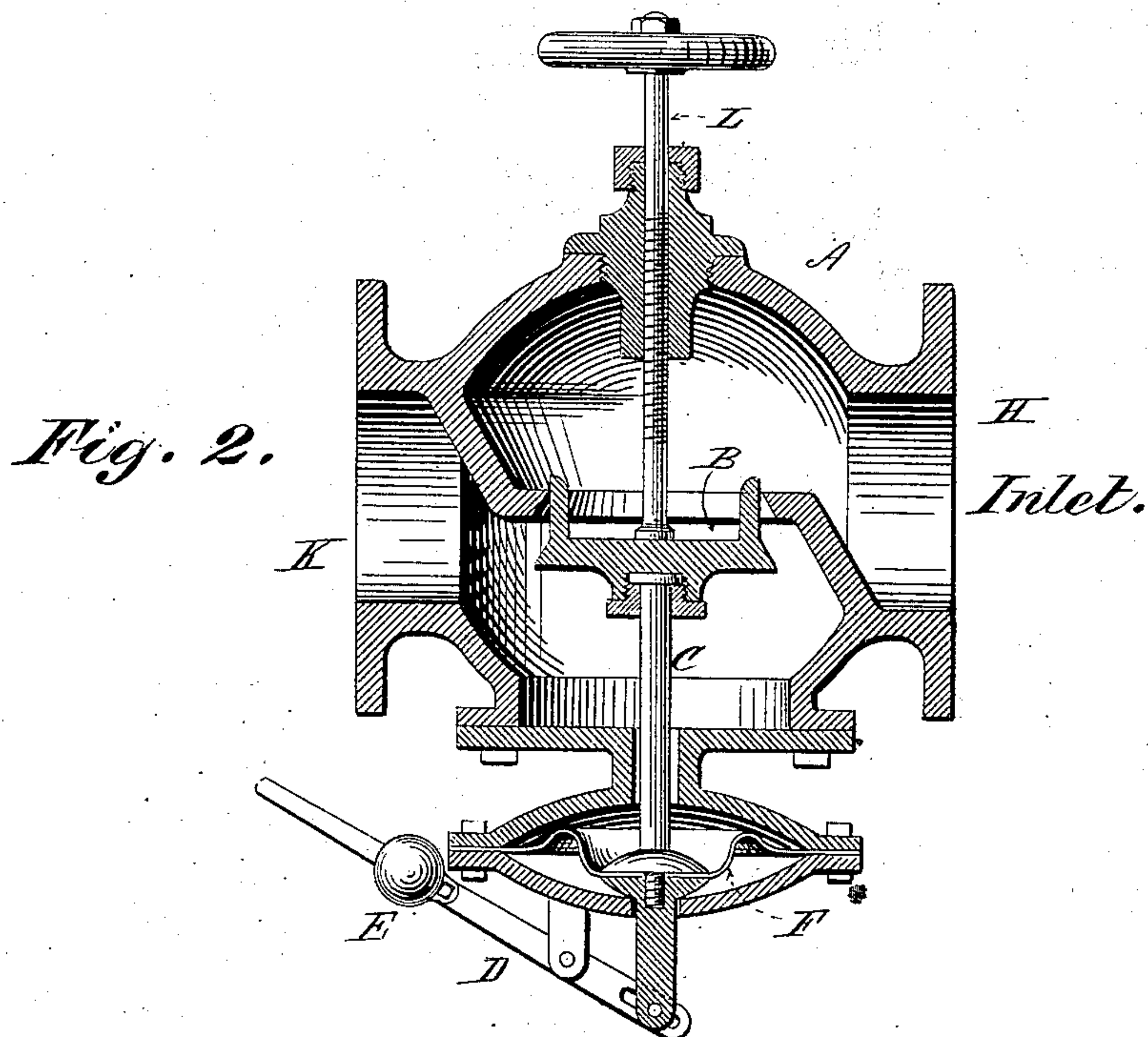
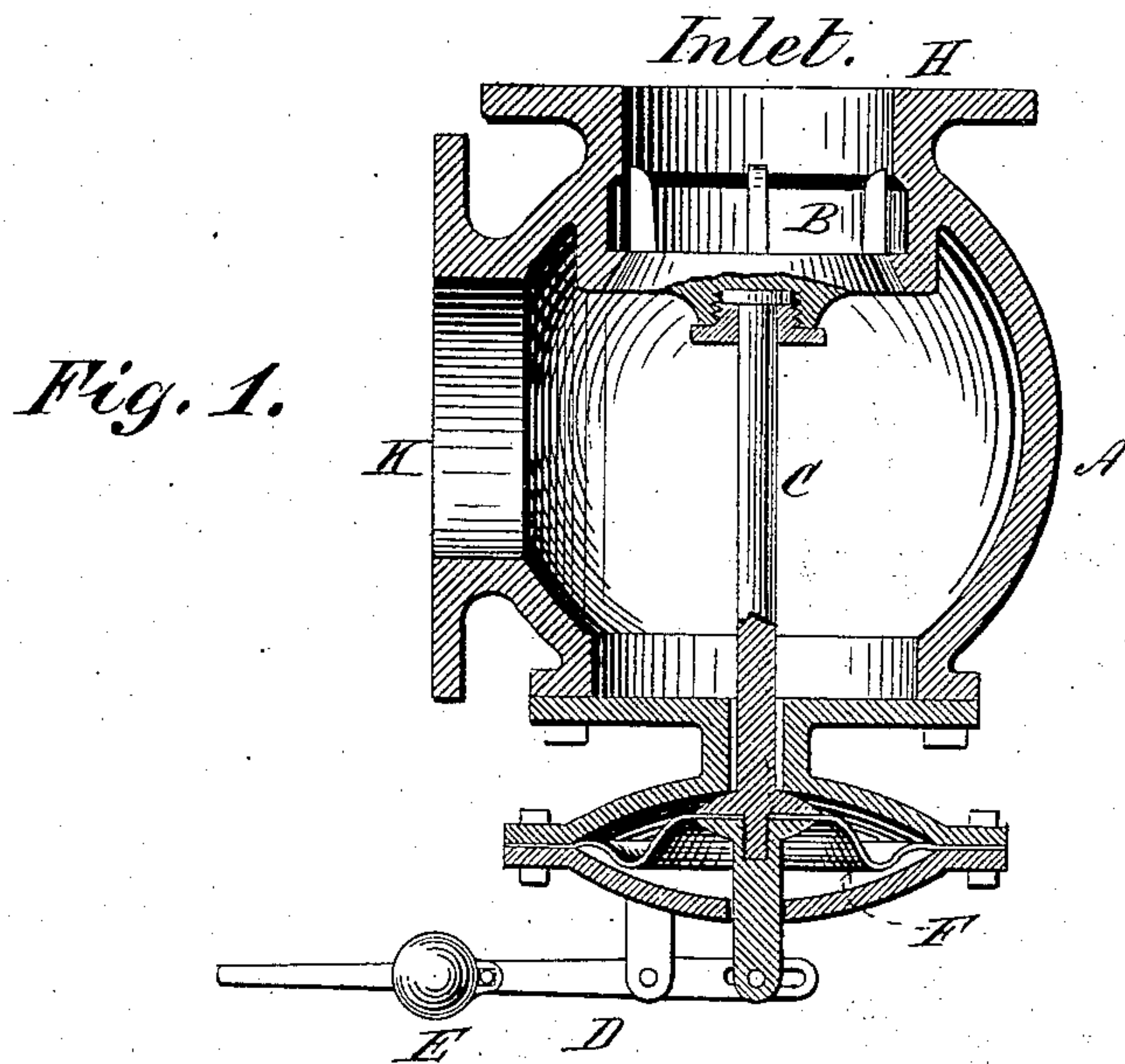


