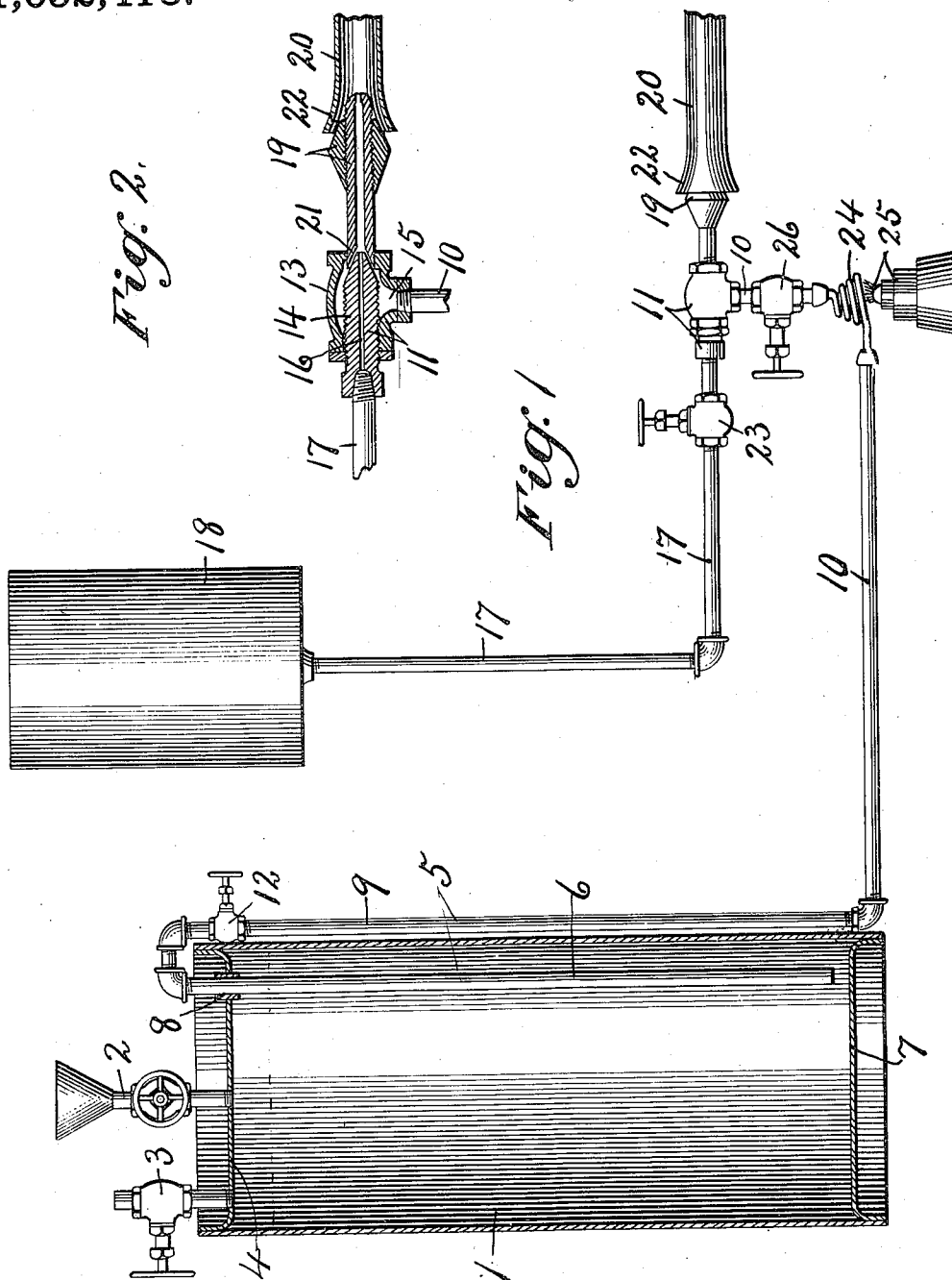


W. M. FREEMAN.
BURNER SYSTEM.
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1,052,413.

Patented Feb. 4, 1913.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM M. FREEMAN, OF OSWEGO, NEW YORK, ASSIGNOR OF ONE-THIRD TO JOHN W. FLEMING AND ONE-THIRD TO JAMES O. BRADEEN, BOTH OF OSWEGO, NEW YORK.

BURNER SYSTEM.

1,052,413.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed December 15, 1909. Serial No. 533,181.

