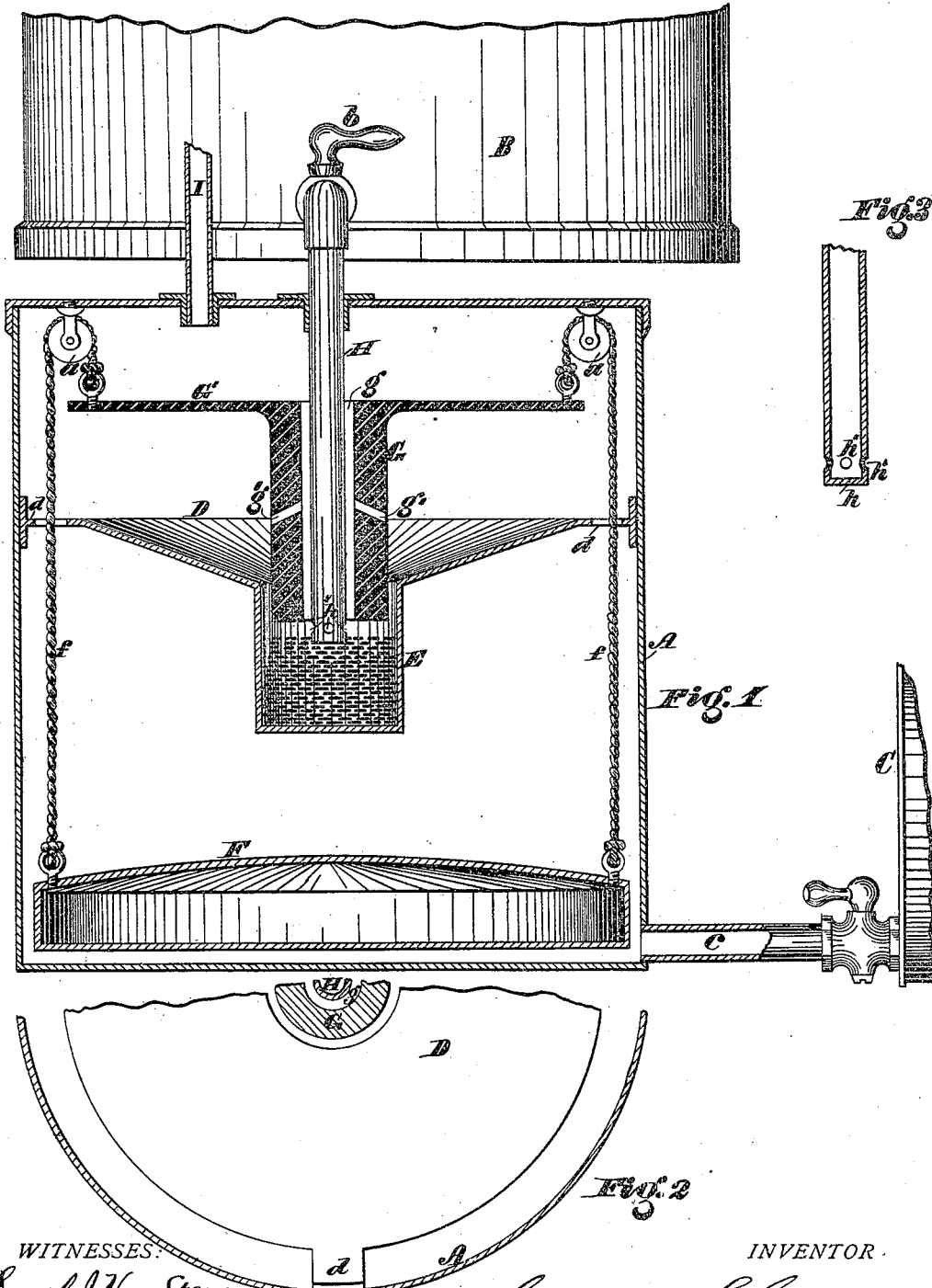


G. L. GRAY.
 Feed Regulator for Carbureters.

No. 199,055.

Patented Jan. 8, 1878.



WITNESSES:
 Saml. J. Van Stavern
 Jas. B. Connolly

INVENTOR:
 George L. Gray,
 By Connolly Bros., ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE L. GRAY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FEED-REGULATORS FOR CARBURETERS.

