

No. 725,234.

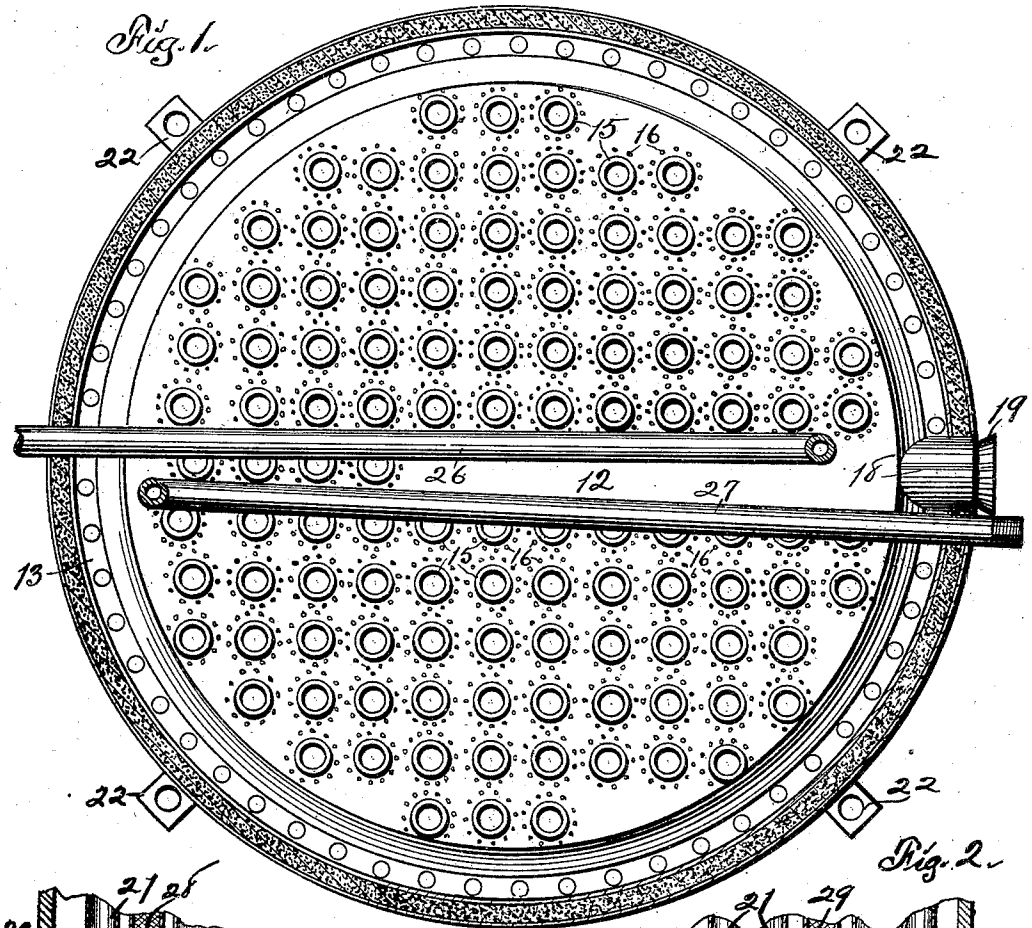
PATENTED APR. 14, 1903.

