

Sept. 4, 1928.

S. E. DIESCHER

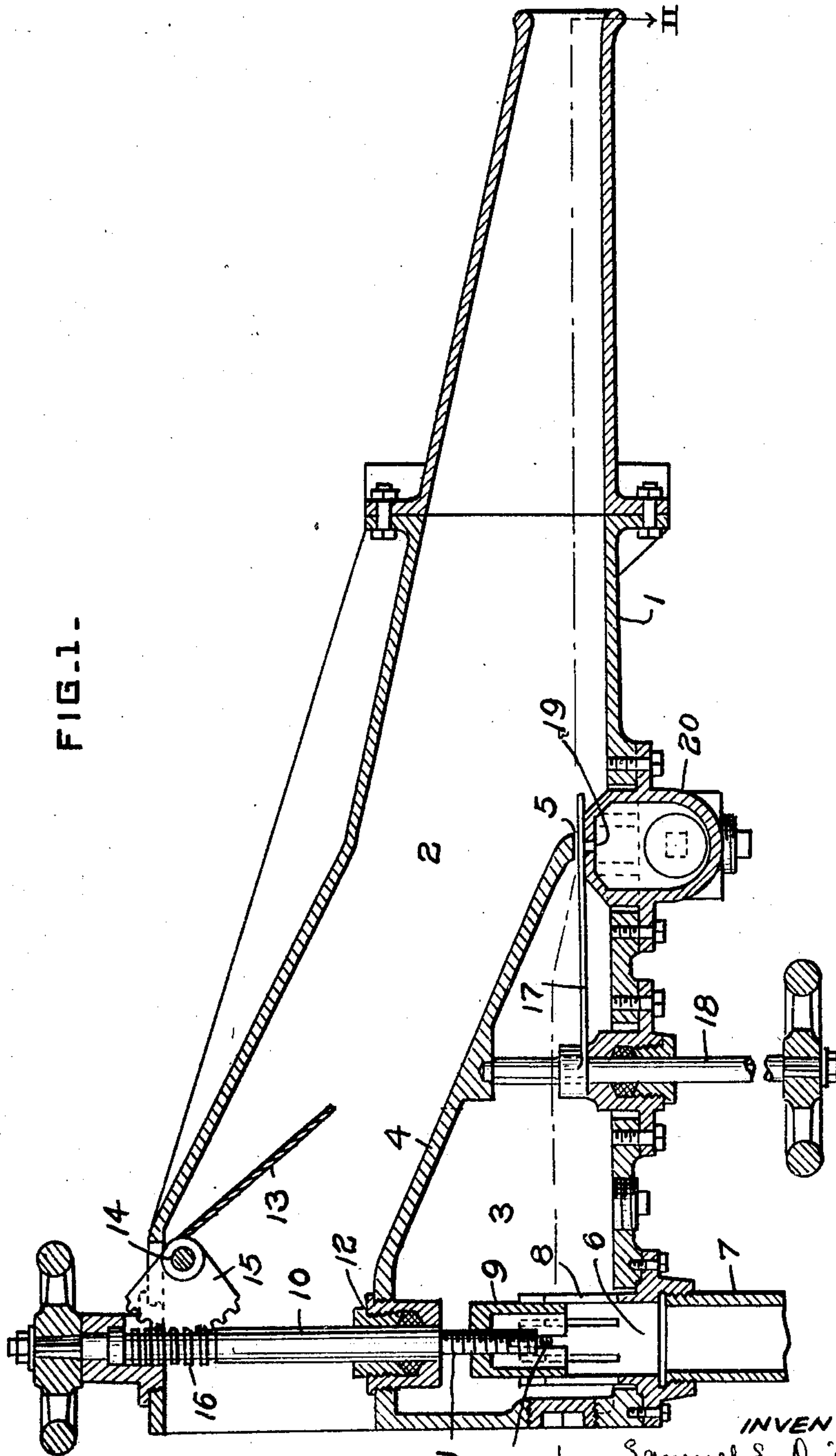
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GAS BURNER

Original Filed Oct. 24, 1923

2 Sheets-Sheet 1

FIG. 1-



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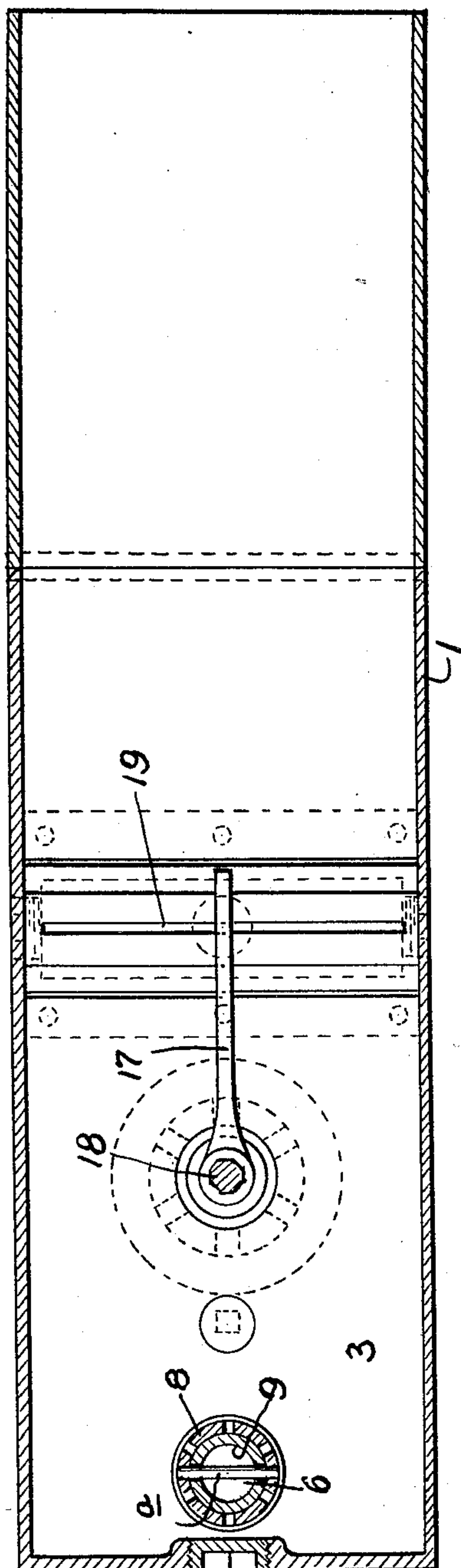
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2 Sheets-Sheet 2