(No Model.)

T. J. KIELEY.
BACK PRESSURE VALVE.

No. 365,477.

Patented June 28, 1887.



Witnesses:
Wm. Gardner
Jm. A. Bollock

Inventor:
Timothy J. Kieley
By this Attorney
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UNITED STATES PATENT OFFICE.

TIMOTHY J. KIELEY, OF NEW YORK, N. Y.

BACK-PRESSURE VALVE.

SPECIFICATION forming part of Letters Patent No. 365,477, dated June 28, 1887.

Application filed September 11, 1886. Serial No. 213,346. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY J. KIELEY, of the city, county, and State of New York, have invented a new and useful Improvement in Back-Pressure Valves, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

By my improvement is constructed what is known as a "back-pressure valve," which is a valve analogous to a safety-valve, used at the delivery or exhaust end of a heating system.

It is frequently customary to cause the exhaust of an engine to enter the heating system of a building for the purpose of utilizing its waste heat in such heating. It is obvious, however, that the pressure in the heating system cannot, under these circumstances, be permitted to increase over a given amount without seriously interfering with the operation of the engine. The valve which I have constructed is intended to maintain exactly uniform pressure in the heating system, and in the form which I prefer all stuffing-boxes are dispensed with, while at the same time a diaphragm is so employed as to aid in the rapid and certain closing of the valve.

In my drawings similar letters refer to similar parts.

Figure 1 represents my invention as adapted to an angle valve-box; Fig. 2, the same structure applied to a straight-way valve-box, showing likewise a method of applying an adjusting-screw to hold the valve.

I will first describe Figs. 1 and 2.

A represents the valve-box; B, the valve, closing upward. This valve is held against its seat by the lever D and adjustable weight E. The valve-stem C is connected with a diaphragm, F, which allows sufficient movement of the valve without necessitating the use of a stuffing-box.

H represents the inlet from the steam-heating system; K, the outlet to the atmosphere.

In Fig. 2, L represents a screw which may be forced down upon the valve to remove the valve from its seat and hold it permanently open when this end is desired.

The operation of my valve can now be understood. When the pressure of the inlet be-

comes sufficient to overcome the weight the valve is forced open, allowing escape to the atmosphere.

The diaphragm F performs two functions. In the first place, it enables the valve to be constructed without a stuffing-box upon its stem, which stuffing-box is a disadvantage, and, in the second place, insures the sudden closing of the valve, as, when the steam has begun to be shut off by the upward movement of the valve, a partial vacuum will be formed in the outlet K, and the air-pressure beneath the diaphragm will tend to force the valve B firmly to its seat.

It will be observed that the diaphragm F is situated upon the exhaust or atmospheric side of the valve, so that the steam has practically no effect thereon, the diaphragm in this instance not operating, as heretofore, to present an extended surface in order that the low pressure in a heating system may counterbalance a high pressure from the boiler, but to enable the dispensing with a stuffing-box on the valve-stem and to insure a sudden cutting off of the steam when the pressure is reduced, as has been hereinbefore described.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a back-pressure valve, of the valve opening away from the inlet, the valve-stem, a diaphragm, F, situated on the atmospheric side of the valve, whereby it is practically unaffected by steam-pressure, and a counterbalancing-weight to close the valve against its seat, substantially as described.

2. The combination, in a back-pressure valve, of a valve opening away from the inlet, a valve stem, a diaphragm connected to the valve-stem and situated on the atmospheric side of the valve, whereby it is practically unaffected by steam-pressure, a counterbalancing-weight, and an adjusting-screw, L, for bearing against the valve to maintain it in permanent open position, substantially as described.

TIMOTHY J. KIELEY.

Witnesses:

WM. A. POLLOCK,
ANTHONY GREF.