

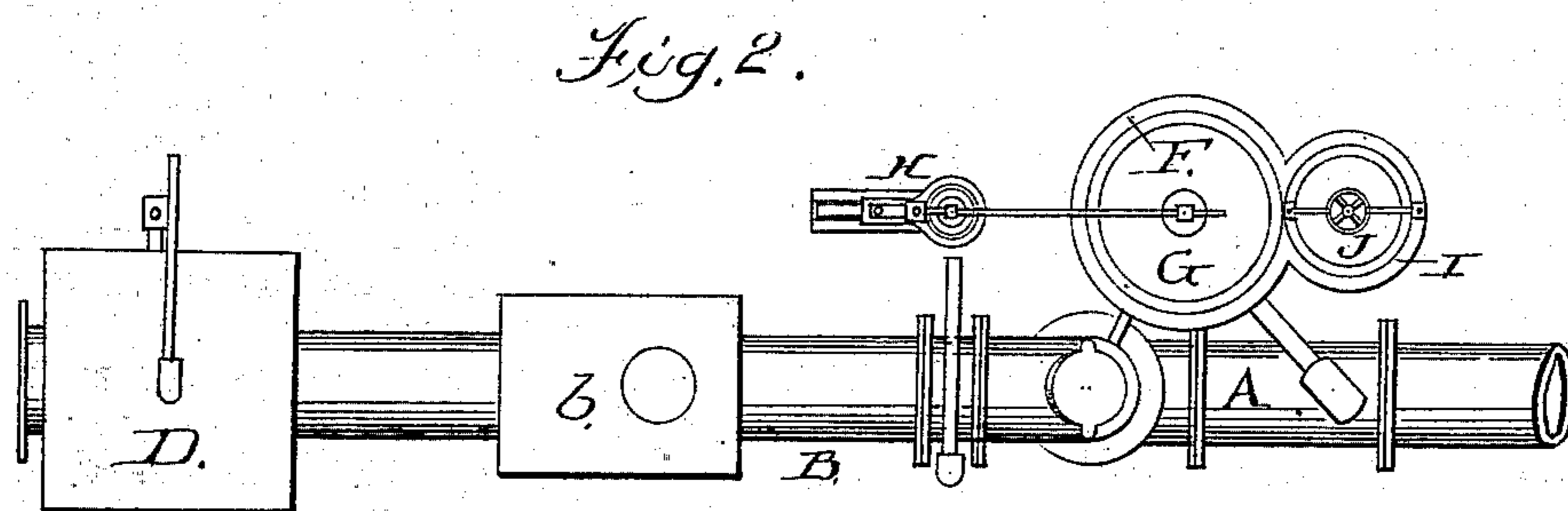
