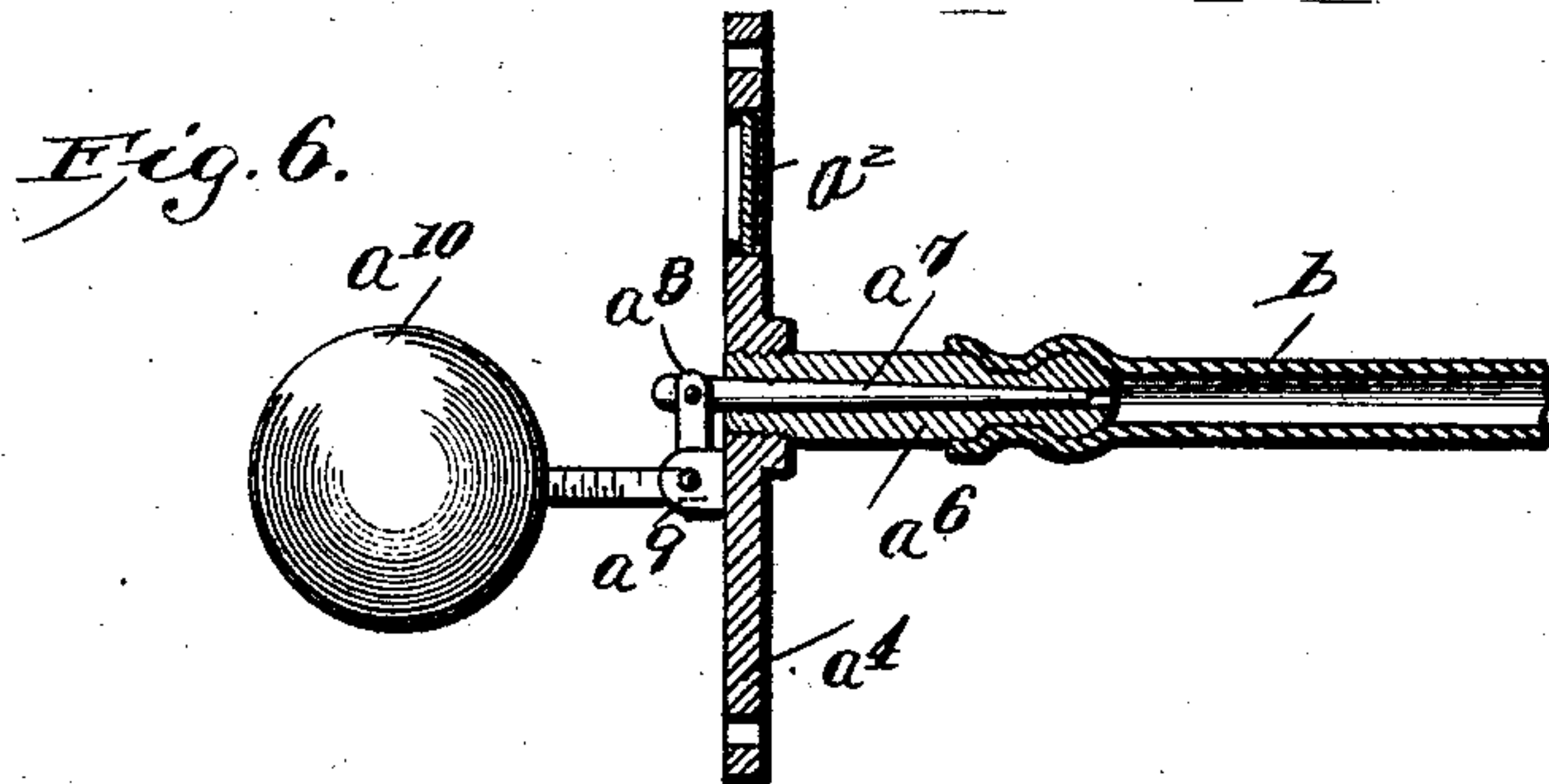
