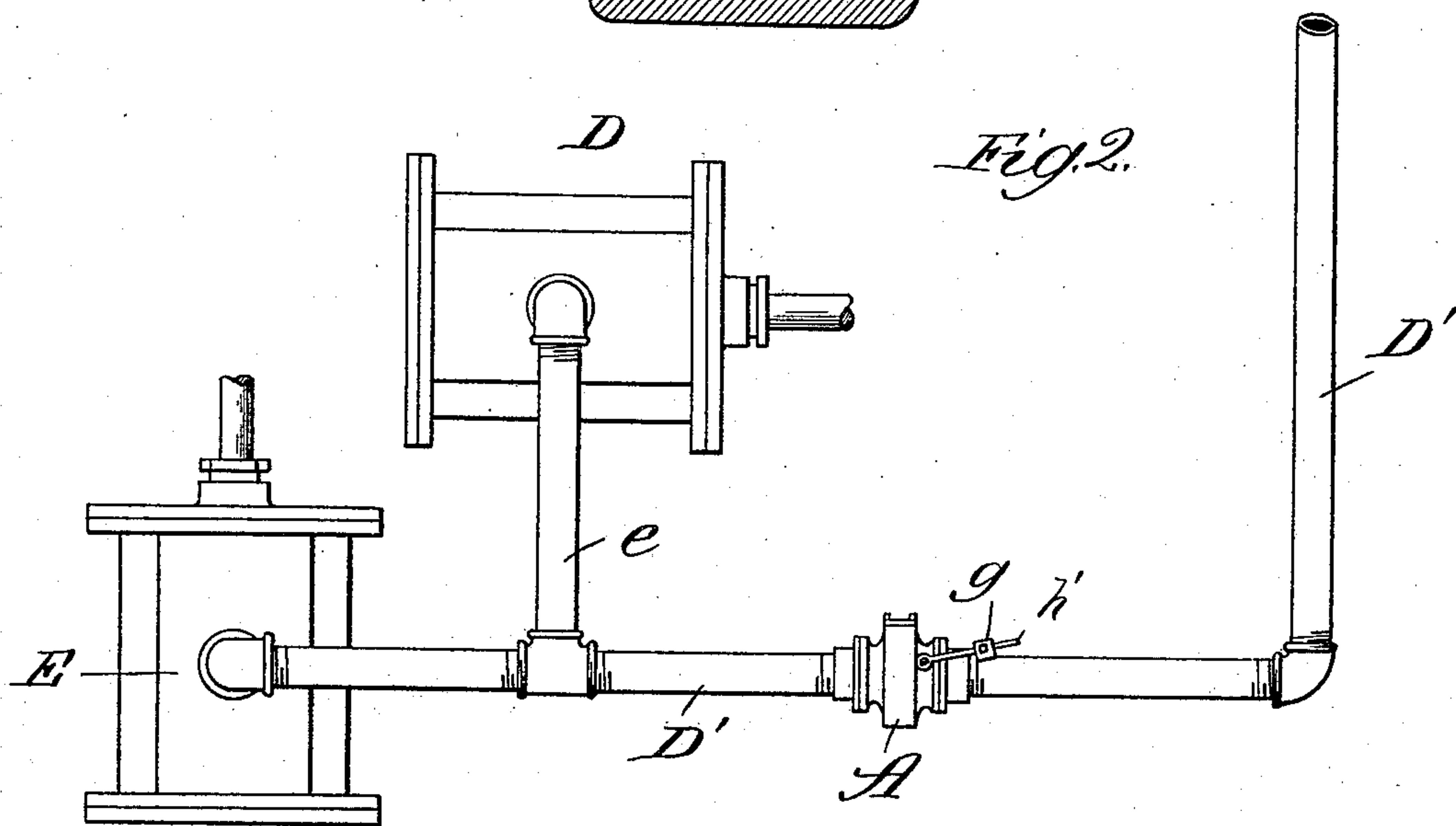
