(No Model.) 2 Sheets—Sheet 1.

G. H. BURROWS.

CARBURETING APPARATUS.

No. 427,832. Patented May 13, 1890.

FIG. 1.

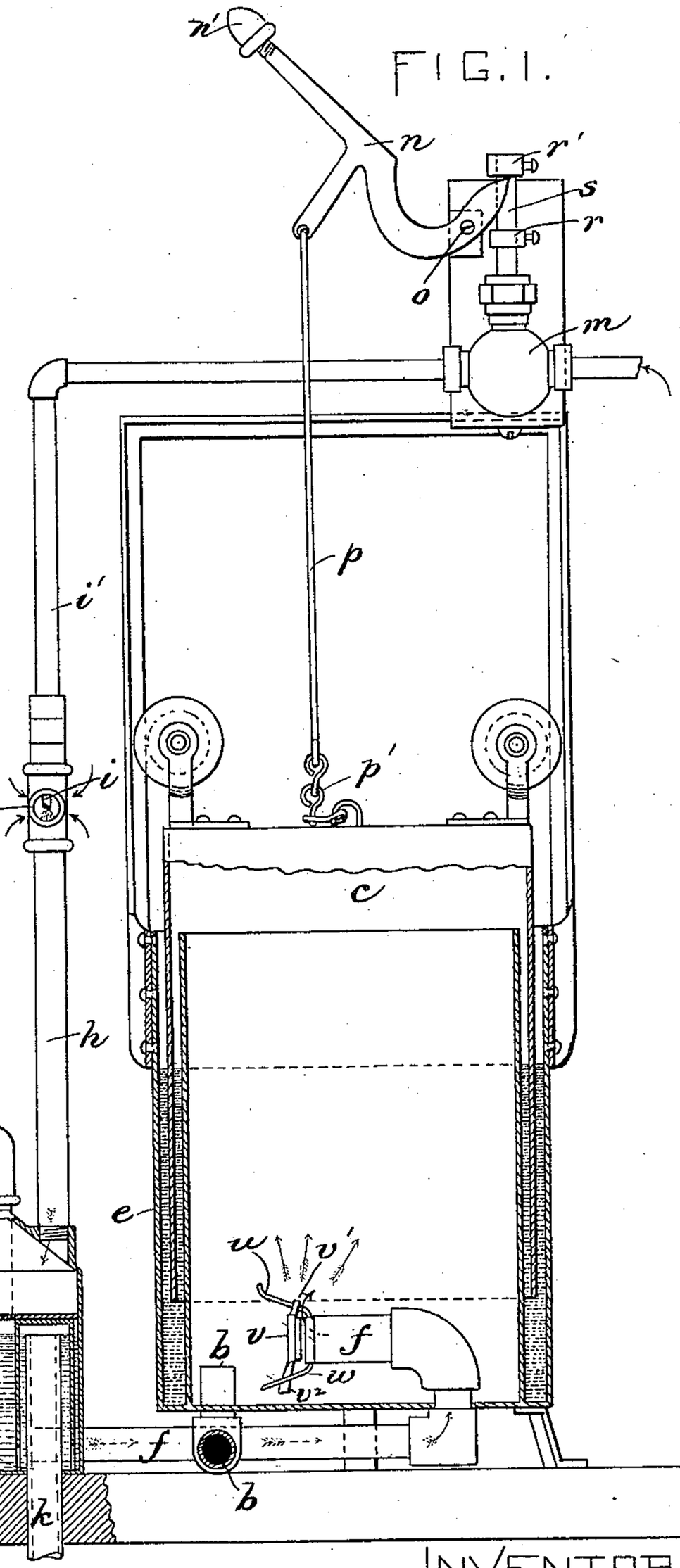


FIG. 6.

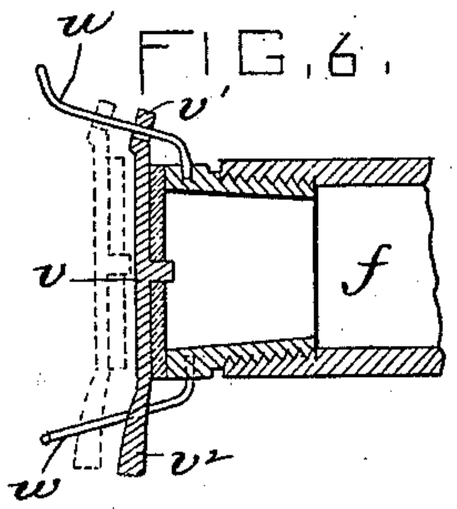
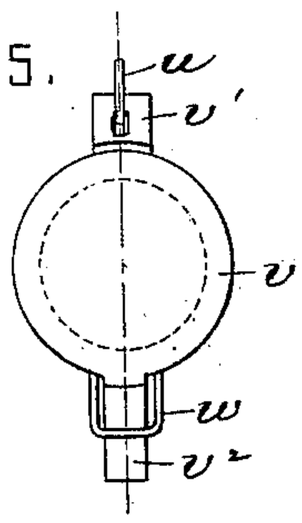


FIG. 5.



