

No. 825,754.

PATENTED JULY 10, 1906.

C. F. PEARSON.
VAPORIZER FOR HYDROCARBON ENGINES.

APPLICATION FILED AUG. 3, 1904.

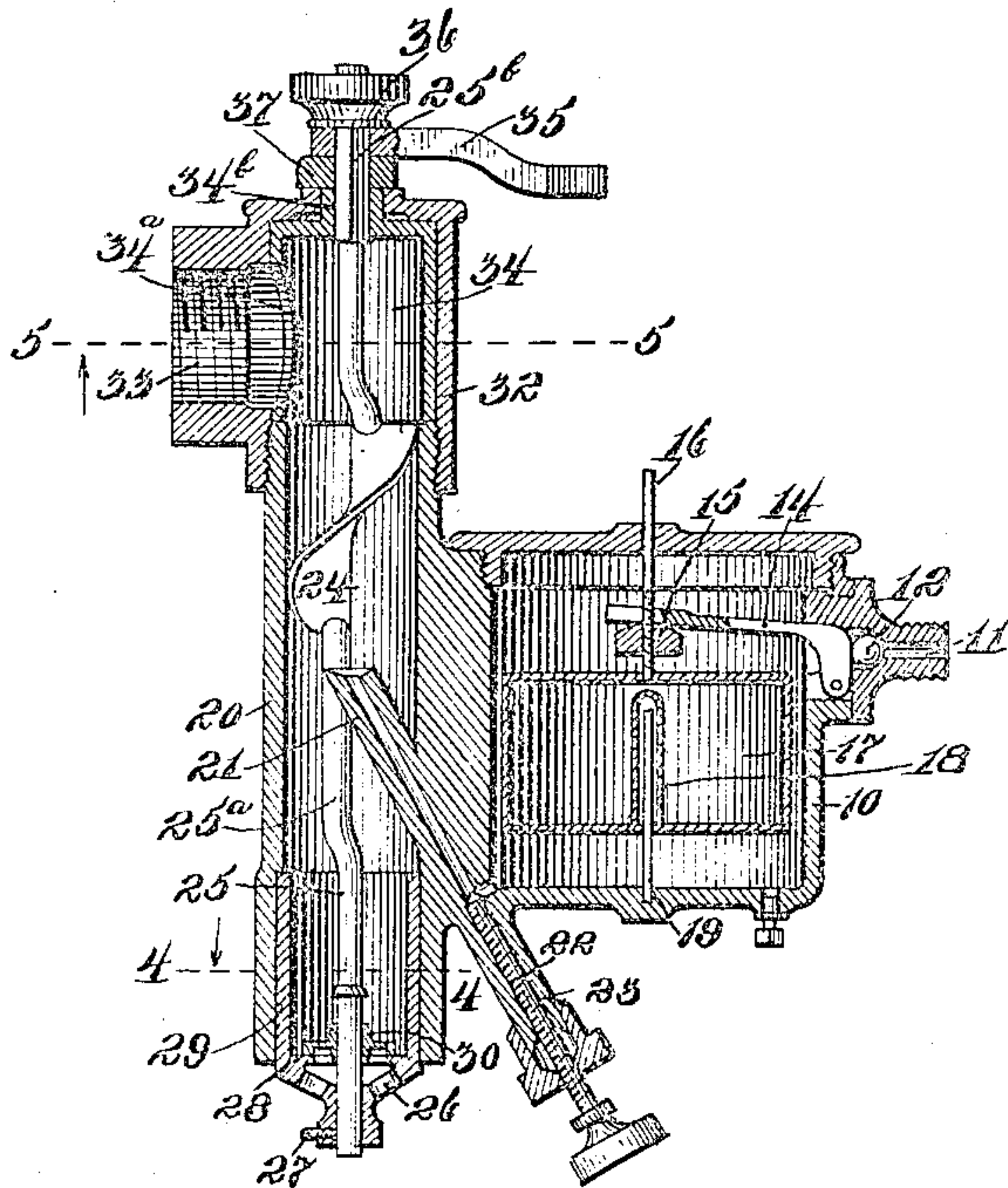


FIG. 1.

