

(No Model.)

J. H. GRAF.

AIR FORCING DEVICE FOR GAS MACHINES.

No. 564,786.

Patented July 28, 1896.

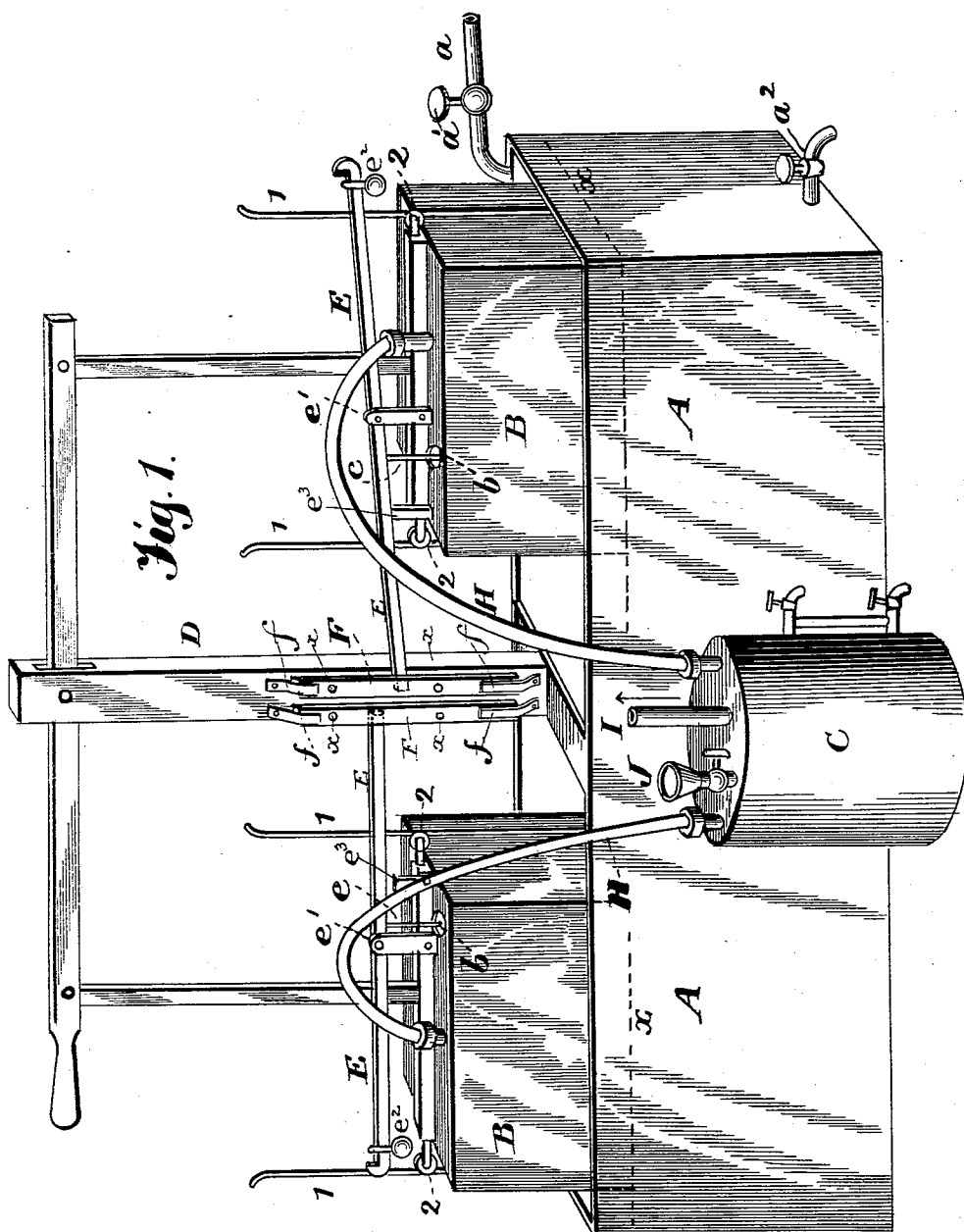


Fig. 2.