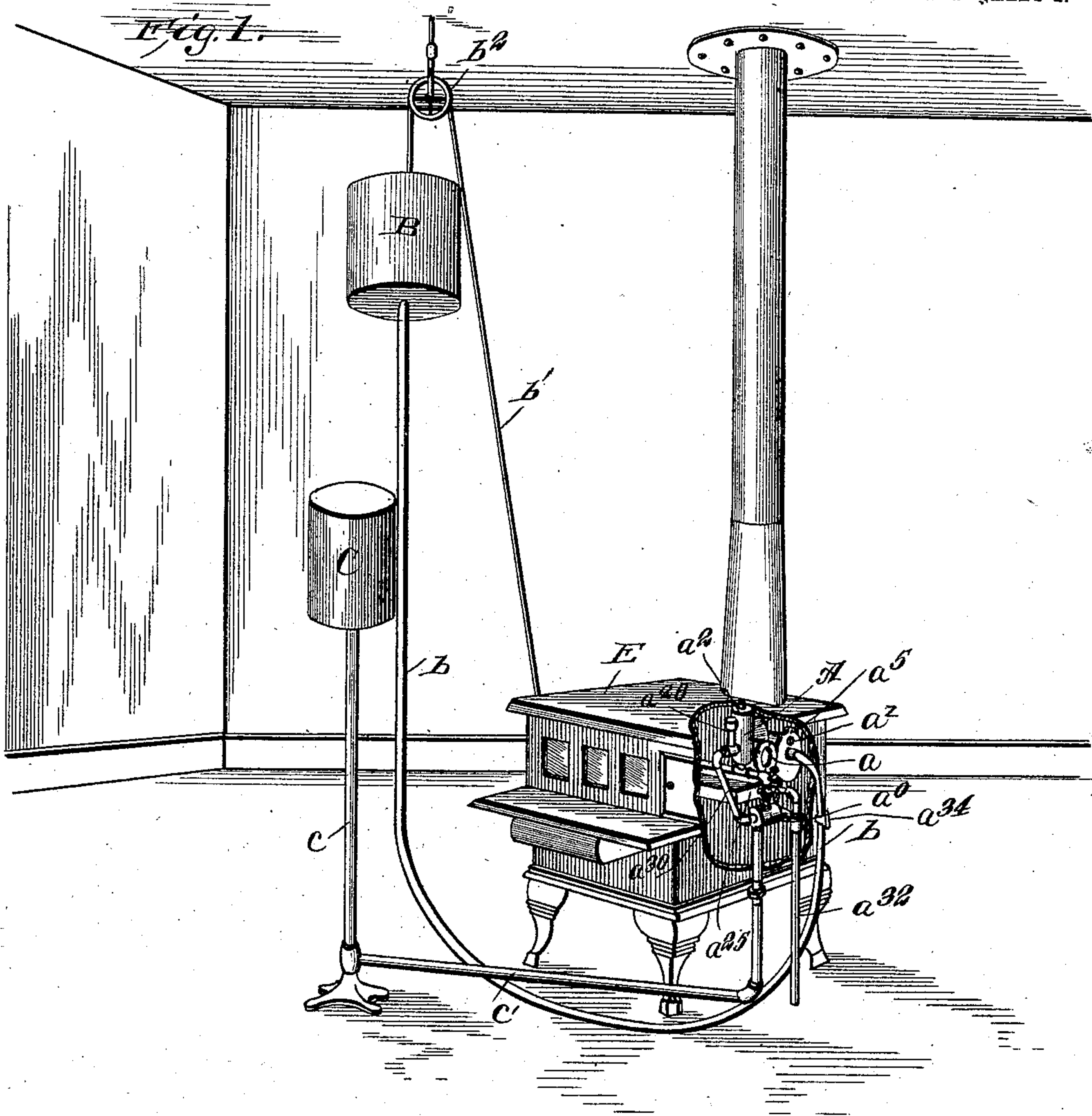


