

G. S. PIERSON.  
CARBURETER.  
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898,920.

Patented Sept. 15, 1908.

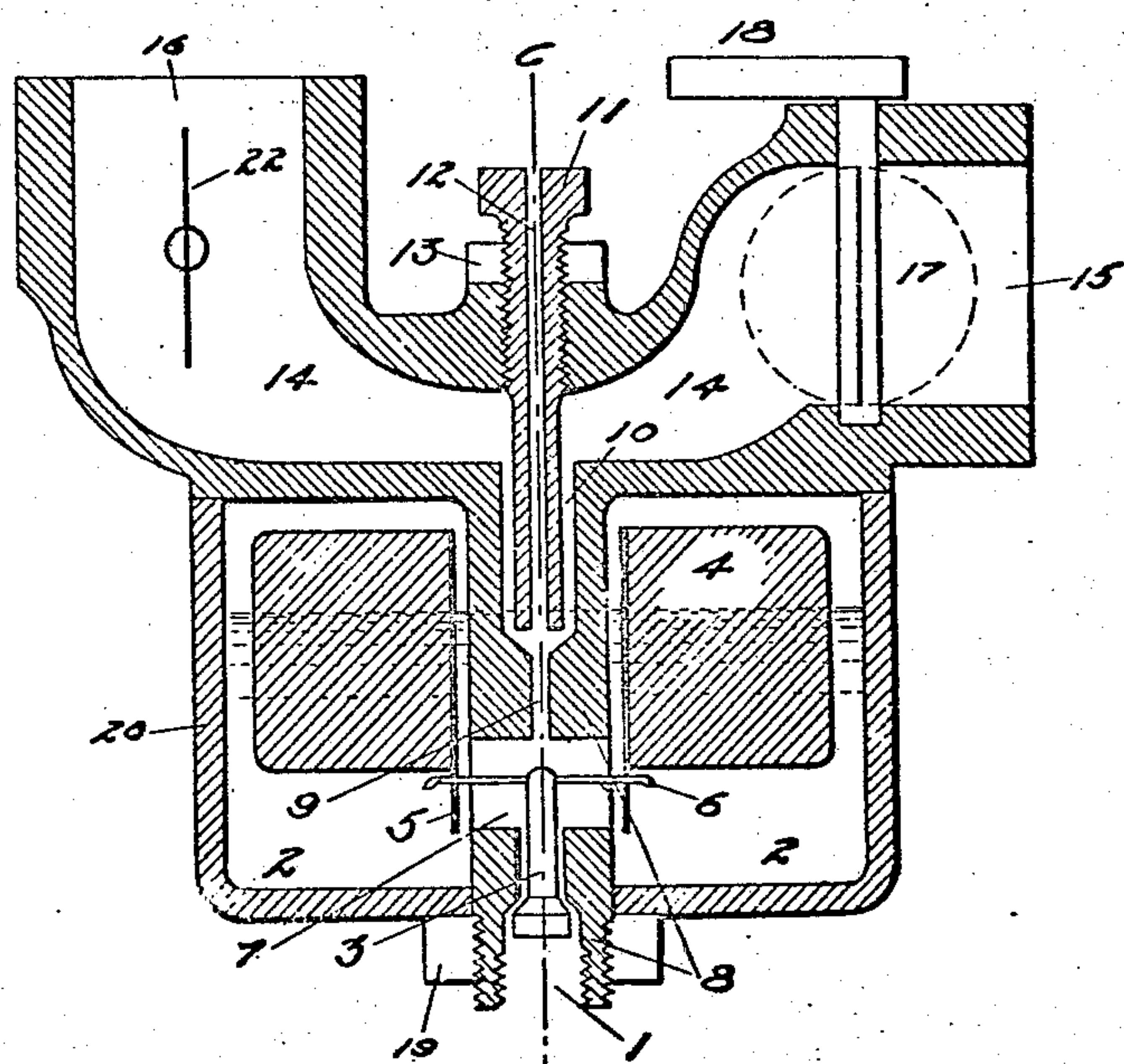


Fig 1

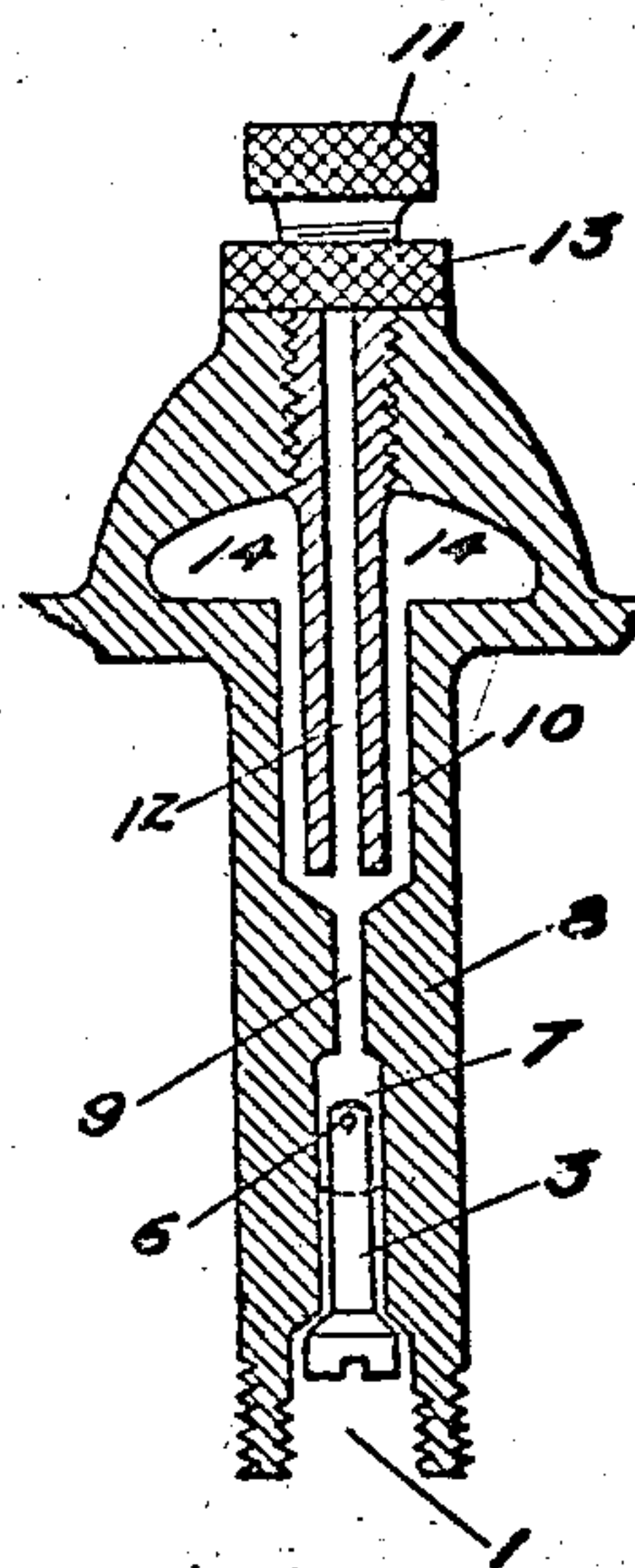


Fig 3

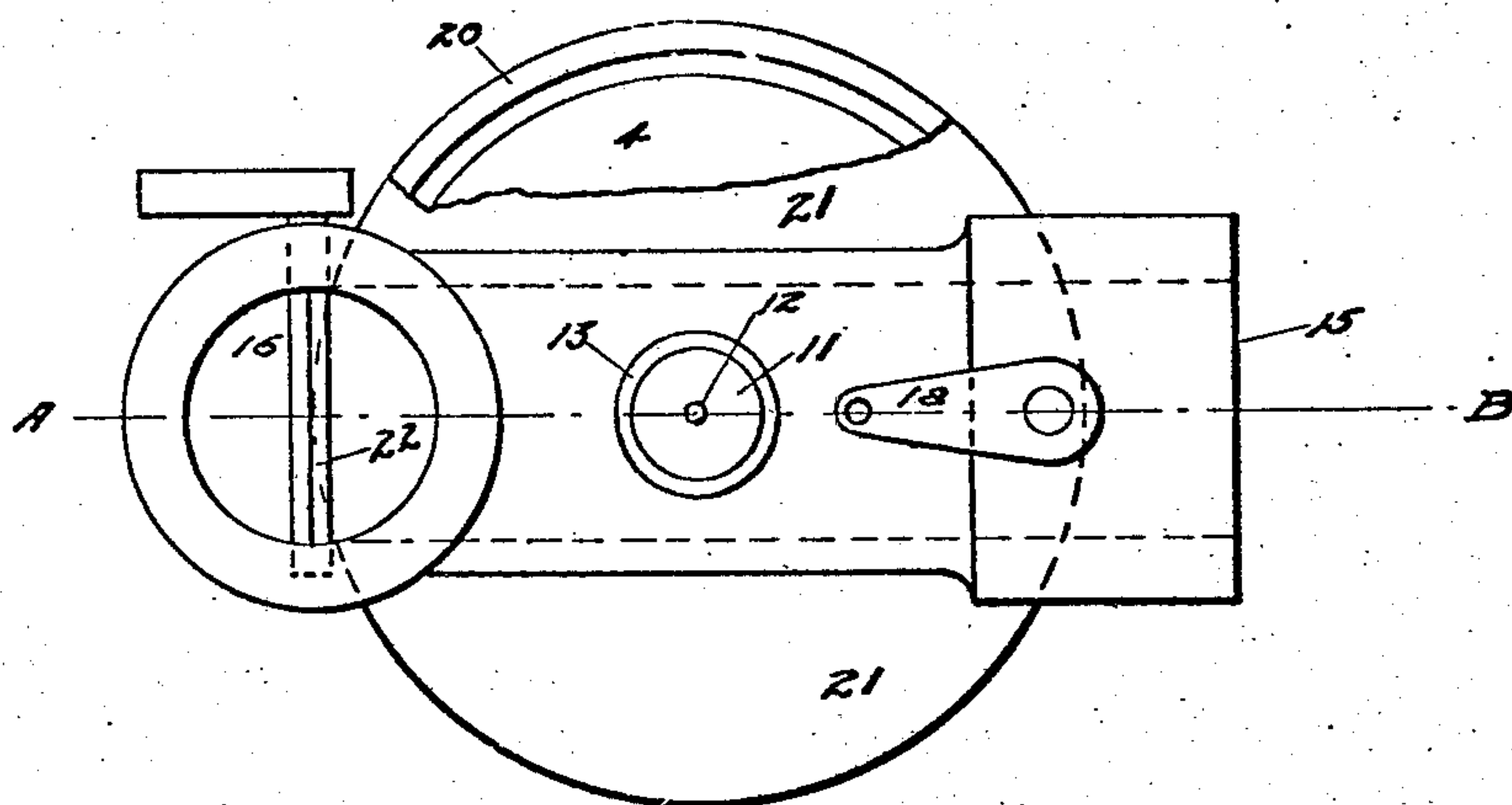


Fig 2

Witnesses:

*Frederick S. Colburn*  
*James B. Robinson*

Inventor,

*George S. Pierson*



# UNITED STATES PATENT OFFICE.

GEORGE S. PIERSON, OF KALAMAZOO, MICHIGAN.

## CARBURETER.

No. 898,920.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed October 7, 1907. Serial No. 396,228.

*To all whom it may concern:*

Be it known that I, GEORGE S. PIERSON, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and useful Carbureter, of which the following is a specification.