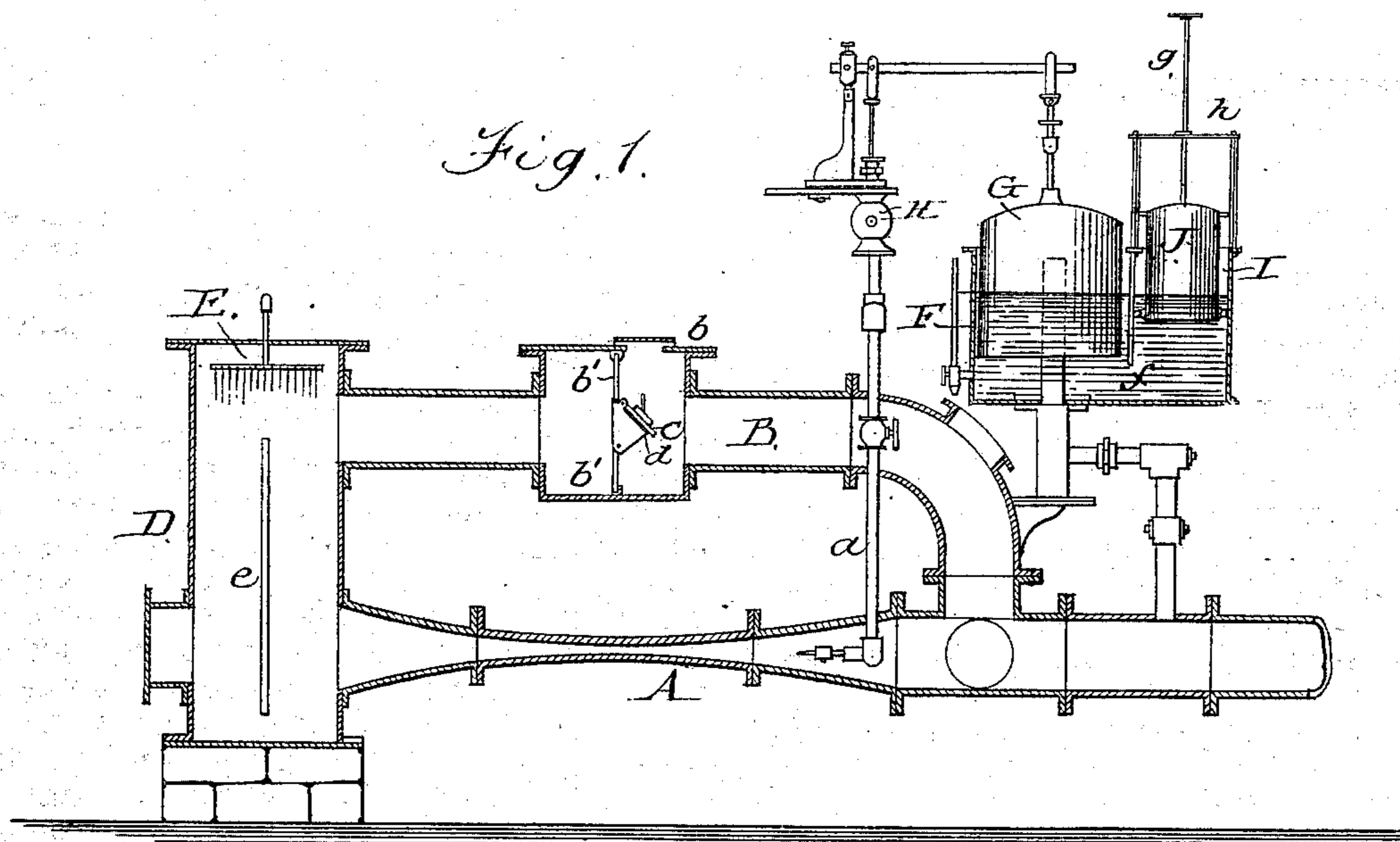
(No Model.)

