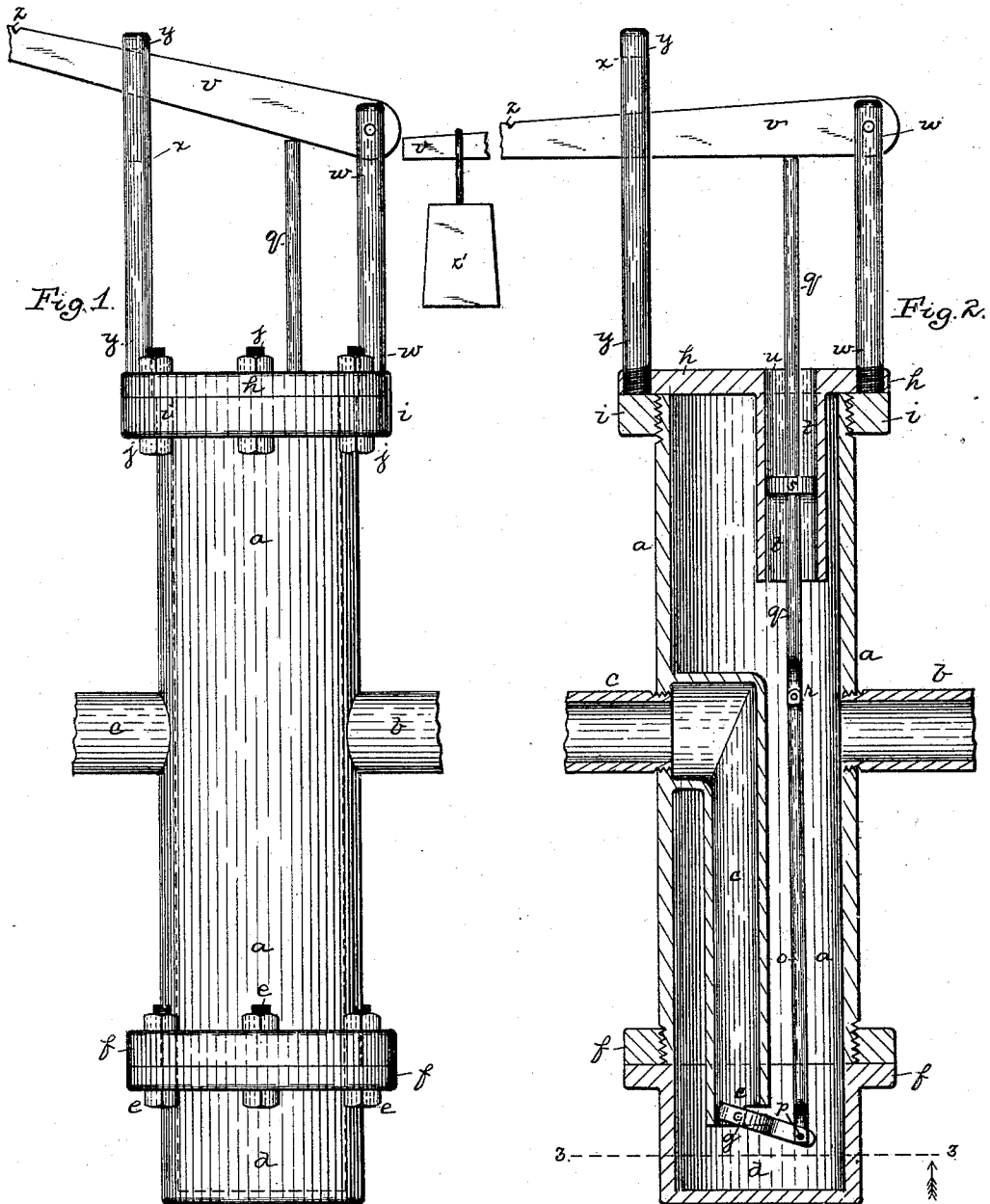


(No Model.)

G. H. PURDY.  
PRESSURE REGULATOR.

No. 469,505.

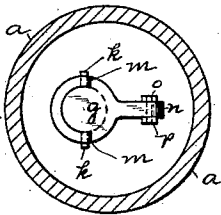
Patented Feb. 23, 1892.



Witnesses:

J. N. Crookey  
Chas. D. Lottin

Fig. 3



Inventor:  
George H. Purdy  
By James S. Hall  
Attorney

# UNITED STATES PATENT OFFICE.

GEORGE H. PURDY, OF PARKERSBURG, WEST VIRGINIA, ASSIGNOR OF  
ONE-HALF TO EDWIN HARRIS, OF SAME PLACE.

## PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 469,505, dated February 23, 1892.

Application filed September 15, 1891. Serial No. 405,781. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. PURDY, a resident of Parkersburg, in the county of Wood and State of West Virginia, have invented a new and useful Improvement in Pressure-Regulators; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a regulator for regulating the supply of steam to the cylinder of a steam-engine or for other similar purposes for which it may be found applicable.

