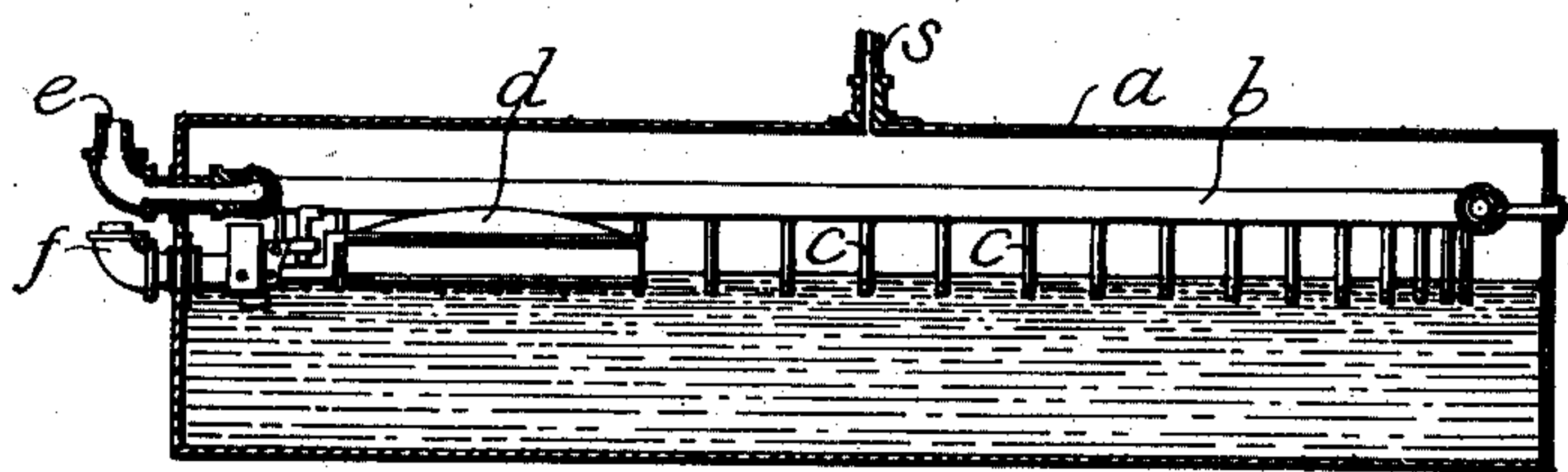


Fig. 2.

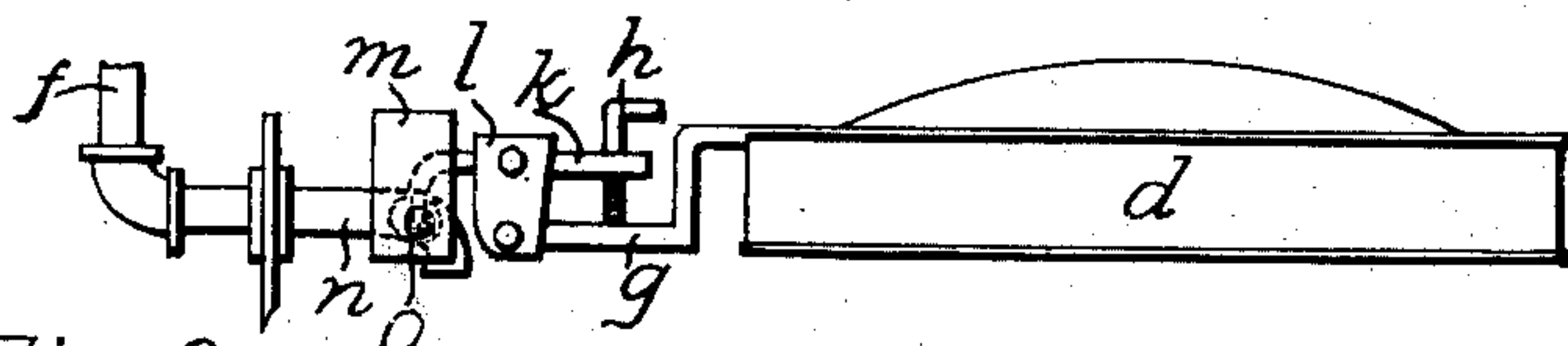


Fig. 3.