Witnesses
A. Ruppert.
G. B. Towles

Inventor
John H. Graf
Per
Thomas P. Simpson
Attorney

UNITED STATES PATENT OFFICE.

JOHN HENRY GRAF, OF REED CITY, MICHIGAN.

AIR-FORCING DEVICE FOR GAS-MACHINES.

SPECIFICATION forming part of Letters Patent No. 564,786, dated July 28, 1896.

Application filed April 7, 1894. Renewed November 4, 1895. Serial No. 567,954. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY GRAF, a citizen of the United States, residing at Reed City, in the county of Osceola and State of Michigan, have invented certain new and useful Improvements in Air-Forcing Devices for Gas-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The special object of the invention is to provide an apparatus of such construction that it will cause a partial vacuum and draw vapor from the liquids used, causing a constant stream of air to the carbureter of a gas apparatus.

Figure 1 of the drawings is a perspective view, and Fig. 2 is a detail side elevation.

In the drawings, A represents a vessel which is filled about three-fourths full of water by means of the supply-pipe *a*, provided with stop-cock *a'* and emptied by a faucet *a''* at the bottom.

B B are alternating plungers open at the bottom, but closed at the top, where an air-valve *b* is provided, which closes the opening or seat on the inside. This valve is pivotally connected with a lever E by the rod *e*, while the lever is supported on a fulcrum-post *e'* from the top of the plunger, and provided at one end with a weight 3, this end of lever being preferably turned up to prevent the escape of the weight.

Rising from the inner end of each plunger B is a stop *e''*, which serves to regulate the distance that the inner ends of the levers E shall descend as the plunger rises for the purpose of opening the air-valves and admitting air to the plungers.

Extending upward from the center of the vessel is the post D, in the upper end of which the operating hand-lever is pivoted, and to one side of which the two vertically-disposed plates F are applied, and held in position against the side of the post by the guide-pins *x* and the spring *f*. The ends of the levers E are placed between these plates F and the side of the post, and the plates exert sufficient frictional contact on the ends of the levers to hold them stationary when the plungers

descend, so as to first close the air-valves, and then the ends of the levers are drawn downward by the valve-rods *e*, as the plungers continue to descend, against the frictional contact of the plates F. As soon as the plungers begin to rise the frictional contact of the plates F first resists any upward movement of the ends of the levers, so as to open the air-valves and permit the plungers to fill, and then when the upward movement of the plungers forces the stops *e''* up against the lower edges of the levers the ends of the levers are forced upward against the frictional contact of the plates F. Owing to the weights *e''* on the levers, and which have a constant tendency to close the air-valves, the frictional contact of the plates need not be very great.

In order to guide the plungers vertically, rods 1 rise from the vessel any suitable distance upward, and each plunger has a grooved friction-roller 2 secured to each of its ends, and these rollers catch against the rods and prevent the plungers from having any but a vertical movement. The dotted line indicates the height of the water in the vessel.

C is a vessel for hydrocarbon, connected by hose-pipe H with the interior of the plungers, so that the alternate descent of the plungers into the water may force the air through the pipes H H nearly to the bottom of the vessel C. As this air rises through the hydrocarbon in the vessel C it becomes charged and is carried through the pipes I to its destination, a constant stream of gas being blown through said pipe.

Having thus described my invention, I so claim—

A gas-manufacturing apparatus consisting of a tank A, plungers B B open at their bottoms and having an inlet-valve on top; and weighted levers E E connected by a rod with said inlet-valves; uprights *e'* on which the levers are fulcrumed; a post D, spring-plates F pressing the free ends of the levers to the post, and means for reciprocating the plungers, all combined to operate together substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN HENRY GRAF.

Witnesses:

AUGUST C. GOEHREUD,
WILLIAM M. GOEHREUD.