J. W. PIPPIN.
OIL BURNER.
APPLICATION FILED DEC. 17, 1907.

915,475.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 1.



WITNESSES
E. M. Callaghan
C. E. Trainor

INVENTOR
JOHN W. PIPPIN
BY *Munn & Co.*
ATTORNEYS

J. W. PIPPIN.
OIL BURNER.
APPLICATION FILED DEC. 17, 1907.

915,475.

Patented Mar. 16, 1909.

2 SHEETS—SHEET 2.

Fig. 2.

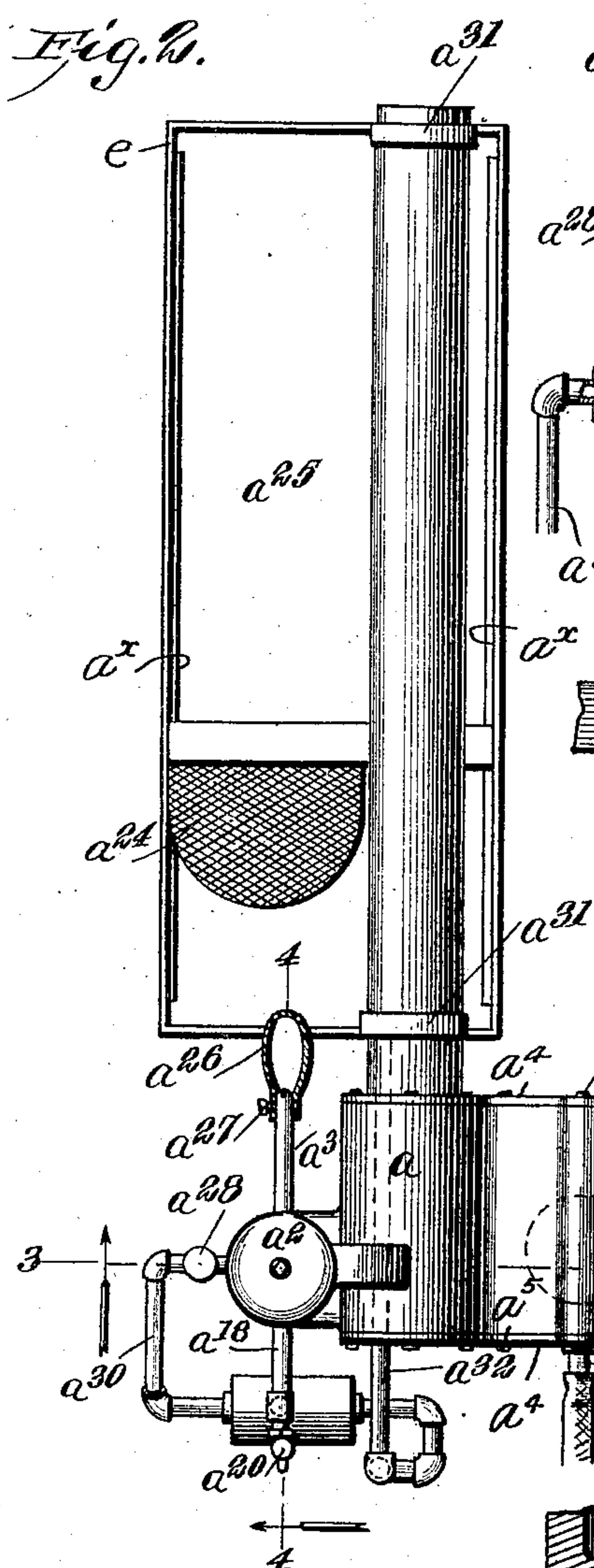


Fig. 3.

