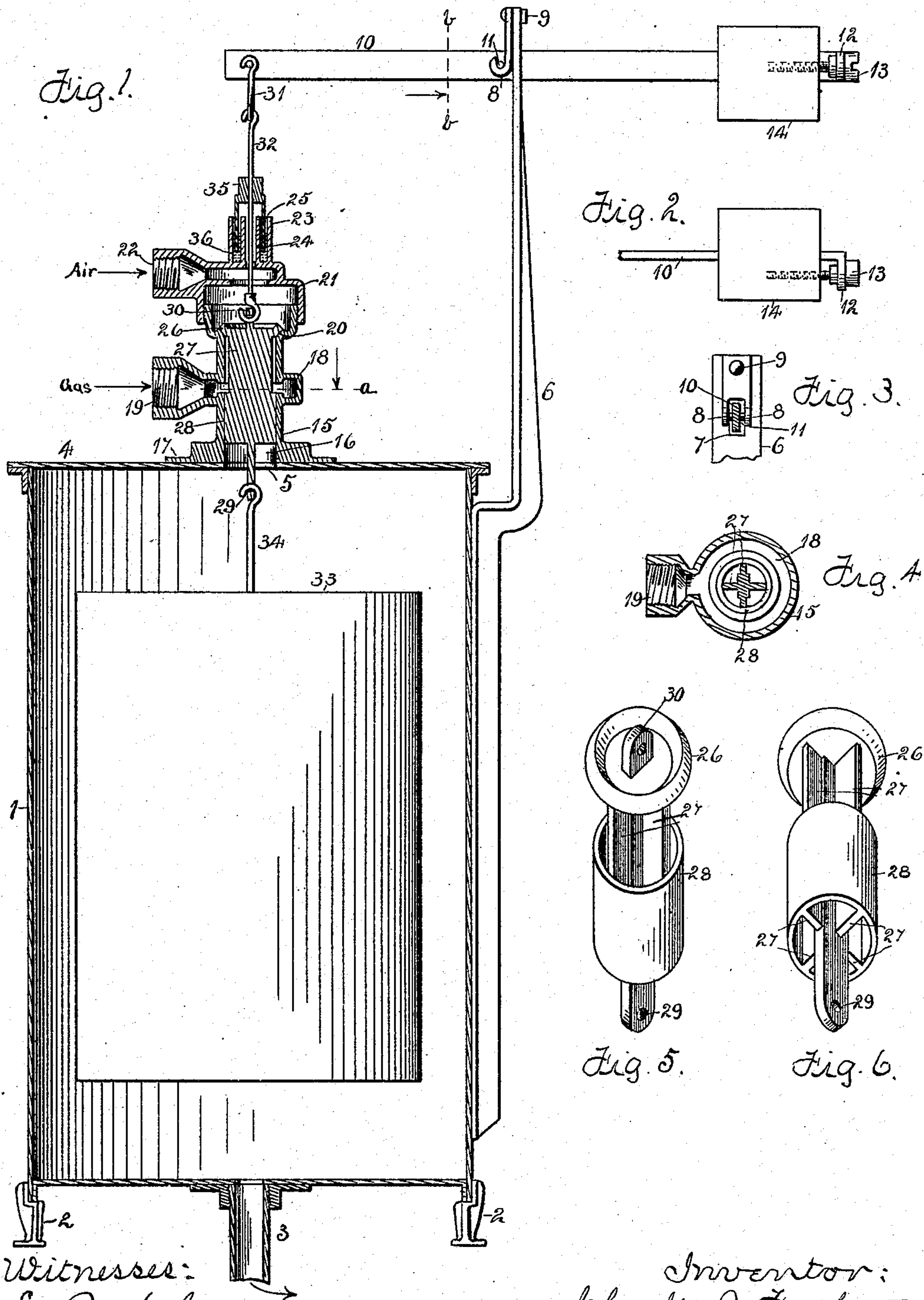


C. A. FORSBERG.
AIR AND GAS MIXER.
APPLICATION FILED JAN. 14, 1909.

930,656.

Patented Aug. 10, 1909.



Witnesses:
E. Behel
Robert Johns

Inventor:
Charles A. Forsberg
By A. O. Behel
Atty.

UNITED STATES PATENT OFFICE.

CHARLES A. FORSBERG, OF ROCKFORD, ILLINOIS.

AIR AND GAS MIXER.

No. 930,656.

Specification of Letters Patent.

Patented Aug. 10, 1909.

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To all whom it may concern:

Be it known that I, CHARLES A. FORSBERG, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Air and Gas Mixers, of which the following is a specification.

The object of this invention is to construct a machine for delivering the proper quality of a mixture composed of gasoline and air for heating and illuminating purposes.