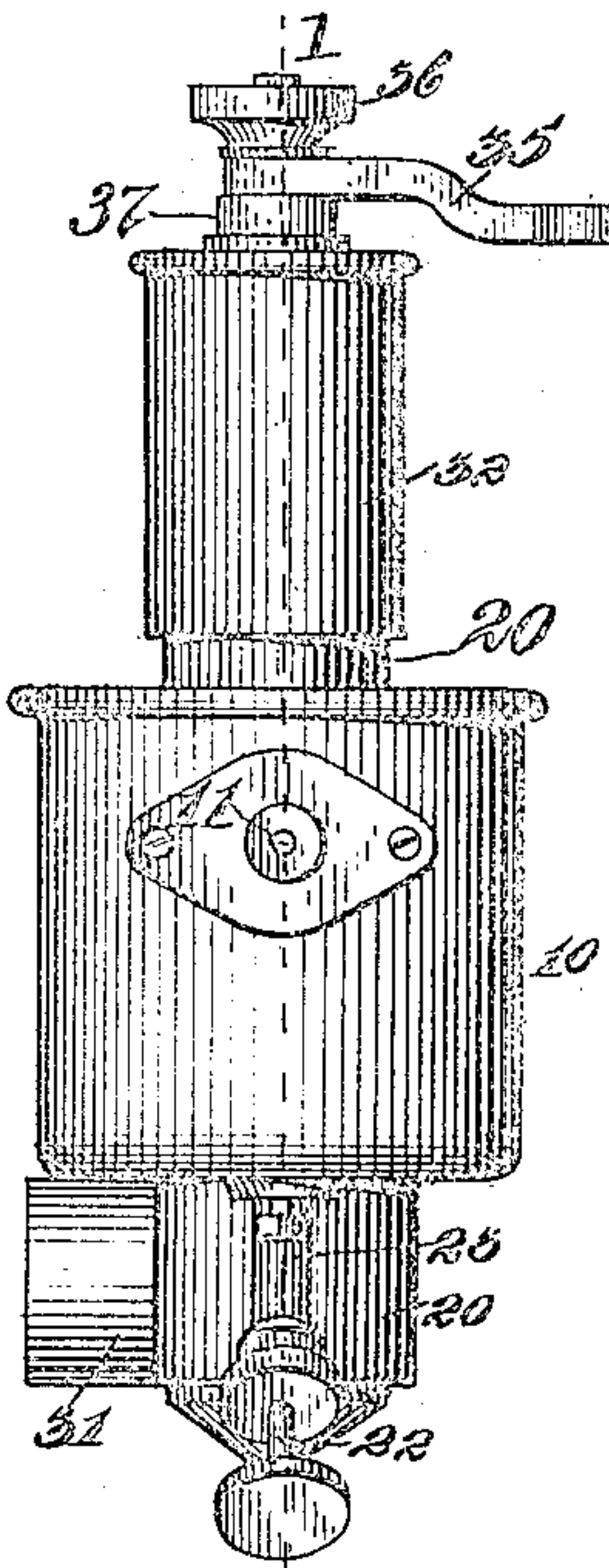


FIG. 2.