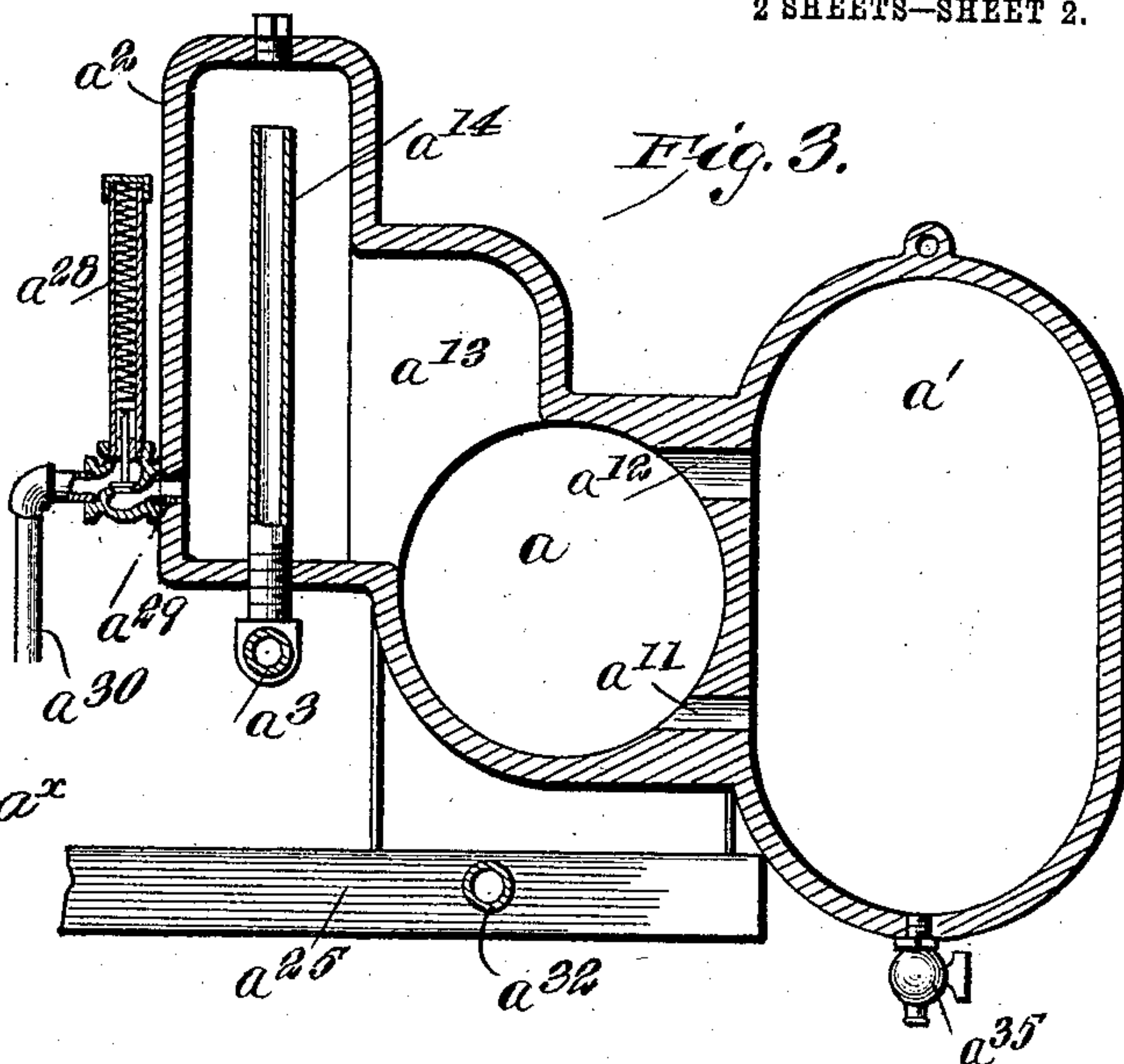


Fig. 5.