My invention consists, generally stated, in a suitable box or casing provided with inlet and outlet pipes, a valve hinged at opposite sides thereof to said outlet-pipe, and connections between said valve and a weighted lever, whereby said valve is opened or closed, according as the pressure of steam in said casing may vary.

It further consists in certain improvements and details of construction, all of which will be hereinafter set forth and claimed.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a side view of my improved regulator. Fig. 2 is a vertical section thereof, and Fig. 3 is a section on the line 3 3, Fig. 2.

Like letters indicate like parts.

The box or casing *a* may be of any suitable shape, preferably cylindrical, provided with the inlet supply-pipe *b* and the outlet-pipe *c*. The outlet-pipe *c* is preferably cast integral with the casing *a*, and extends down beyond the lower ends of the walls of said casing, as shown in Fig. 2, and the cup *d*, forming the lower end of the casing, is secured to said casing by the bolts *e*, passing through the flanges *f*. By this form of construction, when the cup *d* is removed, access can be easily had to the lower end of the outlet-pipe *c*, to which the valve *g* is hinged. The upper end of the casing *a* is closed by the cap-piece *h*, secured to the flange *i* by the bolts *j*. The valve *g* is provided with the studs or journals *k* at opposite points of its circumference, said studs or journals *k* engaging with suitable bearings *m* in the lower end of the pipe *c*. In this manner a hinged connection is formed between the valve *g* and the pipe *c*, the valve *g*

turning in the bearings *m* to open and close the pipe *c*. Projecting from one side of the valve *g* is the tongue *n*. A rod *o* is connected to the end of the tongue *n* by the pivot *p*. The rod *o* extends up within the casing *a*, and is connected to the lower end of the piston-rod *q* by the pivot *r*. A piston *s* is secured to the piston-rod *q*, said piston fitting within the cylindrical chamber *t*, and being adapted to reciprocate up and down therein. The cylindrical chamber *t* is formed within the casing *a* and may be cast integral therewith. The piston-rod *q* passes up through a suitable opening in the top piece or cap-piece *h* of the casing. The cylindrical chamber *t* may be provided with the opening *u*, situated above the piston *s* to allow for the escape of any steam which may find its way beyond said piston.

A weighted lever *v* is pivoted at its inner end to a standard *w* on the cap-piece *h* of the casing *a*, and said lever passes through a vertical slot *x*, formed in a similar standard *y* on said casing. The weighted lever *v* is provided with the notches *z*, with which the weight *z'* is adapted to engage. The upper end of the piston-rod *q* engages with the weighted lever *v* in any suitable manner, whereby any upward movement on the part of said piston-rod will elevate the weighted lever *v*.

The operation of my improved regulator is as follows: The weight *z'* is first adjusted at the proper notch in the weighted lever *v* according to the pressure at which said regulator is to act. The weight *z'* will normally hold the end of the lever *v* down, and consequently the piston-rod *q*. As the piston-rod *q* is connected with the rod *o* when said piston-rod is in its lowered position, the valve *g* will be turned in its bearings or opened. Steam enters the inlet-pipe *b*, and passing down into the casing *a* passes up through the outlet-pipe *c*. When the pressure in the casing *a* becomes sufficiently strong to overcome the resistance to the upward movement of the piston *s*, offered by the weight *z'*, then the said piston *s* will move up within the cylindrical chamber *t*, and through its connection with the tongue *n* on the valve *g* will cause said valve to turn on its hinges, and thereby

close or partly close said valve, as the case may be. This upward movement of the piston *s* will at the same time raise the weighted lever *v*. As soon, however, as the pressure 5 has diminished sufficiently the weight *z'* will of its own accord lower the lever *v* to its normal position, which action through the connections described will open again the valve *g*.

The pivots at *p* and *r* allow for a certain 10 amount of play on the part of the rod *o* as it ascends and descends. Any other form of joint may, however, be employed.

What I claim is—

1. The combination, with the casing *a*, pro- 15 vided with a chamber *t* at its upper end, of the inlet and outlet pipes *b c*, said outlet-pipe *c* extending below the walls of the casing *a* and into a cup *d*, secured to said casing, the valve *g*, hinged at opposite sides to said out- 20 let-pipe, the piston *s*, connections between

said valve and said piston *s*, which latter is adapted to reciprocate within the chamber *t*, and connections between said piston and a weighted lever adapted to open and close said valve, substantially as and for the purposes 25 set forth.

2. The combination, with the casing *a*, of the inlet and outlet pipes *b c*, the hinged valve *g*, the rod *o*, connected thereto and to the piston-rod *q*, the piston *s* within the chamber *t*, 30 and the lever *v*, supported by the standards *w* and *y* and carrying the weight *z'*, said lever adapted to be engaged by the piston-rod *q*, substantially as and for the purposes set forth.

In testimony whereof I, the said GEORGE 35 H. PURDY, have hereunto set my hand.

GEORGE H. PURDY.

Witnesses:

W. C. LOCKWOOD,  
JAS. A. WITHERELL.