J. E. LEADLEY & J. HANLON.

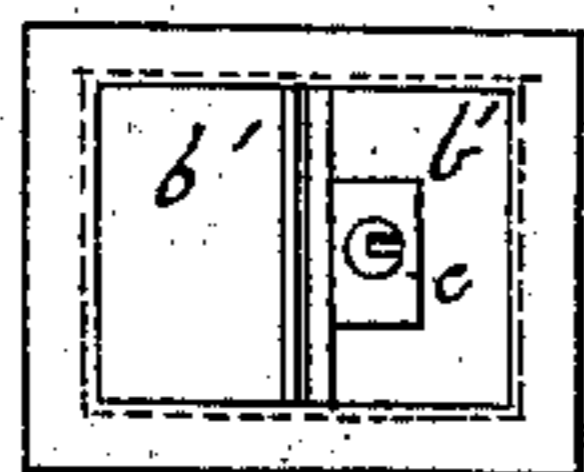
STEAM GAS EXHAUSTER.

No. 271,874.

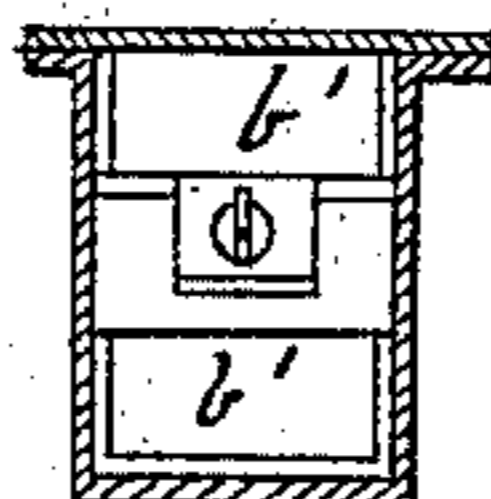
Patented Feb. 6, 1883.



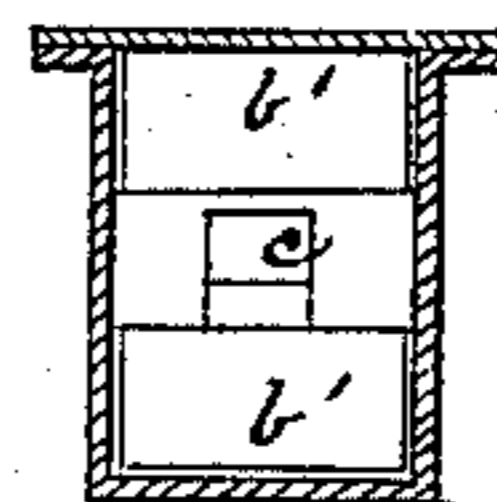
*Fig. 3.*



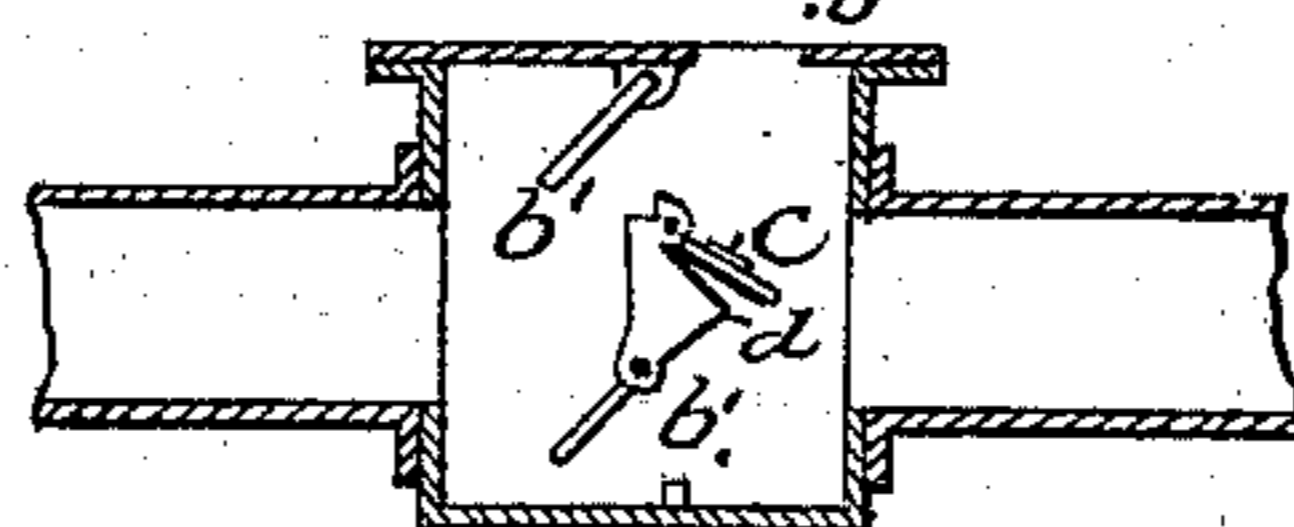
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



Attest;  
Charles Fowler,  
H. B. Applewhite,

Inventors:

Jas. E. Leadley  
John Hanlon

per atty.  
A. H. Evans & Co

# UNITED STATES PATENT OFFICE.

JAMES E. LEADLEY, OF CAMDEN, NEW JERSEY, AND JOHN HANLON, OF NEW YORK, N. Y., ASSIGNORS TO THE UNITED GAS IMPROVEMENT COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## STEAM GAS-EXHAUSTER.