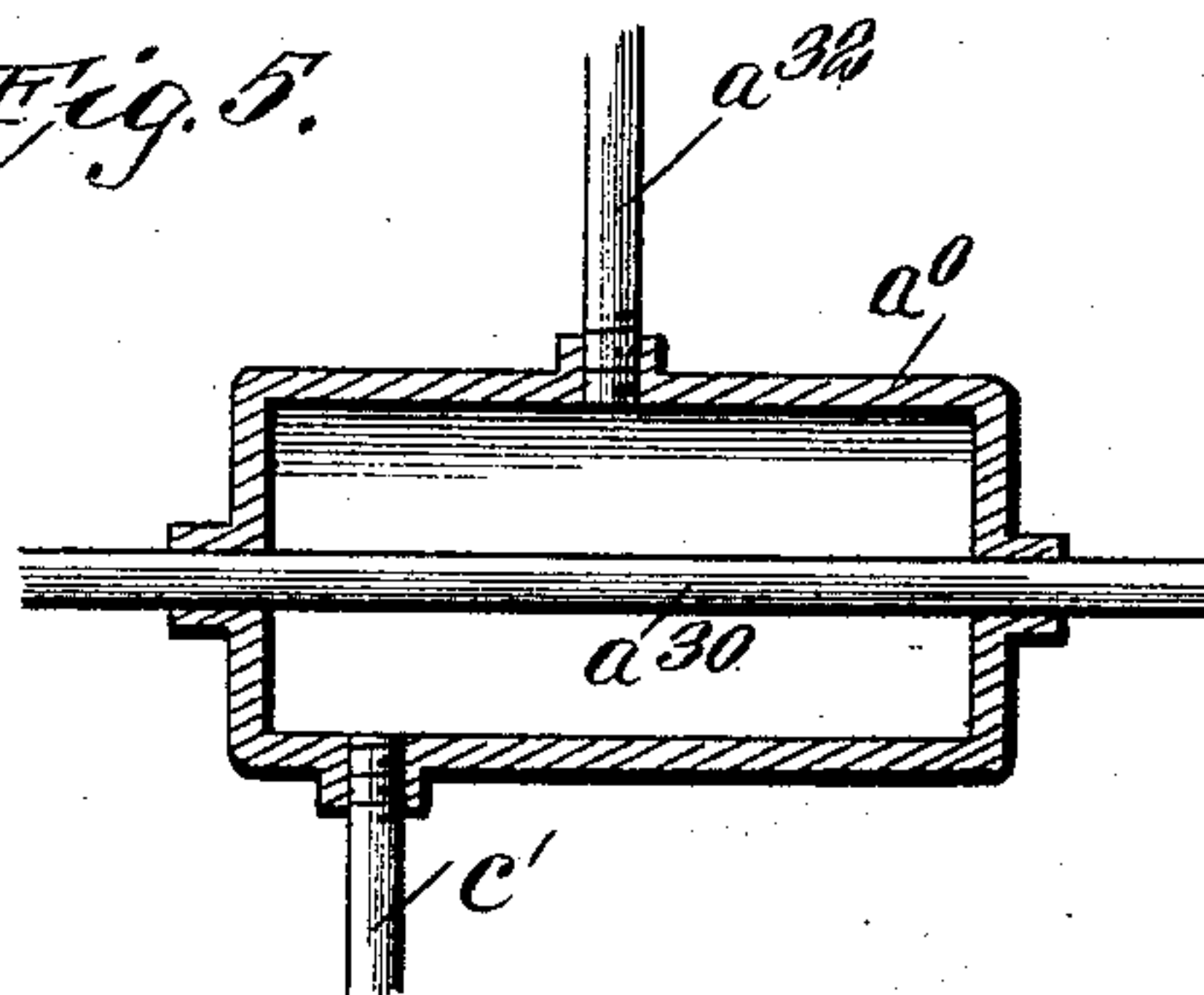
