W. MEMMERSHEIM.

STEAM PRESSURE REGULATOR.

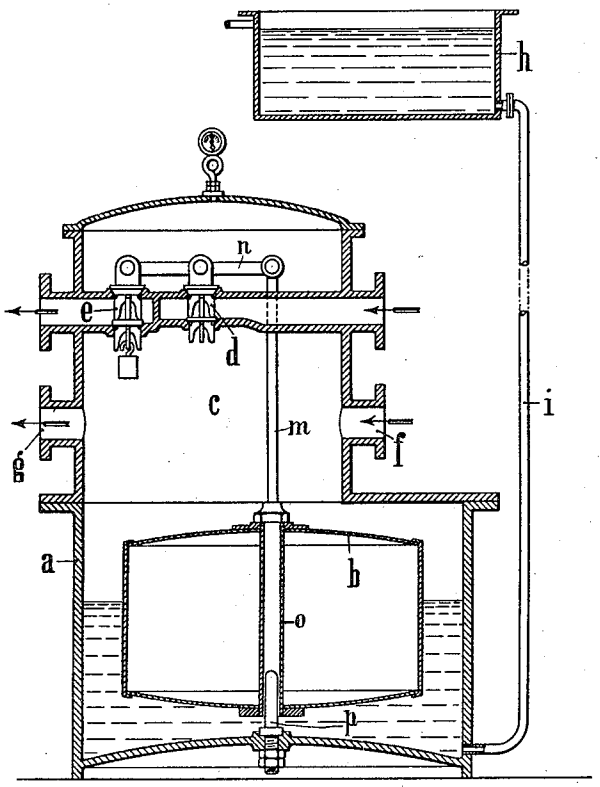
APPLICATION FILED AUG. 14, 1911.

1,013,199.

Patented Jan. 2, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Hubert F. Brix
Erich Pannehl

Inventor:
Werner Memmersheim.
by B. Singer
Attorney.

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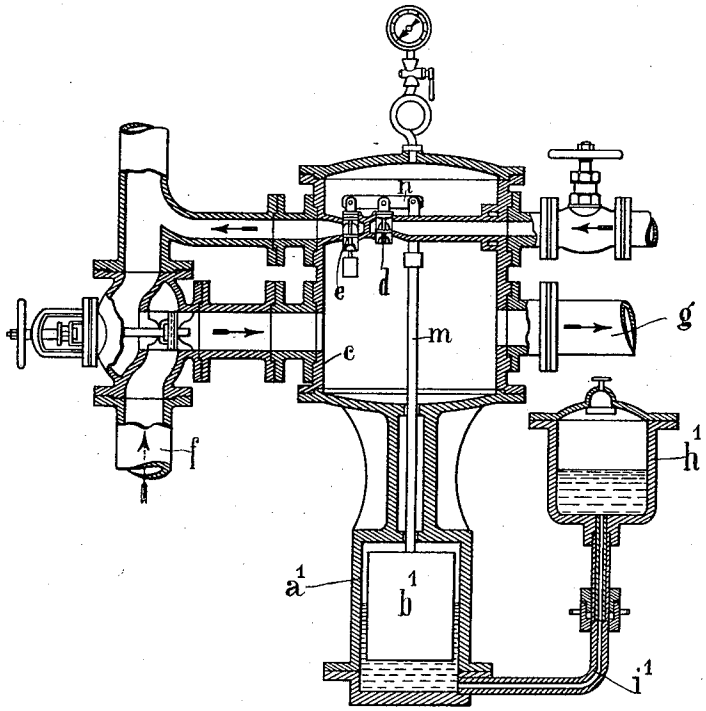
2 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Herbert G. Britz

Erich Pannekl

Inventor:

Werner Memmersheim.

by P. Singer

Attorney.

UNITED STATES PATENT OFFICE.

WERNER MEMMERSHEIM, OF NEHEIM, GERMANY.

STEAM-PRESSURE REGULATOR.

1,013,199. Specification of Letters Patent. Patented Jan. 2, 1912.

Application filed August 14, 1911. Serial No. 644,010.