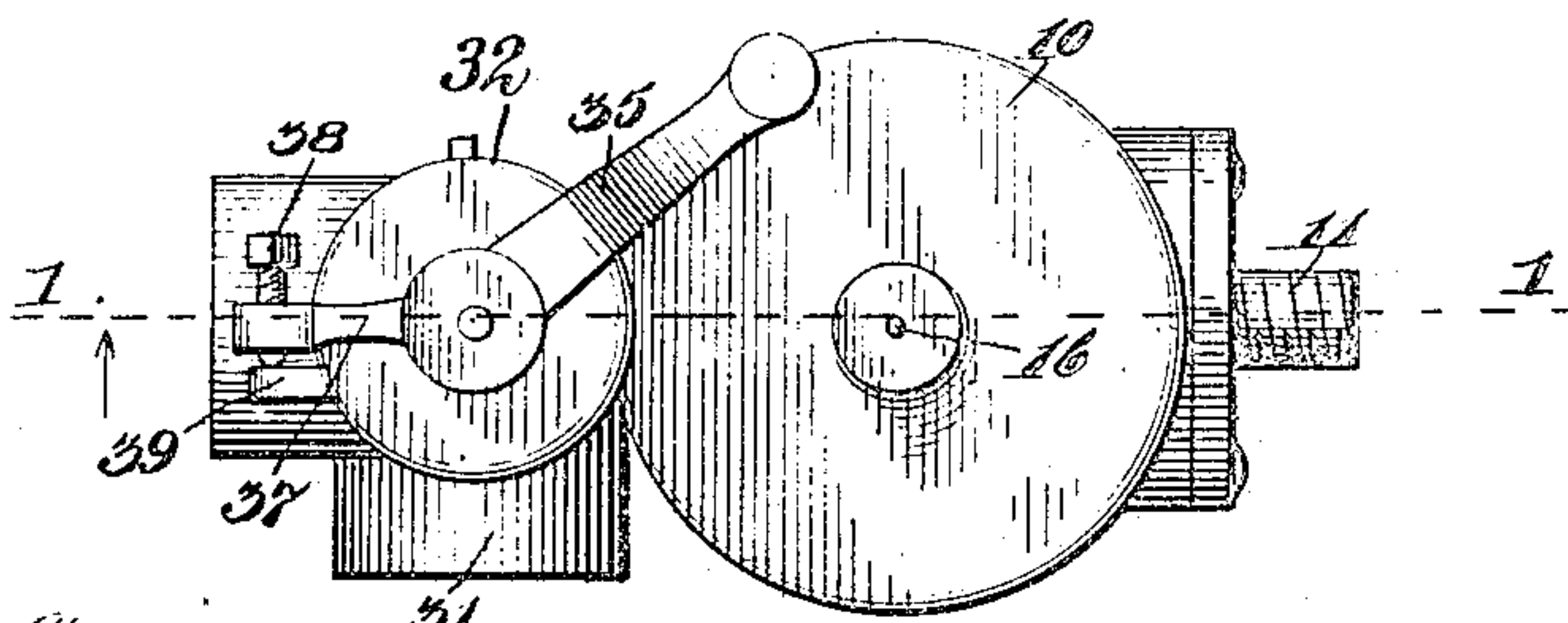


FIG. 4.

FIG. 5.