WITNESSES.

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W. C. Ramsay.

INVENTOR.

Geo. H. Burrows

by Wright Brown Quinby & Atty's.

(No Model.) 2 Sheets—Sheet 2.

G. H. BURROWS.

CARBURETING APPARATUS.

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FIG. 3

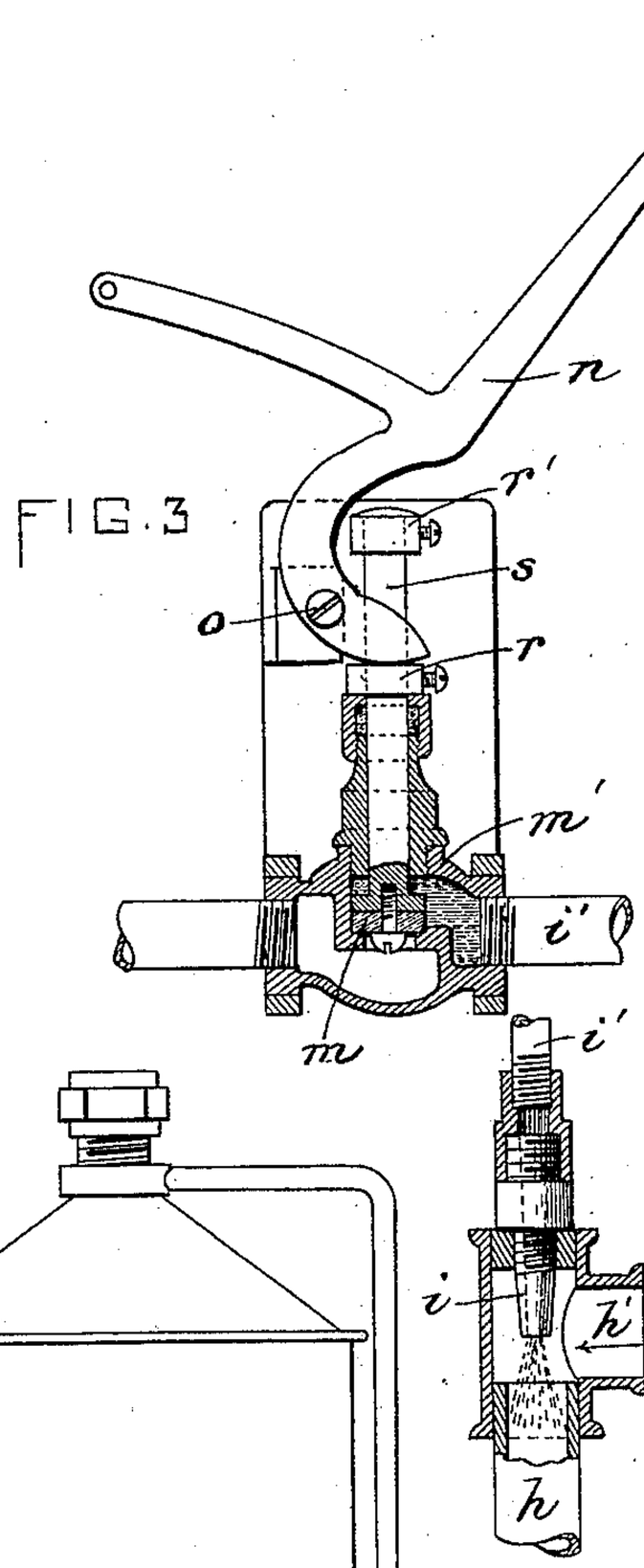

FIG. 2

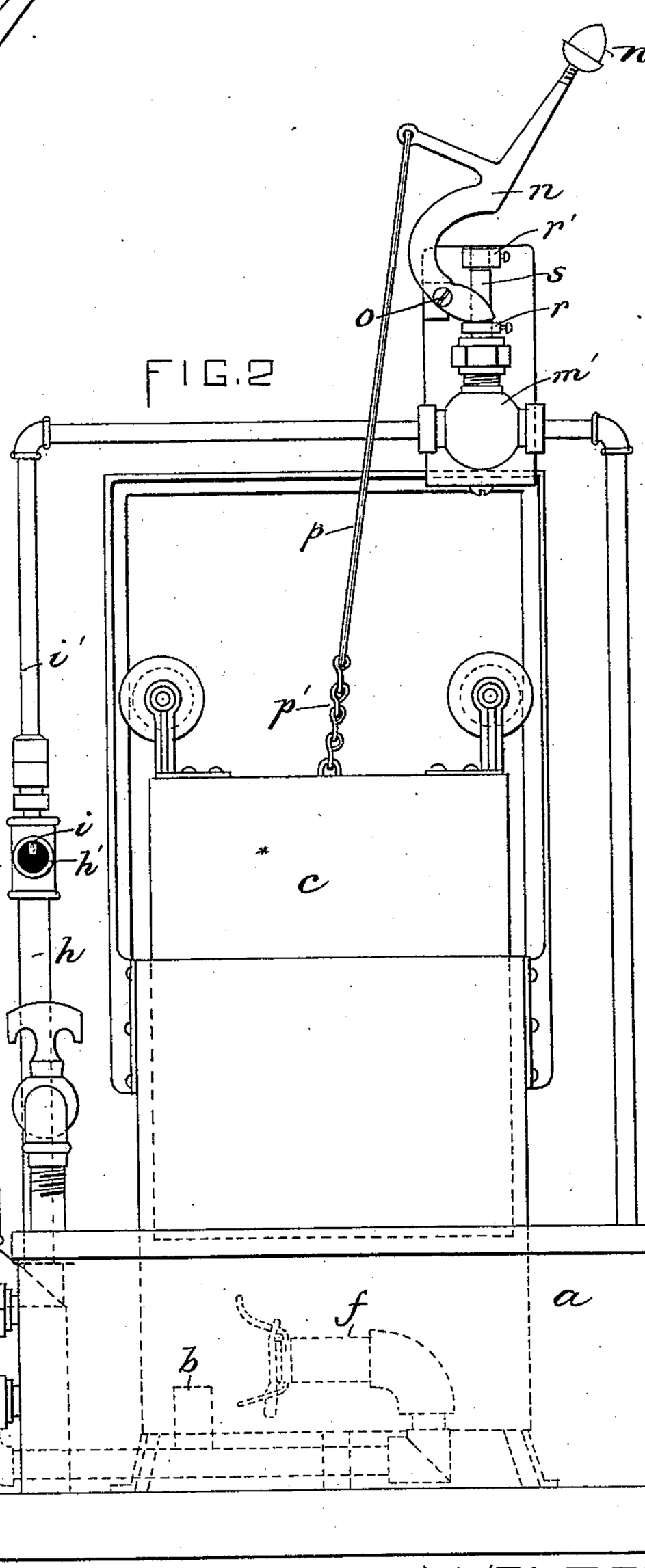

FIG. 4.

WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE H. BURROWS, OF SOMERVILLE, MASSACHUSETTS.

CARBURETING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 427,832, dated May 13, 1890.

Application filed August 2, 1888. Serial No. 281,751. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BURROWS, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Carbureting Apparatus, of which the following is a specification.

This invention relates to the class of carburetors in which a current of air is forced into a floating reservoir or holder by a tromp, the water being shut off to stop the supply of air when the floating holder which receives the air rises to a given point and turns on the water to renew the air-supply when the said holder sinks to a minimum height. The air passes from the floating holder to the carbureting-chamber, where it is mixed with the hydrocarbon vapor in said chamber. A carburetor of this class is shown in Letters Patent of the United States granted to W. F. Burrows, No. 291,676.