R. B. PAGEOL.  
GAS BURNER.

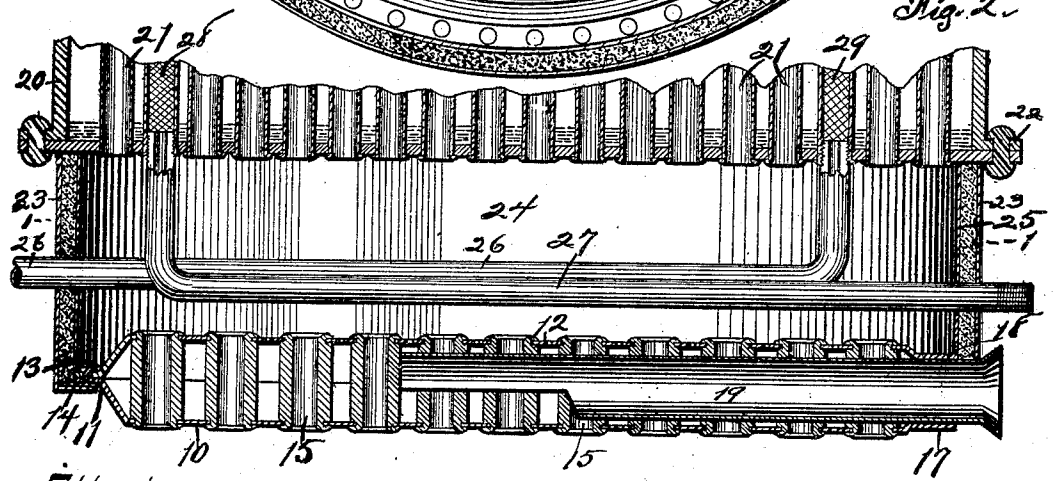
APPLICATION FILED FEB. 28, 1902.

NO MODEL.

*Fig. 1.*



*Fig. 2.*



*Attest.*  
*S. C. Sweet*  
*M. D. Sweet*

*Inventor:*  
*Rollie B. Pageol.*

# UNITED STATES PATENT OFFICE.

ROLLIE B. FAGEOL, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO  
JOHN C. TATE, OF DES MOINES, IOWA.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 725,234, dated April 14, 1903.

Application filed February 28, 1902. Serial No. 96,107. (No model.)

*To all whom it may concern.*

Be it known that I, ROLLIE B. FAGEOL, a citizen of the United States of America, and a resident of Des Moines, Polk county, Iowa, have invented a new and useful Gas-Burner, of which the following is a specification.

The object of this invention is to provide an improved construction for vapor-burners employed in the boilers of automobiles, motor-carriages, and the like.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claim, and illustrated by the accompanying drawings, in which—

Figure 1 is a horizontal section on the indicated line 1 1 of Fig. 2. Fig. 2 is a vertical section approximately centrally of Fig. 1.

In the construction of the device as shown the numeral 10 designates a bottom plate of circular form and preferably made of sheet metal. The bottom plate 10 has its marginal portion stamped, pressed, swaged, or turned upward and outward to form an annular peripheral flange 11 in a horizontal plane above the depressed body portion of said plate. A top plate 12, a counterpart of the plate 10, is mounted in opposition thereto, with its peripheral flange 13 in contact with the peripheral flange 11. A ring 14 is positioned below and in contact with the peripheral flange 11 on the bottom plate 10, and the flanges 11 13 are connected rigidly, such as by rivets, and rest on said ring. Alining apertures are formed in the plates 10 12, and flues 15, formed of tubing circular in cross-section and with their end portions reduced in exterior diameter to form shoulders thereon, are mounted with their reduced end portions in said apertures and riveted, swaged, expanded, and closed upon the outermost portions of said plates. Thus air-tight and gas-tight joints are formed between the end portions of the flues and the plates traversed thereby, and at the same time flanges are formed on the extremities of said flues in engagement with the plates, whereby said plates are held rigidly in parallel relations to each other and prevented from separation. In prior structures of this type it is common to merely expand the ends of the flues in the apertures