To all whom it may concern:

Be it known that I, WERNER MEMMERSHEIM, a subject of the German Emperor, and residing at Neheim-on-the-Ruhr, Westphalia, Germany, have invented certain new and useful Improvements in Steam-Pressure Regulators, of which the following is a specification.

This invention relates to steam pressure regulators, operated by a floater and serving to feed exhaust steam and live steam to the points of use and automatically regulate this feeding to a predetermined tension. The previously known devices, serving for this purpose, partly contain plungers and partly friction mechanisms, which have the disadvantage that the regulators jam and bind easily or leak and accordingly become inoperative sooner or later.

The purpose of the present invention is to remove this objectionable feature and the arrangement is such that plungers and similar friction mechanisms and springs have been entirely omitted.

According to the present invention, the valve for the discharge pipe of the surplus of exhaust steam, the valve for the feed pipe of possibly wanted live-steam and the floater are pivotally connected by a lever in such a manner that the fulcrum of the lever lies upon the valve, when the latter is in inoperative position, so that thereby the valves are closed separately or simultaneously.

My invention will now be fully described with reference to the accompanying drawings in which two forms of construction are shown.

Figure 1 is an elevation of a steam pressure regulator, operated by a water column and:—Fig. 2 represents an elevation showing a steam pressure regulator operated by a mercury column.

Referring to Fig. 1 of the drawing, the steam pressure regulator consists of the casing *a* containing the floater *b*, the valve casing *c* arranged above the casing *a* and containing the valve *d* for the entrance of the live-steam and the valve *e* for the discharge of the surplus exhaust-steam, of the connecting pipe *f* for the entrance of the exhaust-steam and the connecting pipe *g* for the discharge-pipe of the steam leading to the point of use. Above the regulator is provided the counter-pressure receptacle *h*, connected with the floater casing by a tube *i*. The valve *e* for the discharge of the surplus exhaust steam is provided with a weight. The floater carries a rod *m*, on the end of which is pivoted a lever *n*, pivotally connected with both valves. A tube *o* is axially extending through the floater *b* and slides on a pin *p*, provided on the bottom of the casing *a*, for the purpose of guiding the floater. The manner of operation of the arrangement described is the following:—

When the tension of the steam is too low, water flows from counter-pressure receptacle *h* through the tube *i* into the floater casing *a*, so that the floater *b* is raised. Thereby the valve *d* is opened so that now live-steam enters, until the tension of the steam has reached the necessary degree again.

When an excess of pressure forms in the casing *a*, the water is pressed backward into the counter-pressure receptacle *h*, in consequence of which the floater *b* sinks and closes the valve *d* for the live-steam.

In case the feeding of exhaust steam is greater than the consumption of it, still more water will be pressed backward from the floater casing *a* into the counter-pressure receptacle *h*, so that the floater sinks still lower and opens the valve *e*, through which now escapes the surplus of the steam.

The modification of the steam pressure regulator shown in Fig. 2 is adapted for higher pressures and accordingly is not operated by a water column but by a mercury column.

The storage tank h^1 is connected by pipe i with the casing a^1, in which the floater b^1 is arranged. This floater is under the influence of the mercury column in said parts a^1, i^1 and h^1 and of the steam pressure in the casing *c*.

What I claim to be new and desire to secure by Letters Patent is:—

1. In a steam-pressure regulator for exhaust and live steam, a valve provided in the discharge pipe for the surplus steam, a valve provided in the feed-pipe for the necessary live-steam, a floater being pivotally connected to said valves by means of a rod and a counter pressure receptacle connected with the floater casing by means of a tube.

2. In a steam pressure regulator for exhaust and live steam, a valve provided in the discharge pipe for the surplus steam, a valve

provided in the feed pipe for the necessary live steam and a floater arranged in a casing and being pivotally connected to the operating lever of said valves by means of a rod, the arrangement being such, that the fulcrum of said lever lies always on that valve, which is in inoperative position.

In testimony whereof I affix my signature in presence of two witnesses.

WERNER MEMMERSHEIM. [L. S.]

Witnesses:
ALBERT P. MEYER,
LOTTA LOOKMANN.