FIG. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL E. DIESCHER, OF WILKINSBURG, PENNSYLVANIA.

GAS BURNER.

Application filed October 24, 1923, Serial No. 670,456. Renewed July 9, 1925.

The invention described herein relates to certain improvements in the type of construction of burner for gas having a specific gravity less than that of air in which the sheet or thin stream of gas is introduced into a mixing chamber of the burner under a sheet or thin stream of air flowing through such chamber in order that the mixing of gas and air will be effected by the movement of the gas up into the stream of air.

The invention has for its object the provision of means whereby the supply of gas and air can be simultaneously effected, the supply of air changing proportionately to any change in the rate of gas supply.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Fig. 1 is a sectional elevation of a burner embodying the improvement claimed herein, and Fig. 2 is a sectional plan view on a plane indicated by the line II—II, Fig. 1.

In the practice of the invention the burner consists of a shell 1 substantially rectangular in cross section and having a passage 2 extending longitudinally of the burner, said passage being gradually reduced in height from the front to the discharge end by the downward inclination of the top of the burner. At, or adjacent to, its front end, the burner is provided with a gas chamber 3 preferably formed by a wall 4 transverse of the shell and extending a suitable distance towards the discharge end of the burner and communicating with the passage 2 through a narrow slot 5 preferably extending the entire width of the shell. A thimble 6 adapted to be connected to the gas supply pipe 7 projects into the gas chamber. The thimble is provided with ports or openings 8 for the flow of gas into the chamber, the flow of gas through the ports being controlled by a valve 9. In order that the flow of gas into the chamber may be proportional to changes in the dimensions of the ports due to the shifting of the valve, the ports are made rectangular and extend lengthwise of the thimble and the valve is made in the form of a piston slidable lengthwise of the thimble. The movement of the valve may be effected by any suitable means preferably by the rotation of a rod 10 extending vertically through the shell and provided at its lower end with a threaded stem 11 passing through a threaded opening in

the end of the valve. In order to prevent leakage of gas into the air passage, the valve operating rod is enclosed in a stuffing box 12 where it passes through the wall 4. The valve is prevented from rotation when the rod is turned by means of a pin *a* projecting through the thimble into vertical slots in the valve.

The flow of air through the passage 2 is controlled by a damper 13 having one edge secured to a shaft 14 having its end mounted in bearings in the side walls of the shell. On this shaft is secured a peripherically toothed segment 15 adapted to be engaged by a worm 16 on the rod 10. As the shell is rectangular in cross-section and the damper is formed by a rectangular plate extending from side to side of the shell, the quantity of air flowing through the passage will vary proportionally to the change in position of the damper. In adjusting the burner for use the valve 9 is adjusted to supply the proper amount of gas for normal use. The damper 13 is then adjusted to supply the proper amount of air for complete combustion. The connection of the valve and damper to the operating rod are so constructed that the rotation of the rod to shift the valve will so shift the damper as to supply the proper amount of air for the combustion of increased or decreased quantity of gas.

Gas usually carries with it particles of oil or tar which are liable to lodge in and clog the slot 5. In order to facilitate the removal of the oil or tar, a wiper 17 is employed. This wiper consists of a narrow thin strip of metal secured at one end to a shaft 18 projecting up into a gas chamber. This shaft and wiper are so constructed and arranged that the wiper will extend through the slot 5. In order to prevent an accumulation of the oil and tar, a slot 19 is formed through the bottom wall of the slot 5 and a suitable receptacle 20 is arranged under the slot 19 for the reception of the oil and tar. This receptacle is provided at one or both ends with an opening for removal of the oil and tar, such opening being normally closed by a suitable plug.

I claim herein as my invention:

A gas burner having in combination a shell provided with an air passage substantially rectangular in cross section and with a gas chamber so communicating with the air passage as to deliver gas to the under-

side of a stream of air flowing through the passage, gas supplying means having rectangular ports communicating with the gas chamber, a valve adapted to change the dimensions of said ports without changing their shape, a damper adapted to change the rate of flow of air through the passage with-

out changing the shape of the stream, and means for simultaneously shifting the valve and damper.

In testimony whereof, I have hereunto set my hand.

SAMUEL E. DIESCHER.