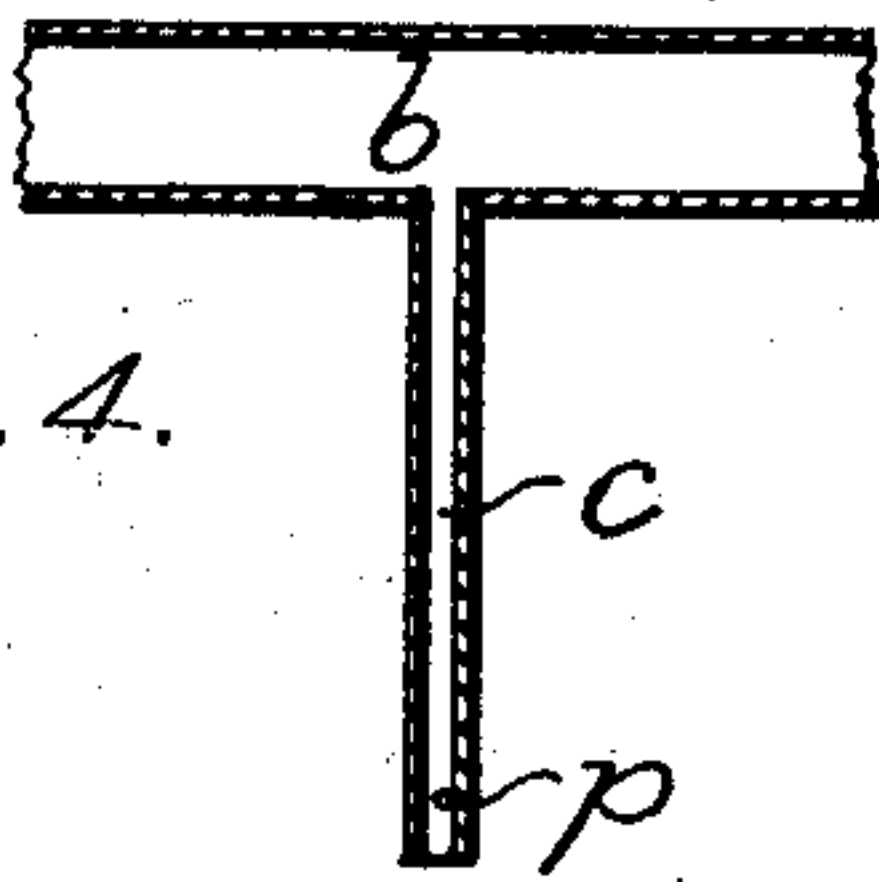


Fig. 4.

WITNESSES:

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CARBURETER.

SPECIFICATION forming part of Letters Patent No. 706,600, dated August 12, 1902.

Application filed February 26, 1901. Serial No. 48,929. (No model.)

To all whom it may concern:

Be it known that I, JOHN RUSH, a citizen of the United States of America, and a resident of Waterloo, Blackhawk county, Iowa, have invented certain new and useful Improvements in Carbureters for Gas-Machines, of which the following is a specification.

My invention relates to improvements in carbureters in which float-valves are used to regulate the supply of oil; and the object of my improvement is to thoroughly mix the vapor or gasolene with air by passing the air in minute quantities beneath the surface of the gasolene, which insures its being sufficiently carbureted. I attain this object by the means illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of the carbureter having the top and part of the side removed in order to show the relative positions of the air-supply pipes and the float-valve. Fig. 2 is a vertical section of the carbureter, showing its parts in operative position when a proper supply of gasolene has been placed within it. Fig. 3 is a side elevation of the float-valve, showing its manner of connection with the gasolene-supply pipe; and Fig. 4 is a detail of the air-supply pipe, showing the perforated distributing-tube in section.

Similar letters refer to similar parts throughout the several views.

The mixing-tank *a* is provided with the inlet-pipes *e* and *f*, which respectively supply air and gasolene. The pipe *e* communicates, through a T *t*, with a circular or ring-shaped distributer-pipe *b*, placed near the top cover of the carbureter. Any sufficient number of small tubes *c* are set within the under part of the pipe *b*, depending therefrom and communicating with the interior thereof, and these tubes *c* are provided with one or more minute perforations in their sides at a point or points very near their lower ends, as at *p*.

A valve *o* is placed within the inner portion of the gasolene-supply pipe *f*, and the admission of gasolene is regulated by means of the float *d*. This float is suspended on a bracket-lever *g*, pivoted to the lower part of a U-shaped bearing *l*, the latter extending on both sides of the levers *k* and *g*. This bearing *l* is hung on the crank-lever *k* about

midway of its length. A set-screw *h* is placed to work through the outer end of the lever *k* and is used in adjusting the position of the levers *g* and *k* to each other, and hence the limit of play vertically of the float *d*. The valve *o*, which may be constructed in any usual manner, is operated by the movement of the crank-lever *k*, said lever *k* being restrained from sidewise movement by the pieces *m*, one of said pieces opposite thereto not being shown in the drawings. A gas-vent *s* is provided in the top of the tank *a*.