Specification forming part of Letters Patent No. **199,055**, dated January 8, 1878; application filed October 20, 1877.

To all whom it may concern:

Be it known that I, GEORGE L. GRAY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Feed-Regulating Devices for Carbureting-Machines; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention. Fig. 2 is a broken horizontal section of the same, and Fig. 3 is a detail view.

The object of my invention is to provide means for automatically feeding hydrocarbon liquid to a carbureting-machine, so as to always preserve the same level of such liquid in the evaporating-chamber.

My improvements consist in the peculiar construction and combination of parts hereinafter described, having relation principally to a discharge-pipe which becomes sealed by a mercury-valve, the mercury being displaced by a weight which is counterbalanced by a float, and caused to descend when said float is elevated by the liquid beneath it.

Referring to the accompanying drawings, A designates the feed-chamber, which is a vessel, preferably of cylindrical form, located beneath the hydrocarbon-liquid reservoir B, its bottom being on a level with that of the evaporating-chamber C, with which it communicates by means of a pipe, *c*.

D is a shelf located within the feeding-chamber A, and firmly fastened in a fixed position therein by means of arms or rods *d d*, which extend and are fastened to the walls of said chamber. Said shelf is dish-shaped or flaring, and is formed centrally with a well or cup, E.

F is a float within the chamber A, connected by cords *f f*, which pass over pulleys *a a*, secured to the top of said chamber, and connect with a weight, G. Said weight consists of an open-ended cylinder, having a central passage, *g*, and lateral or radial openings, *g'*. Said weight, for purposes of connection with the cords *f f*, is formed with a disk, G', as shown;

or it may be provided with radial arms, the equivalent of said disk.

H is the feed-pipe, extending from the reservoir B down into the cup E, said cup being filled to or about half its height with mercury. The pipe H is made with a closed or blank end, *h*, its sides above said end being formed with numerous small openings, *h' h'*.

The operation is substantially as follows: The parts being relatively adjusted, as shown in the drawing, the float counterbalances the weight and holds it above the surface of the mercury in the cup E. The hydrocarbon liquid, being allowed to escape from the reservoir by turning the cock *b*, passes down through the pipe H, and emerges through the openings *h' h'*, rising thence between the pipe H and weight G, and between the latter and the walls of the cup E. When the shelf becomes full, by the liquid emerging through the openings *g'* and space around the weight, it overflows and pours down into the lower part of the feed-chamber, passing thence by the pipe *c* to the evaporating-chamber. As the liquid rises in the feed and evaporating chambers—the same level being preserved in both—it elevates the float, thereby causing the weight to be lowered into the mercury in the cup E. By the time the liquid has reached the desired level in the evaporating-chamber the weight will have been so far lowered as to cause displacement of the mercury in the cup E sufficient to seal the pipe H, or the openings *h'* therein, and prevent any further flow of liquid from the reservoir B. When the liquid in the evaporating-chamber is removed or lowered in the ordinary process of evaporation the float will fall, raising the weight out of the mercury and permitting the flow from the reservoir to be resumed.

By making the pipe H with a blank end, and forming the exit-orifices for the liquid in the sides of said pipe, the violent agitation of the mercury which would result from a direct discharge from said pipe is avoided.

By making the pan D flaring or dish-shaped any mercury which may be ejected from the cup E will be caught and returned to said cup, preventing its escape to the lower part of the feeding-chamber, where it would be likely to

do injury to the joints or seams of said chamber, and be wasted or lost.

I represents an equalizing-pipe, intended to communicate with a similar pipe proceeding from the carbureting-chamber.

What I claim as my invention is—

1. The flaring or dish-shaped shelf or pan D, having a central well or cup, E, having tight bottom or blank end, and fixedly attached to the feeding-chamber A, with spaces or passages around its edges for the overflow of the liquid into the chamber beneath, substantially as shown and described.

2. The weight G surrounding the feed-pipe

H, and suspended above the mercury-cup E, in combination with the counterbalancing-float, substantially as shown and described.

3. The combination, with the feeding-chamber A, of the flaring pan D, having mercury-cup E, float F, weight G, and pipe H, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand.

GEORGE L. GRAY.

Witnesses:

GEO. C. SHELMEKDINE,
SAML. J. VAN STAVOREN.