SPECIFICATION forming part of Letters Patent No. 271,874, dated February 6, 1883.

Application filed September 6, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES E. LEADLEY, of Camden, in the county of Camden and State of New Jersey, and JOHN HANLON, of the city and State of New York, have invented certain Improvements in Steam Gas-Exhausters; and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal sectional view of the apparatus. Fig. 2 is a plan view of the same. Figs. 3, 4, 5, and 6 are detail views of valve.

Our invention relates to steam gas-exhausters, and has for its object to provide an apparatus wherein the vacuum will never be excessive, the gas is not reheated by the exhaust, and the exhaust-valve is more thoroughly controlled.

Our invention consists, first, in a compensating-valve located between the by-pass valves, whereby the exhaustion is regulated; second, in a spray apparatus introduced in one end of the exhauster to prevent the jet from reheating the gas; and, third, in providing the tank which contains the governor-cup with a supplemental cylinder or tank in which is a float, the raising or lowering of which quickly by displacement forces more or less water into the tank containing the governor-cup.

In order that those skilled in the art may make and use our invention, we will proceed to describe the manner in which we have carried it out.

In the said drawings, A is the exhaust tube or pipe, and *a* the steam-jet pipe to produce the necessary vacuum. Above this pipe is the by-pass pipe B, in which is centrally located a housing or box, *b*, in which are located the by-pass valves *b' b'*. Between the two valves *b' b'*, against the diagonal seat *d*, we set a swinging compensating valve, *c*, which will open and compensate for any excess of exhaustion arising from any cause.

We provide a cooling-chamber, D, at the exit end of the apparatus, which is partially divided by a vertical diaphragm, *e*, and has depending from its top a spraying device, E, for the purpose of injecting a spray of water through the moving gas to keep it cool and

counteract the heating effect of the steam, and thereby overcome the objections of reheating the gas. In fact, by experiment we find the gas at its exit is as cool as if a rotary exhauster were used.

When it becomes necessary to vary the volume of water in tank F, which contains float G, which is connected to and governs the throttle-valve H, after the manner well understood by those skilled in the art of constructing gas apparatus, we provide a secondary or supplemental tank, I, alongside of tank F and communicating with it at its bottom through the passage *f*. A screw-rod, *g*, passing through a yoke, *h*, on the top of tank I, carries on its lower end a hollow air-tight or solid cylinder, J, which by means of screw-rod *g* may be forced down into or withdrawn from cylinder or tank I, thereby varying at will the level of the water by displacement in tank I, and obviously causing the same variation in the height of the water in tank F. This affords an easy and delicate adjustment for the valve-operating mechanism.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a steam gas-exhauster, the by-pass pipe B, having the by-pass valves *b' b'*, and a compensating-valve *c*, arranged intermediate of the said by-pass valves, substantially as and for the purpose herein shown and described.

2. The combination, with the exhaust tube or pipe A, having the steam-jet pipe *a* and the by-pass B, of the intermediate connecting-chamber, D, provided with the vertical diaphragm or partition *e*, and a spraying device, E, arranged in said chamber, substantially as and for the purpose herein shown and described.

3. The combination of the tank having the float G, the connected throttle-valve H in pipe *a*, and the supplemental tank I, communicating with tank F, near its bottom, and the vertically-adjustable cylinder J, arranged in the tank I, all constructed and arranged to operate as herein shown and described.

JAS. E. LEADLEY.  
JOHN HANLON.

Witnesses:

HARRY M. FOX,  
F. M. BANKS.