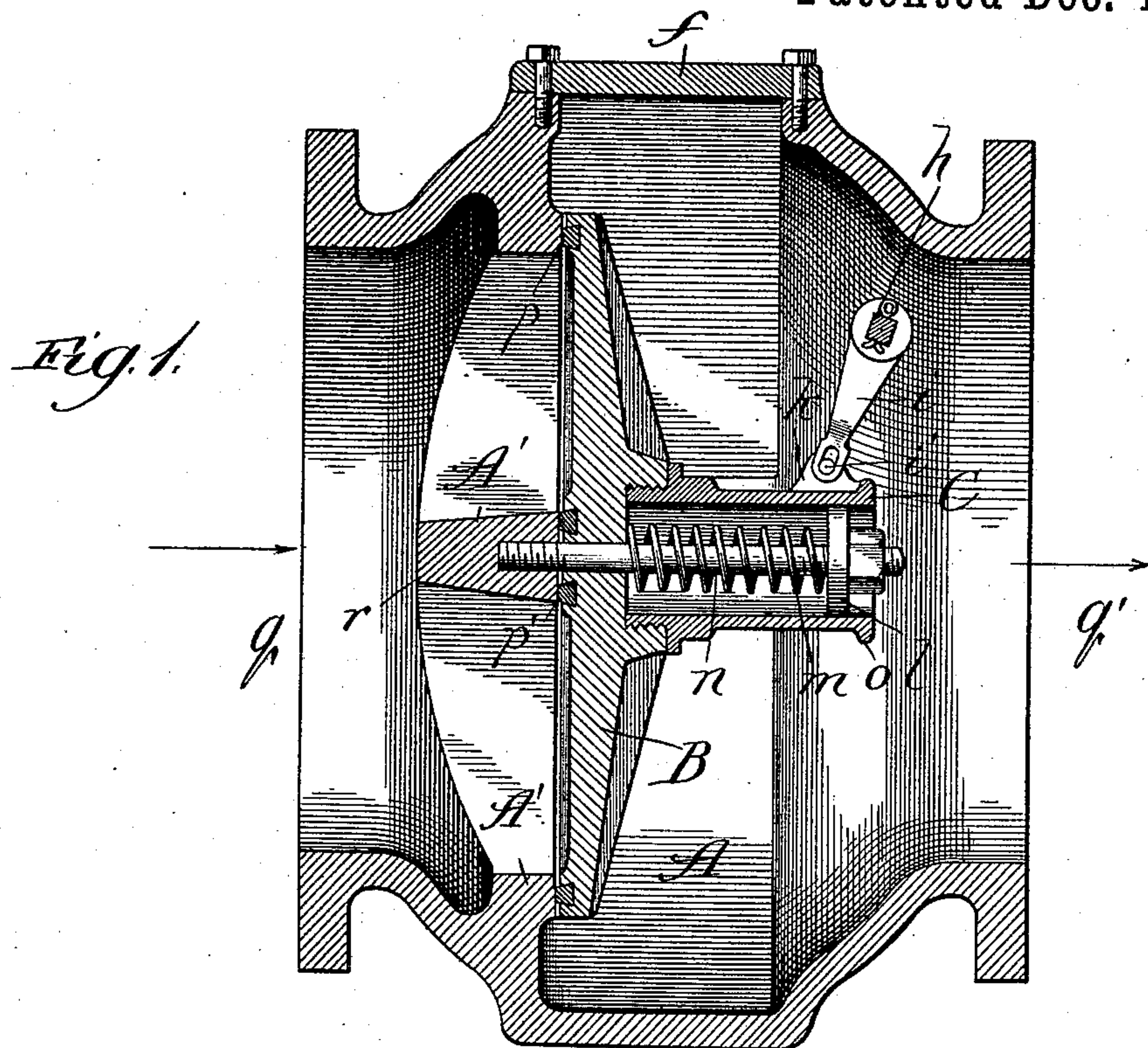