My invention relates to carbureters, or mixing and vaporizing devices for supplying internal combustion engines with liquid fuel and air, and the objects of my invention are to provide an improved method of controlling the relative proportions of fuel and air and of intimately mixing them.

The accompanying drawings illustrate a form of carbureter embodying my invention, in which—

Figure 1 is a vertical sectional view through A B of Fig. 2; Fig. 2 a top plan view showing a portion broken away; and Fig. 3 a vertical section through C D, of Fig. 1, showing the float and bowl removed and a portion of the cover broken away.

Similar numerals refer to similar parts throughout the several views.

Numeral 1 is an opening for admitting liquid fuel to the reservoir 2, 3 is a valve operated by the float 4 to maintain a desired level of fuel, 5 is a sleeve attached to 4, and guided by the stud or post 8, 6 is a pin connecting 5 with 3, 7 is a transverse slot through the post 8 allowing vertical movement of 3, 4, 5, and 6, 9 is an opening admitting fuel to the chamber or well 10, 11 is a tube hanging in the well 10 and adjustable to various depths in the well, 12 is a hole through 11 connecting 10 with the outer air, 13 is a nut retaining 11 in a desired position, 14 is a passage through which air and fuel are supplied to an engine, 15 is an opening connected with the engine, 16 is an opening to the outer air, 17 is a valve controlling the admission of mixed fuel and air to the engine, 18 is a crank arm operating 17, 19 is a nut holding the bowl 20 in position, 21 is a cover, 22 is a valve controlling the opening 16.