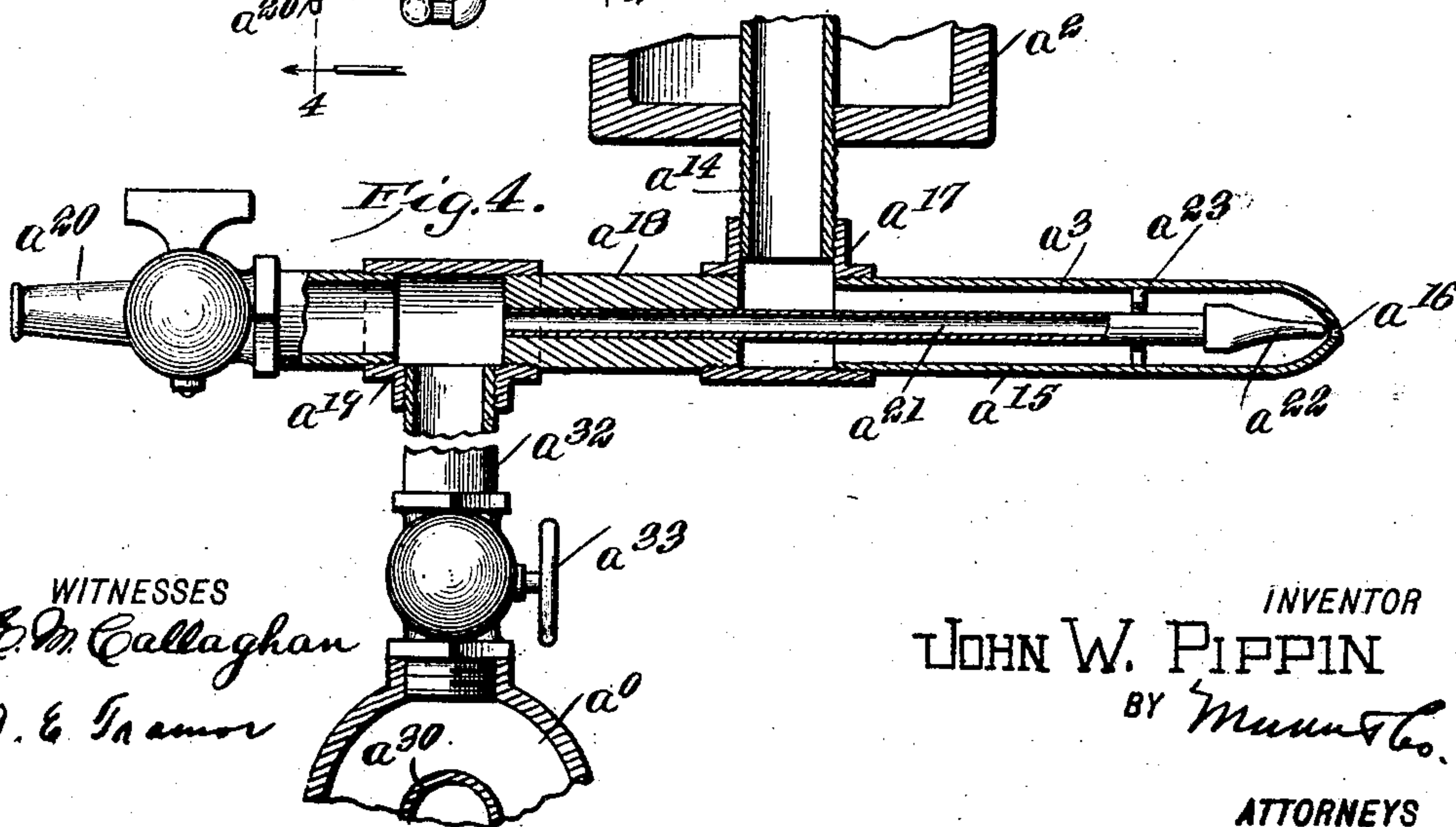