(No Model.)

F. HENNEBÖHLE.
BACK PRESSURE VALVE.

No. 572,296.

Patented Dec. 1, 1896.



Witnesses:
 Chas. E. Chayford,
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UNITED STATES PATENT OFFICE.

FRANK HENNEBÖHLE, OF CHICAGO, ILLINOIS.

BACK-PRESSURE VALVE.

SPECIFICATION forming part of Letters Patent No. 572,296, dated December 1, 1896.

Application filed March 21, 1896. Serial No. 584,273. (No model.)

To all whom it may concern:

Be it known that I, FRANK HENNEBÖHLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Back-Pressure Valves, of which the following is a specification.

The object of my invention is to provide a valve which shall be operated to open for the purpose of relief by back pressure, particularly that from a vacuum or condensing engine or by any light back pressure.

Referring to the accompanying drawings, Figure 1 shows my improved valve device by a view in sectional elevation; and Fig. 2 is a broken view, diagrammatic in its nature, showing my improved valve in position in the exhaust-pipe of an engine connected with a condenser.

A is the shell or valve-chamber, having an inlet q and an outlet q' and cast with a seat A' near one end, preferably of the spider form illustrated, whereby the seating-points for the valve B are about the edge portion of the spider and upon its center or hub portion r . The valve B is a disk valve having the seating portions p and p' , each provided with suitable packing and at which it fits accurately upon the seat A' with an air-tight or practically air-tight junction. The valve B carries at its outer side a tube o , through which and loosely through the center of the disk valve passes a stem n , which is screwed or otherwise rigidly fastened at its inner end to the hub r . A light spring m surrounds the stem and is confined thereon between the valve and a head l in the tube fastened on the outer end of the stem. The tube with its confined spring affords a dash-pot C for a purpose hereinafter described.

From one side of the tube o extends a lug k , from which the tube is connected by a crank-arm i at an elongated opening i' therein with a shaft h , journaled in the shell, beyond which it projects and carries at its projecting end a lever h' , on which may be adjustably supported a weight g .

To render the internal parts of the device accessible without disconnecting it from its operative position, the shell A should be open at one side and have the opening covered by a removable plate f .

To use my improved valve device for relieving back pressure from the exhaust of an engine to a condenser, it is coupled into an exhaust D' , behind the connection therewith, through a pipe e of an engine, (indicated at D,) and which exhaust-pipe opens to the atmosphere, as through the roof of a building; and at the discharge end of the exhaust-pipe is a condenser, (indicated at E.)

In case of any such impairment of the condenser as causes it to fail to take care of the exhaust from the engine the consequent back pressure produced by the exhaust in the pipe D' against the valve B removes the latter from its seat and permits the exhaust to escape by way of the outlet q' , thereby preventing any damage to the machinery. In moving away from its seat the valve carries the tube o with it and compresses the spring m against the head l , about which the air in the tube, compressed therein to afford a cushion by the opening of the valve, may escape. The air-cushion or dash-pot thus renders the action of the valve practically noiseless. The moment that the back pressure ceases and when there is no back pressure against the valve B it is closed by the spring m ; but when it is desired, as it sometimes is, to maintain a light back pressure in the exhaust-pipe the weight g may be adjusted on the lever h to normally maintain the valve off its seat and thus leave the valve device open for the free escape of the back pressure.

My improved valve device may be made so extremely sensitive as to open with the slightest, even a fraction of an ounce, of back pressure, and it may be adjusted and operate equally well in any position.

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

1. A back-pressure valve comprising, in combination, a chamber provided with an inlet and an outlet and containing a valve-seat, a valve in the chamber, a dash-pot containing a light spring confined against the valve and normally holding it against its seat, a shaft journaled in the shell and connected with the dash-pot and a lever on the shaft carrying an adjustable weight, substantially as and for the purpose set forth.

2. A back-pressure valve comprising, in combination, a chamber A provided with an

inlet and an outlet and containing a spider-
shaped valve-seat A', a disk-valve B having
packed seating portions p and p' formed to
bear against said seat about its margin and
5 at its central portion and carrying a cylinder
 o , a rod n fastened to said seat to extend
through the valve into said cylinder and pro-
vided at its outer end with a head l , and a

spring m confined in the cylinder about the
rod between the valve and said head, sub- 10
stantially as and for the purpose set forth.

FRANK HENNEBÖHLE.

In presence of—

J. H. LEE,

R. T. SPENCER.