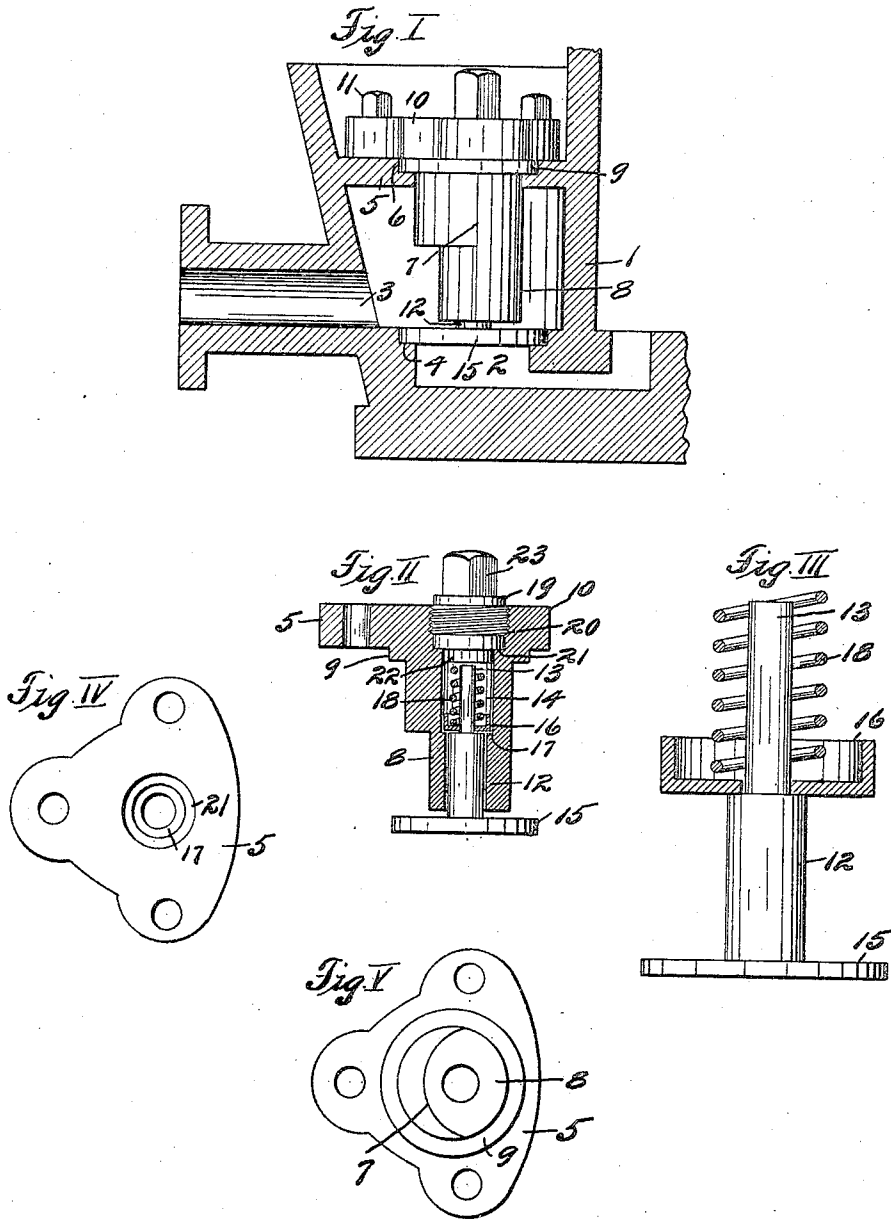


S. A. PALMER.
REGULATING VALVE.
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942,972.

Patented Dec. 14, 1909.



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REGULATING-VALVE.

942,972.

Specification of Letters Patent.

Patented Dec. 14, 1909.