of the plates without forming shoulders on the flues or riveting the ends of the flues rigidly on the plates. In such old construction the excessive heat generated in the burner warps the plates away from the flues and loosens the flues in the plates, in either instance permitting leakage of gas from the interior of the burner and rapidly destroying the efficiency thereof, whereas in my improved construction the shoulders on the flues form bases to sustain the plates, and the riveting of the flues rigidly on the plates closes the joints against the shoulders and expands the flue ends to close the joints against the walls of the apertures. A row of gas-ports 16 is formed in the plate 12 around and spaced from each of the flues. I form the gas-ports 16 of larger diameter than those heretofore constructed and provide fewer of them, thus maintaining approximately the same ratio of capacity of the gas-ports in respect of the capacity of the flues and at the same time providing for the economical and efficient employment of my improved burner under low pressure—that is to say, that heretofore gas-burners of this type have employed small gas-ports in the top plate and force the gas through said ports under an air-pressure of about fifty pounds in the gasolene-tank, whereas I am enabled to employ my device successfully under an air-pressure in the gasolene-tank of approximately twenty pounds, thus minimizing the danger of explosion and at the same time preventing clogging of the gas-ports with sediment.

An aperture is formed in the rim portions of plates 10 12 by swaging and pressing at points 17 18 to produce a collar, and a mixing-tube 19 is mounted through said collar and aperture and extends beyond the center diametrically of the burner. The inner end of the mixing-tube 19 opens against one of the flues 15, which flue serves as a deflector and spreads the gas within and insures the mixture thereof with air in the burner. The mixing-tube 19 and burner would be employed in conjunction with a nozzle (not shown) of any desired construction.

A boiler 20, provided with vertical flues 21, is formed with peripheral ears 22 on its lower end portion, and said peripheral ears

are riveted or otherwise rigidly secured to the bottom of said boiler, the flues being rigidly mounted in said bottom.

A burner-casing is provided and formed of 5 sheet-metal rings 23 24, concentric with each other, and the space between the said rings is filled with asbestos-cement 25. The lower end of the burner-casing is rigidly connected to the ring 14, and the bottom of the boiler 10 rests on and is sealed by the cement to the upper end of said casing. A supply-pipe 26 leads from a gasoline-tank (not shown) of common form and extends through the wall of the burner-casing across the interior of 15 said casing and into communication with the lower end of one of the boiler-flues. The upper end of the boiler-flue, connected at its lower end to the supply-pipe 26, is connected in any suitable manner to the upper end of 20 another boiler-flue 21, diametrically opposite thereto, and the latter flue is connected at its lower end to a vapor-pipe 27, which extends across the interior of the burner-casing and through the wall thereof diametrically 25 opposite the point of entrance of the supply-pipe 26 and communicates with the nozzle (not shown) whereby the mixing-tube is fed. Thus it will be seen that the gasoline or other vaporizing fluid is led by the pipe 26 across 30 the burner-casing above the burner, is passed through flues in and across the top of the boiler, and is again carried by the pipe 27 across the face of the burner and in proximity thereto before being discharged through 35 the nozzle into the mixing-tube. Provision is hereby made for completely and perfectly

vaporizing gasoline or other fluid prior to its introduction to the mixing-tube. At the same time such arrangement provides a convenient means for initiating the operation of 40 the burner, since it is possible to introduce an alcohol-burning torch within the burner-casing and apply initial heat directly to those portions of the pipes 26 27 within the burner-casing, thus readily and conveniently per- 45 forming the operation of preliminary creation of vapor to be fed to the mixing-tube. Strainers 28 29 are mounted in a common manner in the boiler-flues traversed by the vaporizing fluid. 50

I claim as my invention—

A burner, comprising the plates formed with alining apertures, flues formed with reduced end portions fitting snugly in said apertures and having their extremities riv- 55 eted on the outer surfaces of the plates, the upper plate having gas-ports formed therein in rows surrounding the upper ends of the flues, a mixing-tube entering the gas-chamber and means for supplying vapor to said 60 mixing-tube, the inner end of said mixing-tube opening against one of said flues whereby the vapor discharged from said tube is spread and distributed throughout the space 65 between said plates.

Signed by me at Des Moines, Iowa, this 4th day of February, 1902.

ROLLIE B. FAGEOL.

Witnesses:

S. C. SWEET,  
WEBSTER BISHOP.