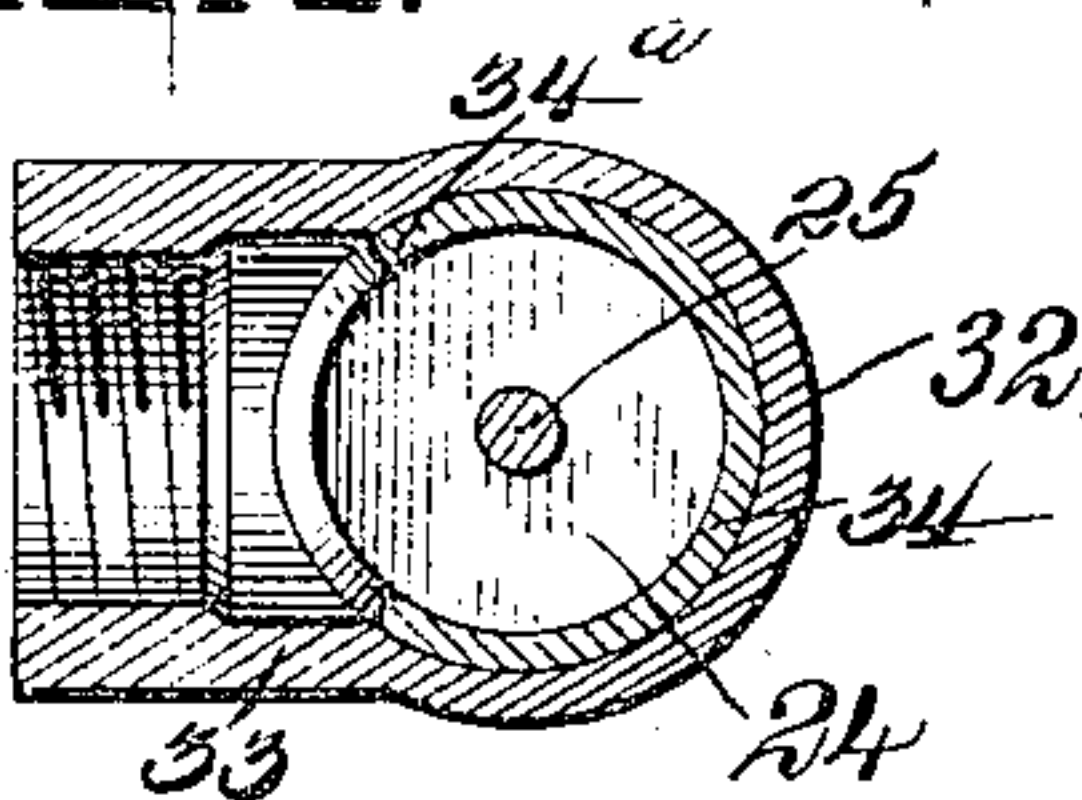


FIG. 3.