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To all whom it may concern:

Be it known that I, STEPHEN A. PALMER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Regulating-Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a regulating valve, and more particularly to a device of that class for regulating the flow of ammonia, in a refrigerating machine; the object of the invention being to secure a constant flow of ammonia under varying pressures by manually adjusting the pressure of a spring upon the valve. In accomplishing this object I have provided the improved details of structure presently described and illustrated in the accompanying drawings, in which:—

Figure I is a detail view of a valve constructed according to my invention, the valve casing being in section to better illustrate the parts. Fig. II is a side view of the valve and valve bonnet, the latter being in central vertical section. Fig. III is an enlarged view of the valve piston. Fig. IV is a top plan view of the valve bonnet. Fig. V is a bottom plan view of same.

Referring more in detail to the parts:—1 designates a valve casing, having an intake port 2 and an outlet port 3, the former provided with an inset shoulder 4 to form a seat for a valve head.

5 designates a diaphragm that extends through the casing 1 above the intake port and is provided with an opening through which a valve bonnet is adapted to extend, the diaphragm being shouldered downwardly at 6, within the perforation, to form a seat for a supporting flange on the valve bonnet, as presently described.

7 designates the valve bonnet which comprises a barrel 8 that is adapted to project through the opening in diaphragm 5 and has a flange 9 adapted to seat on shoulder 6 and a cap 10 that is adapted to seat on the diaphragm, the cap being provided with screws 11 by which it is secured to said diaphragm. The barrel chamber comprises a number of portions of different diameters, the lower of

which is adapted to contain the valve piston body 12, which has an upwardly projecting shank 13 that projects into the middle chamber 14, and a lower head 15 that seats on the casing shoulder 4.

16 designates a spring cup that fits over shank 13 and is adapted to seat against the shoulder 17 formed by the enlargement of the barrel chamber, and contains the lower end of a coil spring 18, which also surrounds the shank 13 and bears, at its upper end, against the head of a regulator plug 19. Plug 19 has a body member 20 that is threaded into the upper portion of the bonnet chamber and seats on a shoulder 21 formed by the enlargement of such chamber, there being a head 22 extending from such body member into the chamber portion 14 where it is engaged by the spring 18 and is in position to limit the travel of the valve piston.

23 designates a nut cap on plug 19 by means of which the plug is turned.

In assembling the parts, the piston head 15 is posited in the seat formed by the shoulder 4 and the bonnet projected through the opening in diaphragm 5 and over the piston shank and body. The spring cup 16 is then slipped over the piston shank to its seat on the body member 12. The bonnet cap is then secured to the diaphragm and the plug placed in the threaded opening in the bonnet and tightened until a desired tension is produced on the spring 18.

In using the valve, ammonia is admitted through the conduit to port 2 under sufficient pressure to raise the piston head 15 against the pressure of the spring 18, the elevation of the piston permitting the ammonia to pass through the port into the valve chamber and out through the conduit 3, the upward travel of the valve head being limited by the engagement of the piston shank with the plug head, so that a complete opening of the valve port is obviated.

By raising or lowering the plug, the tension on the piston spring is increased or decreased, and the limit of travel of the piston varied to adapt it for use under different pressures.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:—

1. A regulating valve comprising a valve bonnet, a piston body having a projecting shank, adapted for travel in said bonnet, a

spring surrounding said shank and supported by said body, a head on said piston body, and a plug adjustably mounted in said bonnet and adapted for constant engagement
5 with said spring and for engagement by said shank when the piston is raised against the tension of said spring.

2. A regulating valve comprising a casing having a valve chamber provided with intake and outlet ports, a diaphragm in said
10 casing, a valve bonnet projecting through said diaphragm, a piston comprising a body member adapted for travel in the lower portion of said bonnet and having a shank
15 adapted for travel in the upper portion thereof and a head located exterior to said

body and adapted for closing said intake port, a spring cup surrounding said shank and seated on said body member, a compression spring surrounding said shank and
20 seated in said cup, and a regulating plug adjustably mounted in the upper end of said bonnet, said plug being provided with an interior head adapted for engagement with
25 said shank and with a gripping head accessible from the exterior of the valve chamber.

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

STEPHEN A. PALMER.

Witnesses:

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