The present invention has for its object to provide certain improvements relating to the details of construction of portions of the apparatus; and to this end it consists in the several improvements, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a carburetor with my invention applied thereto. Fig. 2 is a side elevation. Fig. 3 is an enlarged detail sectional view of the water-supply valve and its operating-lever. Fig. 4 is a detail sectional view of the tromp. Figs. 5 and 6 are respectively front and vertical sectional views of the air-inlet valve.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the carbureting tank or chamber in which the air and the hydrocarbon vapors are mingled to form illuminating or heating gas. Air is admitted to said chamber through a pipe *b* from the floating holder, hereinafter described, and the resulting gas or mixture of gases and vapors is conducted from the chamber through a pipe *d* to the burners.

c represents an inverted tank or air-holder which floats in water in an annular tank *e*. The pipe *f*, which admits air to the floating holder *c*, communicates with the top of a trap or chamber *g*, which chamber also communicates with a vertical pipe *h*, having an opening *h'* above said chamber *g* for the admission of air, and a nozzle *i*, which is supplied with water by a water-pipe *i'*, communicating with a source of water-supply. The pipe *h* and nozzle *i* constitute the tromp. The downward flow of a stream of water through the pipe *h* induces a current of air through said pipe, the air and water entering the trap or chamber *g* together. The water escapes from the chamber *g* through a waste-pipe *k*, Fig. 1, and the air passes from said chamber through the pipe *f* to the floating holder *c*.

The water-pipe *i'* has a valve *m*, which is adapted to shut off the water from the nozzle *i*, the casing *m'* of said valve having a seat on which the valve fits closely when closed. Said valve is controlled by a lever *n*, which is pivoted at *o* to a fixed support, a rod *p*, connected at one end to an arm on said lever, and the floating holder *c*, which is connected by a chain *p'* with the other end of said rod. This lever *n* is preferably provided with a weight *n'* at its outer end to aid in the lowering of said lever and in retaining the valve closed. It will be seen that when water is allowed to flow through the nozzle *i* air will be forced thereby into the holder *c*. When a sufficient supply of air has thus been forced into the holder *c* to raise the latter to its maximum height, the top of said holder, bearing against the lower end of the rod *p*, raises the latter, and thereby swings the lever *n* to the position shown in Fig. 2, thus causing the shorter arm of said lever to bear on a collar *r* on the stem *s* of the valve *m* and close said valve, as shown in Figs. 2 and 3, the chain *p'* lying loosely on the top of the holder. The supply of water being thus shut off, the admission of air to the holder ceases until the volume of air in the holder is so far reduced by its passage through the constantly-open pipe *b* into the carbureting-chamber as to cause the holder in falling to pull the lever *n*, through the chain *p'* and rod *p*, over to the position shown in Fig. 1, thereby causing the shorter arm of said lever to act on another collar *r'* on the valve-stem *s* and raise the valve *m*, whereupon the water is again admitted to the injector, and air is forced thereby into the floating holder *c*. The valve *m* is

arranged as shown in Fig. 3, so that when it is closed the water-pressure in the pipe *i* will hold it upon its seat, so that the valve cannot open until the falling holder *c* moves the lever *n* over, as shown in Fig. 1.

The pipe *f*, which conducts the air to the floating holder, has at its inner end an upwardly-inclined arm *u*, on which is adapted to slide a perforated ear *v'* on a check-valve *v*. Said valve, which is adapted to be seated against the end of the pipe *f*, and thus prevent the escape of air from the holder *c* through said pipe, has at its lower portion a downwardly-projecting arm v^2, which is guided by a staple-shaped guide *w*, attached to the pipe *f*. It will be seen that when the air is forced by the injector into the holder *c* the valve *v*, yielding to the pressure of the air, slides upwardly on the inclined arm *u*, as shown in Fig. 1 and in dotted lines in Fig. 6, thus permitting the passage of the air into said holder. When the introduction of air is suspended by the shutting off of the water-supply, as above described, the valve *v* is seated on the end of the pipe *f* by gravitation, which causes its ear *v'* to slide down the inclined arm *u*, aided by the back-pressure of the air. I find that this loose check-valve is more certain and reliable in its action than one which is hinged, it being less liable to become clogged by impurities in the vapor and affording a wider opening when moved away from its seat.

I claim—

1. In an air-blower for carburetors, the combination of a floating holder, an air-inlet pipe opening thereinto, a tromp located in said air-inlet pipe, a water-supply pipe for the tromp provided with a regulating-valve having an upwardly-projecting stem fitted with upper and lower collars, a lever having one end engaging said collars, its other end being weighted, and a connection between said lever and the floating holder, substantially as set forth.

2. In an air-blower for carburetors, the combination of a floating holder, a tromp, an air-inlet pipe opening into said holder and provided with an inclined arm, and a sliding valve adapted to move on said arm, substantially as set forth, said tromp being located in said air-inlet pipe, as stated.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of July, A. D. 1888.

GEORGE H. BURROWS.

Witnesses:
C. F. BROWN,
A. D. HARRISON.