Fig. 4.



WITNESSES
E. M. Callaghan
O. E. Inamor

INVENTOR
JOHN W. PIPPIN
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN WILLIAM PIPPIN, OF BROWNWOOD, TEXAS.

OIL-BURNER.

No. 915,475.

Specification of Letters Patent.

Patented March 16, 1909.

Application filed December 17, 1907. Serial No. 406,856.

To all whom it may concern:

Be it known that I, JOHN WILLIAM PIPPIN, a citizen of the United States, residing at Brownwood, in the county of Brown and State of Texas, have invented a new and useful Improvement in Oil-Burners, of which the following is a specification.

My invention is an improvement in oil burners and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of a range provided with my improved burner. Fig. 2 is a plan view of the burner. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a longitudinal section through the oil heater. Fig. 6 is a vertical section through the cover of the water box and the parts attached.

In the present embodiment of my invention, the burner is shown applied to a range E, and comprises the burner A to be presently described, a water tank or container B, connected to the burner by a flexible tube *b*, and a fuel supply tank C, supported by a stand *c*, and connected to the burner by a tube *c'*.

The burner A comprises an oil heater *a*⁰, a boiler *a*, a water box *a'*, a steam dome *a*² and an atomizer *a*³. The box *a'* is provided with covers *a*⁴, secured to the box by screws *a*⁵, and one cover has arranged therethrough a nipple *a*⁶, provided with a valve seat, in which works a needle valve *a*⁷, pivoted to one arm of an elbow lever *a*⁸, having its trunnions journaled in a bracket *a*⁹ on the inner face of the cover, and having a float *a*¹⁰ connected with the other arm.

The flexible tube *b* leading from the water tank B is connected with the nipple, and the flow of water from the tank to the box is controlled by the float *a*¹⁰, the water in the box, and as a consequence the water in the boiler, being retained at a predetermined level.

The water box *a'* communicates with the boiler *a* by a relatively small water port *a*¹¹, near the bottom of the boiler, and by a relatively large steam port *a*¹², near the top of the boiler, as shown in Fig. 3, and the boiler communicates with the steam dome *a*², by a

port *a*¹³ leading from the top of the boiler. Within the dome is a pipe *a*¹⁴ opening near the top of the dome, and extending through the bottom thereof, the outer end being threaded for connection with the atomizer *a*³.

The atomizer comprises a pipe *a*¹⁵ extending toward the fire box *e* of the range, and having at its inner end a small opening *a*¹⁶. A T, *a*¹⁷ is threaded on the outer end of the pipe *a*¹⁵, and the lateral branch of the T is threaded on the lower end of the steam dome pipe *a*¹⁴. A short pipe *a*¹⁸ is threaded in the outer end of the T, and a second T, *a*¹⁹ is threaded on the pipe *a*¹⁸. A discharge valve *a*²⁰ is connected with the outer end of the T, and a pipe *a*³² provided with a valve *a*³³ connects the lateral branch of the T with the top of the oil heater *a*⁰, to be presently described. The pipe *a*¹⁸ is of relatively small internal diameter, and a small tube *a*²¹ is fastened into the opening, the tube extending to a point adjacent to the opening of the atomizer. The free end of the said tube is supported by a spider *a*²³, and is provided with a nozzle *a*²². The atomizer discharges onto a spreader *a*²⁴ which is adjustably supported in a pan *a*²⁵, arranged in the fire box, and provided at its ends with brackets *a*³¹, upon which the boiler is supported. An oil leader *a*²⁶ is adjustably connected with the end of the atomizer pipe by a set screw *a*²⁷, and assists in directing the spray of oil against the spreader. The spreader is slidable in the pan and may be moved from one end to the other being supported on ledges *a*^x as shown in Fig. 2.

The oil heater *a*⁰, comprises a cylindrical casing, connected on its bottom side with a tube *c'* communicating with the tube *c*, which communicates with the oil tank C, the pipe *a*³² before mentioned leading from the top side of the casing. By means of the valve *a*³³, the supply of oil to the atomizer may be regulated, and as a consequence the intensity of the fire.

A pop-off valve *a*²⁸, is arranged adjacent to the steam dome and communicates with the bottom thereof, as at *a*²⁹, and a pipe *a*³⁰ leads from the pop-off valve to and through the oil heater *a*⁰ and into a drain pipe *a*³². The drain pipe *a*³² leads from the pan *a*²⁵, opening above the bottom thereof, and is

adapted to carry away any excess of oil in the pan. The pop-off valve may be adjusted to any predetermined pressure, and carries off the excess and wet steam passing it through the heater and warming the oil therein so that it becomes thin and light, and in excellent condition for atomizing.

A valve a^{34} is arranged between the water tank and the water box, and a drain valve a^{35} is connected with the water box. By means of these valves, the water may be cut off from the boiler and box, and they may be drained to prevent freezing. The valve at the outer end of the atomizer pipe permits cleaning of the atomizer tube, should for any reason said tube become choked. The removable cover or head of the water box is provided with a glass covered peep-hole a^z , and the arm of the elbow lever is threaded so that the float may be adjusted, to maintain the water at different levels.