The operation of the device is as follows,—  
The fuel inlet 1 being connected with a fuel supply at a higher level, fuel flows into 2 until the valve 3 is closed by the float 4, when the fuel level will be approximately at, or slightly above, the lower end of the tube 11, at which level it will be maintained. Upon the formation of a partial vacuum in 14 and 10 by the inspiration of an engine, the

liquid fuel will be drawn upward through 9 and mixed with air descending through 12. This mixture will pass upward through 10, in the space outside of the tube 11, and be diluted with air passing through 16, 14, and 15, and this final mixture be supplied to the engine. The proportions of fuel and air supplied to the engine may be controlled by adjusting the space between the lower end of the tube 11 and the bottom of the well 10, said space being adjustable by movement of the tube 11. Or, said tube may be rigidly fixed and the proportions of fuel and air supplied to the engine controlled by the valve 22. The direction of the air current through 14 may be reversed without affecting the operation of the carbureter; in which case the opening 16 is connected with the engine, 15 is open to the air, 22 controls the admission of fuel and air to the engine, and 17 controls the opening 15; thus providing, in the same carbureter, an available horizontal outlet and an available vertical outlet, the use of either of which is optional without transposition, readjustment or change of any part of the carbureter.

I claim as my invention and desire to secure by Letters Patent,—

1. In a carbureter; the combination of a fuel reservoir; means for maintaining the fuel in said reservoir substantially at a constant level; a main air passage; a chamber or well opening upwardly into said air passage and depending into said reservoir; a fuel opening in the bottom of said well communicating with said reservoir; an air tube hanging in said well, said tube supplying air to the bottom of said well independently of said main air passage, said tube being adjustable to vary the space between its lower end and the bottom of said well for the purpose of regulating the discharge of mixed air and fuel through said space and upwardly through said well.

2. In a carbureter; the combination with a fuel reservoir in which liquid fuel is held at substantially a constant level; of a well; a fuel opening connecting said reservoir and well; a main air passage communicating with said well; and an adjustable tube admitting air to said well independently of said main air passage, said tube being adapted to regulate the discharge from the well into the main air passage of the mixture formed by air passing through said tube and fuel pass-



ing through said fuel opening by regulating the opening between the walls of said tube and the walls of said well.

3. In a carbureter; the combination of a  
5 fuel reservoir; a cover for said reservoir; a main air passage through said cover; a stud depending from said cover; a chamber or well in said stud, said chamber or well being open into said main air passage; a fuel opening  
10 in said stud discharging centrally into the bottom of said well from said reservoir; a float guided on said stud; a tube discharging air at the bottom of said well; said tube being adjustable to vary the space between  
15 its lower end and the bottom of said well for the purpose of regulating the discharge of mixed air and fuel through said space and into said main air passage.

4. In a carbureter; the combination of a  
20 main air passage; a well depending from said air passage and opening upwardly into it; an air tube hanging in said well so as to leave an annular space in said well exterior to said tube, said tube supplying air to said well independently of said main air passage; an  
25 opening delivering fuel into said well; and a valve controlling the admission of air into said main air passage.

5. In a carbureter; the combination of a  
30 main air passage; a well depending from said air passage and opening upwardly into it; an

air tube hanging in said well so as to leave an annular space in said well exterior to said tube, said tube supplying air to said well independently of said main air passage; an  
35 opening delivering fuel into said well; and a valve controlling the discharge from said main air passage.

6. In a carbureter; the combination of a main air passage; a well depending from said  
40 air passage and opening upwardly into it; an air tube hanging in said well so as to leave an annular space in said well exterior to said tube, said tube supplying air to said well independently of said main air passage; an  
45 opening delivering fuel into said well; a valve controlling the admission of air into said main air passage; and a valve controlling the discharge from said main air passage.

7. In a carbureter; the combination of a  
50 main air passage; a well depending from said air passage and opening upwardly into it; an air tube discharging air into said well independently of said main air passage; and an opening delivering fuel into said well.  
55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE S. PIERSON.

Witnesses:

HENRY A. ROBINSON,  
JAMES J. ROBINSON.