The valve *o* remains open until sufficient gasolene (supplied under the pressure of gravity from a tank above, which is not here shown) is furnished to buoy up the float *d* to a position where its connected crank-lever *k* shuts the valve *o* in the inlet-pipe *n*. The float is usually arranged to shut off the supply of oil when the surface of the latter has reached but a slight elevation above the perforations *p* in the lower ends of the air-tubes *c*. When the consumption of the oil has proceeded to such an extent as to uncover the perforations *p*, the falling float *d* opens the valve *o*, and enough more gasolene is admitted to the tank *a* to again cover the perforations to the requisite depth.

As air is admitted under pressure through the air-inlet pipe *e* it passes around within the circular pipe *b* and is distributed to the tubes *c*, which depend from the ring and are open at their lower ends to permit dirt, scales, and dust to fall through the tubes past their side openings and out of such lower ends, thereby preventing clogging of the ring or the tubes and preventing stoppage of the perforations in the latter. Such perforations are perhaps an inch from the lower ends of the tubes, and when there are several perforations the lowermost one is about an inch from such lower end. The air is supplied only at such pressure that under normal conditions it will depress the column of liquid within each tube to such point that it permits the air to escape through the perforation or through the uppermost of several perforations, though under abnormal or extraordinary conditions the column might be further depressed and additional perforations exposed. Occasionally a strong blast of air might be directed through the tubes to blow

accumulations therein out through their lower
 ends. The air tends to escape through the
 perforations p , which are of a minute bore
 and which permit but small particles or
 5 quantities of the air to issue. As these mi-
 nute quantities of air pass out and rise to the
 surface of the gasolene they become thor-
 oughly carbureted with gasolene vapor and
 enter the upper part of the mixer in a proper
 10 condition for combustion. The passing of
 the air in such small quantities through the
 gasolene prevents its bubbling and conse-
 quent imperfect carburization. Its distribu-
 tion through a number of small perforations
 15 also permits of equalizing the gas-supply to
 the demands made upon the carbureter
 through combustion. It is estimated that
 the air supplied through one of these perfo-
 rations p suffices for the operation of one
 20 gas-lamp, and the air-tubes and perforations
 may be increased to any number desired to
 supply any requisite number of lamps. In
 practice it is designed that the air-inlet pipe
 e shall be connected with any blower capa-
 25 ble of maintaining a steady pressure, and the
 carbureter is usually placed in such a posi-
 tion that the gasolene may be supplied to it
 from above under the influence of gravity.
 When the consumption of the gas is above
 30 normal, the liquid in the tank rises; but the
 float in rising opens the valve and promptly
 admits more liquid. When the consumption
 is below the normal, the accumulation of gas
 within the tank above the liquid will offer a
 35 certain pressure on the surface of the latter,
 which will prevent more liquid from coming
 in, and whenever the liquid level falls the
 valve will automatically open to admit more
 gasolene.

40 Having described my invention, what I
 claim as new, and desire to secure by Letters
 Patent, is—

1. In a carbureter for gas-machines, the
 combination with a mixing-tank having an oil-
 45 inlet and gas-outlet; of an air-inlet pipe en-

tering the tank above the level of the gaso-
 lene, and a number of small tubes communi-
 cating with and depending from said pipe into
 the gasolene and each pierced with minute
 perforations.

2. In a carbureter for gas-machines, the
 combination with a mixing-tank having an oil-
 inlet and gas-outlet; of an air-inlet pipe en-
 tering the tank above the gasolene, a ring-
 shaped distributor-pipe communicating with
 55 said inlet-pipe and also standing above the
 level of the gasolene, and a number of small
 tubes communicating with and depending
 from said distributor into the gasolene and
 each pierced with minute perforations.

3. In a carbureter for gas-machines, the
 combination with a mixing-tank having an oil-
 inlet and gas-outlet; of an air-inlet pipe en-
 tering the tank, a distributor-pipe communi-
 cating with said inlet-pipe and standing with-
 65 in the tank above the level of the gasolene,
 and a number of small tubes leading from the
 distributor downward below the level of the
 gasolene and each pierced with a number of
 minute perforations in its side walls, as and
 70 for the purpose set forth.

4. In a carbureter for gas-machines, the
 combination with a mixing-tank, the gas-out-
 let and air and oil inlet pipes, a valve in the
 latter, a float, and adjustable connections be-
 75 tween the float and valve-stem whereby the
 float operates the valve at varying levels of
 the oil; of a distributor-pipe connected with
 the air-inlet, and a series of small tubes de-
 pending from said pipe beneath the normal
 80 level of the oil and there provided with mi-
 nute perforations, all as and for the purpose
 set forth.

Signed at Waterloo, Iowa, this 23d day of
 February, 1901.

JOHN RUSH.

Witnesses:

HALCON G. TURNER,
 CHAS. E. OSMON.