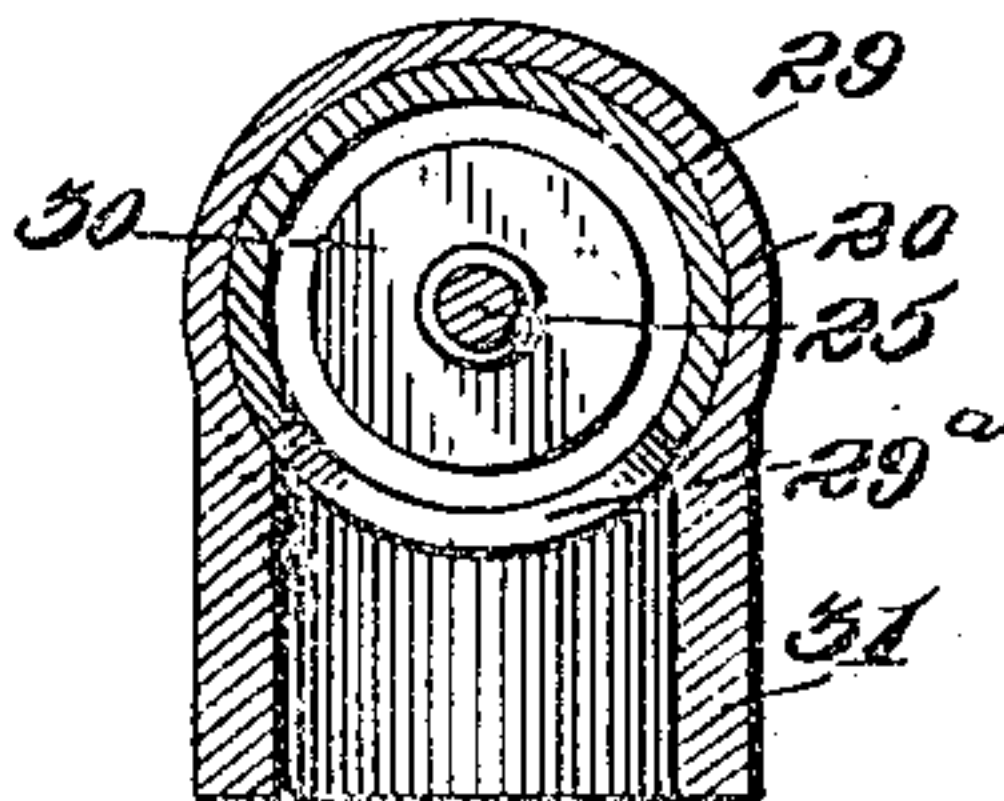
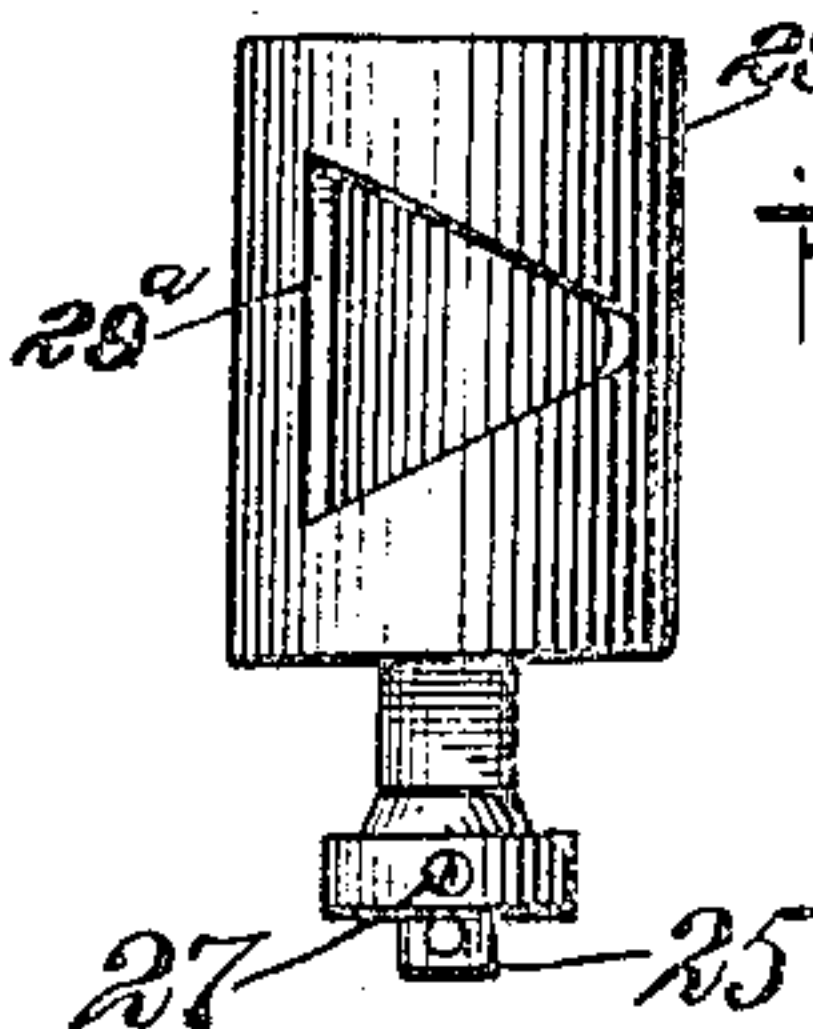


FIG. 6.



WITNESSES:
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VAPORIZER FOR HYDROCARBON-ENGINES.

No. 825,754.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed August 3, 1904. Serial No. 219,331.

To all whom it may concern:

Be it known that I, CARL F. PEARSON, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Vaporizer for Hydrocarbon - Engines, of which the following is a full, clear, and exact description.

While my invention is especially intended for hydrocarbon-engines, it may be employed in other ways, as will be apparent to persons skilled in the art.

The present invention constitutes an improvement in the type of vaporizer disclosed in my prior patent, No. 737,463, granted August 25, 1903.

The special object of the present improvement is to provide means for effectively regulating the vaporizer so as to increase and diminish the supply of fuel, this regulation taking place without, however, affecting the uniformity of the fuel mixture supplied to the engine.