In the accompanying drawings, Figure 1 is a vertical section through the mixing chamber and valve arrangement of my gas mixing machine. Fig. 2 is a plan view of the adjustable weight. Fig. 3 is a section on dotted line *b b* Fig. 1. Fig. 4 is a transverse section on dotted line *a* Fig. 1. Figs. 5 and 6 are perspective views of the combined gas and air valves.

The mixing chamber 1 is supported on legs 2, and from the bottom of the chamber extends an exit pipe 3. The upper end of the mixing chamber is closed by a door 4 having a central opening 5. To the outer wall of the mixing chamber is secured a bracket support 6 having its upper end formed with an opening 7, above the opening 7 is connected a bracket formed with the hooked lower ends 8. The bolt 9 secures this bracket to the support 6. A rocking-bar 10 is located in the opening 7 of the support 6 and has a pin 11 which rests in the hooks 8, thereby forming a pivotal support for the bar. This rocking-bar 10 has one end 12 turned at right angles to its length, and which supports a screw 13. A weight 14 is movably mounted on the rocking-bar 10 and with which the screw 13 has a connection. By turning the screw, the weight can be moved in the lengthwise direction of the rocking-bar and held when adjusted.

To the cover 4 is secured a valve casing 15 having a central vertical opening 16. A base 17 is formed in connection with the lower end of the casing, and is secured to the cover. About midway the length of the casing 15 is formed an annular enlargement 18, terminating in an opening 19 for the reception of a pipe leading from a carbureter for vaporizing gasoline. The upper end of the opening 16 is fitted in the form of a valve seat 20, and the upper end of the casing 15 is screw-threaded.

To the upper screw-threaded end of the

casing 15 is fitted a chamber 21 having a screw-threaded opening 22 for the reception of a pipe connection with an air supply under pressure. From the upper face of the chamber 21 rise two concentric flanges 23 and 24 leaving a space 25 between them.

The valve arrangement comprises a single structure formed with a valve 26 for the seat 20, and from its under face depend cross-ribs 27 around the lower portions of which is formed a cylinder 28, and a continuation of one of the cross-ribs is formed with an opening 29. From the upper face of the valve 26 extends a perforated projection 30. This valve arrangement is located within the opening 16 in the casing 15, the valve 26 resting on the seat 20, and the upper end of the cylinder coming flush with the lower edge of the annular chamber 18, as shown at Fig. 1.

To the rocking-bar 10 is pivotally supported a yoke 31, and a rod 32 has its upper end connected to the yoke 31, and its lower end hooked into the opening in the projection 30, extending from the valve 26.

A float 33 is located in the mixing chamber 1, and has a connection with the valve arrangement by the rod 34, hooked into the opening 29.

To the rod 32 is fixedly connected an inverted cup 35 which extends into the space 25 between the concentric flanges 23 and 24. Mercury 36 or other heavy sealing medium is placed in the space 25 around the cup 35 to a depth to properly seal the same.

A direct connection is formed between the float 33 and the rocking-bar 10, the weight of which is balanced by the movable weight 14.

When the valve arrangement is in the position shown at Fig. 1, the valve 26 will be seated thereby cutting off the admission of air into the mixing chamber, but the cylinder forming the valve for regulating the admission of gas into the mixing chamber will be open. If the proper proportion of gas and air as supplied by the carbureter through the opening 19 be continuous, the valve arrangement will remain as shown at Fig. 1. Should the mixture in the mixing chamber become too heavily laden with gasoline, the float will rise, thereby opening the valve 26 and admitting air into the receiving chamber at the same time partially cutting off the admission of carbureted air. When sufficient air has been admitted to reduce the density of the mixture in the mixing

chamber to the proper degree, the float will fall and close the air valve.

I claim as my invention.

1. The combination of a mixing chamber, a float supported within the chamber, a rocking-bar, a connection between the float and bar, a counterbalance-weight connected to the bar, an air and gas valve interposed in the connection between the float and rocking-bar.

2. The combination of a mixing chamber, a float supported within the chamber, a rocking-bar, a connection between the float and bar, a counterbalance-weight connected to the bar, an air and gas valve interposed in the connection between the float and rocking-bar, an annular groove formed in the upper portion of the valve casing, an inverted cup located in the annular groove, a sealing medium located in the groove around

the cup, and a connection between the cup and the connection between the rocking-bar and valves.

3. The combination of a mixing chamber, a float supported within the chamber, a rocking-bar, a counterbalance-weight connected to the bar, air and gas valves interposed in the connection between the float and rocking-bar, and a casing for the valves, the air valve fitted to a seat, and the gas valve formed of a cylinder movable over the gas inlet opening.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES A. FORSBERG.

Witnesses:

A. O. BEHEL,
E. D. E. N. BEHEL.