To all whom it may concern:

Be it known that I, WILLIAM M. FREEMAN, of Oswego, in the county of Oswego, in the State of New York, have invented
5 new and useful Improvements in Burner Systems, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in oil feeder and burner systems involving the use of an oil reservoir or supply tank and burner together with a pipe leading from the interior of the tank to the burner and a pressure pipe also leading to
15 the burner for receiving a fluid, as air, under pressure and projecting the same into the burner for the purpose of producing sufficient suction at the junction of the oil supply pipe with the burner to draw the oil
20 from the reservoir and project it in the form of a spray-jet to the point or points of ignition.

Heretofore so far as I am aware the practice has been to force the oil under air pressure or gravity to the burner thereby maintaining a constant pressure of the oil in the supply pipe and burner and causing more or less danger from explosion due to leakage in the piping system.

The primary object of my present invention is to obviate this danger by removing the oil pressure from the piping system and drawing the oil by suction from the reservoir to the burner as it is needed.

35 Other objects and uses relating to specific parts of the mechanisms will be brought out in the following description.

In the drawings: Figure 1 is an elevation partly in section of the preferred form of my oil feeder and burner system, the oil reservoir being shown in section. Fig. 2 is an enlarged sectional view of the burner shown in Fig. 1.

In carrying out the objects stated, I provide an oil reservoir or tank —1— with a valved inlet pipe —2— and a vent-cock —3—, said reservoir being arranged in an upright position with its upper end closed by a suitable head —4— upon which the valved inlet —2— and vent —3— are supported. A siphon pipe —5—, Fig. 1, has one leg —6— arranged within the reservoir —1— with its lower end in proximity to the bottom, as —7—, with its upper end extending through a suitable opening —8— in the

head —4—, the other leg, as —9—, extending downwardly at the outside of the reservoir where it is connected by a pipe —10— to a suitable burner —11—. The upper end of the leg —9— is provided with a valve —12— for regulating the supply of oil from the reservoir through the pipes —9— and —10— to the burner, as may be desired, or may be employed to shut off the oil supply when necessary.

The burner preferably comprises a chamber casing —13— and a threaded valve —14— which is adjustably screwed in one end of the casing —13— at substantially right angles to an inlet —15— to which the pipe —10— is connected.

The valve —14— is provided with a central lengthwise opening —16— therethrough of comparatively small diameter and is connected by a pipe —17— to a pressure tank —18— in which air or equivalent fluid is maintained under pressure by any suitable pumping means, not necessary to herein illustrate or describe. This fluid under pressure is projected through the pipe —17— and valve —14— in a comparatively small jet across the inlet —15— and into a suitable nozzle —19—, the air pressure and relative position of the valve —14— and nozzle —19— being regulated so as to produce a sufficient suction to draw the oil from the reservoir through the pipe —10— and to project such oil in a fine jet through the nozzle —19— and into a delivery tube —20— thereby producing a combustible mixture of oil and air which is ignited at the mouth of the nozzle.

The inner end of the valve —14— is tapered or pointed and projects into a similarly tapering socket —21— in the adjacent end of the nozzle —19—, the valve being adjusted so as to leave a small clearance between the point of the valve and walls of the socket —21— capable of producing the desired suction at the inlet —15— sufficient to draw the oil, as needed, from the reservoir —1—. In like manner the end of the nozzle —19— is also tapered and projects into the adjacent flaring end —22— leaving sufficient clearance around the mouth of the nozzle —19— to permit the entrance of atmospheric air into the flaring end of the delivery tube.

The nozzle and delivery tube are so relatively adjusted as to regulate the quantity

of air admitted to the delivery tube at the point of ignition sufficient to produce the desired combustion, it being understood that the force with which the air and oil is projected through the nozzle produces more or less suction at the igniting point for drawing the desired amount of atmospheric air into such delivery tube. In order that the supply of air may be further regulated to give the most beneficial results, the pipe —17— is provided with a regulating valve —23— preferably near the burner.

In some instances it may be desired to vaporize or gasify the oil before entering the burner and for this purpose I have provided the pipe —10— with a vaporizing coil —24— of somewhat reduced diameter and adapted to be heated by any suitable means such as an oil burner —25—. As a further means for regulating the supply of oil or gas, the pipe —10— is provided with an additional valve —26— preferably located near the burner —11—.

The operation of this invention will now be readily understood upon reference to the foregoing description and accompanying drawings. 25

What I claim is:

In an oil burner system, a burner embodying a valve casing, a pipe communicating with said casing, a regulating valve connected to said pipe, a vaporizing coil connected at one end to said regulating valve, a heating element positioned beneath said coil, a pipe communicating with said vaporizing coil for supplying oil thereto, the diameter of the pipe forming the coil being less than the diameter of the oil supply pipe, and a regulating valve interposed in said oil supply pipe. 30 35 40

In witness whereof I have hereunto set my hand on this 11 day of December 1909.

WILLIAM M. FREEMAN.

Witnesses:

W. J. HARPEN,
W. J. TERROTT.