Reference is had to the accompanying drawings, illustrating as an example the preferred embodiment of the invention, in which drawings like numerals of reference indicate like parts in the several views, and in which—

Figure 1 is a vertical section taken through the vaporizer substantially on the line 1 1 in Figs. 2 and 3. Fig. 2 is a rear side elevation thereof. Fig. 3 is a plan view thereof. Fig. 4 is a section on the line 4 4 of Fig. 1, illustrating the rear inlet-valve. Fig. 5 is a section on the line 5 5 of Fig. 1, illustrating the mixture-valve; and Fig. 6 is an elevational view of the rear inlet-valve, showing particularly the formation of the V-port therein.

10 indicates the float-chamber, provided with an inlet 11, commanded by a ball-valve 12. Said valve is actuated by an elbow-lever 14, engaged by a nut 15. Said nut is adjustably mounted on the threaded stem 16, which stem in turn is attached to the float 17. The float has an interior guide 18, receiving a pin 19, rising from the bottom of the float-chamber 10. In this manner the height of the liquid fuel within the float-chamber is automatically regulated, as will be fully understood from the prior art.

20 indicates tubular walls, which, as here shown, are formed integral with the float-chamber and which form the air-passage leading to the engine or other apparatus in

connection with which the vaporizer is employed.

21 indicates a nozzle which communicates with the bottom part of the float-chamber 10 and discharges into the central part of the air-passage. This nozzle is commanded by a needle-valve 22, working in the nipple 23 at the lower part of the float-chamber, as shown. Located within the air-passage is a spiroform baffle 24, which serves, essentially, the function served by the baffle designated *c* in my prior patent before referred to, the nozzle 21 discharging diagonally into the spiral baffle, as shown. This baffle is attached to a stem 25, which is formed with an offset 25^a, allowing the stem to be turned freely in the passage 20 without engagement with the nozzle 21. At its lower end the stem 25 carries a spider 26, adjustably fastened thereto by means of set-screw 27. This spider is provided at its upper portion with a valve-seat 28 and above the same with a cylindrical valve 29. The valve-seat 28 coacts with a circular check-valve 30, slidably mounted on the stem 25 and opening into the rear passage, and the cylindrical valve 29 is formed with a V-shaped opening or port 29^a, (see Fig. 6,) which coacts with the air-inlet 31, formed in the walls 20 at a point opposite the valve 29.

The upper portion of the walls 20 carries an adjustable hood 32, having a nipple 33, adapted to effect connection with the engine communication. This hood 32 is adjustable on the walls 20 to allow the vaporizer to be placed in any desired position with respect to the engine. Within the hood 32 is arranged a cylindric valve 34, having a port 34^a. (See Fig. 5.) Said valve 34 is provided with a tubular extension 34^b, engaging the squared portion 25^b of the stem 25, whereby to fix the valve to the stem. 35 indicates a handle also engaged with the said squared portion of the stem, and 36 indicates a thumb-nut for locking the handle 35 against an arm 37, which is engaged with the said squared portion 25^b of the stem. The arm 37 carries a set-screw 38, which is arranged to engage a stop 39 on the hood 32, so as to limit the closing movement of the handle 35, stem 25, and the attached parts.

The operation of the apparatus may be traced as follows: Assuming the valve 22 to be open and the valves 29 and 34 turned so