The oil tank may be arranged at any suitable point, usually outside of the house, but the water tank should be inside. Said tank is shown supported by a cord b' connected with the tank and passing over a pulley b^2 , secured to the ceiling, so that the tank may be raised or lowered to insure a water pressure in the water box greater than the steam pressure.

In operation, the tanks being supplied with oil and water respectively, oil is admitted to the pan and ignited. The heat will soon generate steam which will pass into the steam dome, from whence the dry steam passes to the atomizer, spraying the oil from the heater onto the spreader. The excess steam passes through the heater, heating the oil therein, in its passage, and discharges through the discharge pipe.

It will be evident from the description that the oil, steam and water are each automatically controlled, so that enough of each is supplied to insure a perfect combustion with no soot, odor or smoke. Either light or heavy grades of oil may be made use of.

It will be evident from the description that the steam is delivered to the atomizer at a steady and predetermined pressure, and that the excess steam above the pressure is utilized to heat the oil previous to its entrance into the atomizer.

I claim—

1. An oil burner comprising a water box, means for supplying water to the box, a float valve in the box for controlling the supply, a boiler having a lower relatively small water port and an upper relatively large steam port communicating with the water box, a steam dome, communicating with the top of the boiler, a vertical pipe in the steam dome, said pipe opening near the top of the dome,

and extending through the bottom thereof, a pan below the boiler, a spreader in the pan, an atomizer connected with the steam dome pipe and discharging onto the spreader, an oil heater communicating with the atomizer, means for supplying oil thereto, a waste pipe leading from the pan, a pop-off valve in connection with the steam dome, and a pipe leading from the pop-off valve through the oil heater and into the waste pipe.

2. An oil burner, comprising a boiler, means for supplying water to the boiler, means for retaining the water in the boiler at a predetermined level, a steam dome, with which the upper part of the boiler communicates, a vertical pipe in the steam dome, said pipe opening near the top and extending through the bottom of the dome, a pan below the boiler, a spreader in the pan, an atomizer connected with the steam dome pipe and discharging onto the spreader, an oil heater communicating with the atomizer, means for supplying oil thereto, a waste pipe leading from the pan, a pop-off valve in connection with the steam dome, and a pipe leading from the pop-off valve through the oil heater and into the waste pipe.

3. An oil burner, comprising a boiler, means for supplying water thereto, means for retaining the water in the boiler at a predetermined level, a pan below the boiler, a spreader in the pan, a steam dome in connection with the boiler, an atomizer connected with the dome and discharging onto the spreader, an oil heater delivering to the atomizer, means for regulating the flow of oil from the heater, a safety valve on the dome, and means in connection with the valve for receiving the excess steam and passing it through the heater.

4. An oil burner comprising a boiler, means for supplying water thereto, a spreader below the boiler, a steam dome in connection with the boiler, an atomizer connected to the dome and discharging onto the spreader, an oil heater delivering to the atomizer, a safety valve in connection with the dome, and means in connection with the valve for receiving the excess steam and passing it through the heater.

5. An oil burner comprising a boiler, a spreader below the boiler, an atomizer, means for conducting steam from the boiler to the atomizer, a spreader below the boiler onto which the atomizer discharges, an oil heater delivering to the atomizer, a safety valve in connection with the boiler, and means for receiving the excess steam from the valve and passing it through the heater.

6. An oil burner comprising a boiler, an atomizer, discharging below the boiler, means for conducting steam from the boiler to the

atomizer, an oil heater delivering to the atomizer, a safety valve in connection with the boiler, and means for receiving the excess steam from the valve and passing it through
5 the heater.

7. An oil burner comprising a boiler, an atomizer connected with the boiler, means for supplying steam at a predetermined pressure to the atomizer, a pop-off valve in

connection with the boiler, and means for 10 heating the oil previous to its entrance into the atomizer with the excess steam passing from the pop-off valve.

JOHN WILLIAM PIPPIN.

Witnesses:

L. CARLISLE,
J. B. SALYER.