as to place their ports 29^a and 34^a, respectively, in communication with openings 31 and 33, suction exerted through the air-passage will cause air to be drawn in through the opening 31 and port 29^a and also through the spider 26, lifting the check-valve 30. The liquid fuel rising in the nozzle 31 will lie in the mouth thereof, and the air in passing through the passage 20 will draw off a portion of this fuel, and as the fuel and air pass through the spiral baffle 24 the fuel will be thoroughly atomized and mingled with the air, forming a combustible vapor which passes to the engine and is treated therein in a manner which will be understood. When the parts are in the above-described adjustment, the maximum quantity of air is drawn through the vaporizer and the maximum quantity of fuel is vaporized, thus allowing the vaporizer to operate at its highest speed. If it is desired to reduce the speed of the engine by the reduction of the fuel supplied thereto, this may be effected by adjusting the valve 29 so that the V-port 29^a therein is gradually moved out of registry with the air-inlet 31, thus cutting down the air-supply proportionate to the movement of the valve, and as said air-supply is cut down a consequent diminution in the amount of fuel withdrawn from the nozzle 21 takes place, and therefore the engine is supplied with less fuel and its speed is necessarily reduced. During this operation the port 34^a moves out of registry with the opening 33 in proportion to the corresponding movement of the port 29. When the valves 29 and 34 are open and the engine is operating normally, the valve 30 is seated; but should the valves 29 and 34 be moved to partly-closed position the suction exerted in the passage 20 will cause the valve 30 to lift, thus preventing drawing excessive fuel from the nozzle 21. When the engine slows down and the suction decreases, the valve 30 falls back to its seat and the operation becomes normal again—i. e., is drawn exclusively from the port 29^a. The set-screw 38 should be adjusted to limit the closing movement of the valves 29 and 34, so that they will be allowed to move only to nearly closed position as contradistinguished from to absolutely closed position. These various operations of the valves may be best brought about by manipulation of the handle 35, which is provided for this purpose.

Various changes in the form, proportions, and minor details of my invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider myself entitled to all such variations as may lie within the terms of my claims.

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

1. A vaporizer comprising walls forming

an air-passage, and an oil-passage discharging therein, a spiral baffle located in the air-passage, a valve connected with the baffle and controlling the air movement through said passage, and means for operating the baffle and valve.

2. A vaporizer comprising walls forming an air-passage and an oil-passage discharging therein, the air-passage having inlet and outlet orifices, valves respectively commanding said orifices, and a spiral baffle located in the air-passage and connected with said valves.

3. A vaporizer comprising walls forming an air-passage and a liquid-fuel passage leading thereinto, a spiral baffle located in the air-passage, a stem connected with the baffle and extending outside of the vaporizer, means in connection with the stem, to facilitate the operation thereof, and a valve controlling the air movement and having connection with said stem.

4. A vaporizer comprising walls forming an air-passage and a liquid-fuel passage discharging thereinto, said air-passage having an open end and a laterally-disposed air-inlet, a valve commanding the laterally-disposed inlet and situated within the said open end, and an automatically-operated valve controlling an opening through the first-named valve.

5. A vaporizer comprising walls forming an air-passage, said passage having an open end and a laterally-disposed air-port adjacent to the open end, a stem located in the said passage, a spider connected to the stem and carrying a cylindric valve and valve-seat, the cylindric valve commanding the said laterally-disposed air-inlet, and an inwardly-opening check-valve coacting with the seat and mounted on the stem.

6. A vaporizer comprising walls forming an air-passage and a liquid-fuel passage leading thereinto, having air inlet and outlet openings, a valve commanding each opening, a connection between the two valves, to operate them in unison, and an automatically-operated check-valve controlling an auxiliary air-inlet and operating independently of the first-named valves.

7. A vaporizer comprising walls forming an air-passage and a liquid-fuel passage discharging thereinto, and means controlling the air-supply to said passage, said means comprising an adjustable valve commanding the main air-supply and an automatically-operative valve carried by the first-named valve and commanding an auxiliary air-supply.

8. A vaporizer comprising walls forming an air-passage and a liquid-fuel passage discharging thereinto, and a means controlling the air-supply to said passage, said means comprising an adjustable valve with a passage through it and a port in its side leading

to the passage, the valve coacting with said walls to control the main air-supply through said port, and an automatic valve carried by the first valve outward of the port therein
5 and controlling an auxiliary air-supply through said passage in the first valve.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

CARL F. PEARSON.

Witnesses:

GUS E. JOHNSON,
MAURICE TALEN.