

(No Model.)

O. BÖHM.

AUTOMATIC TEMPERATURE REGULATOR.

No. 388,250.

Patented Aug. 21, 1888.

Fig. 3.

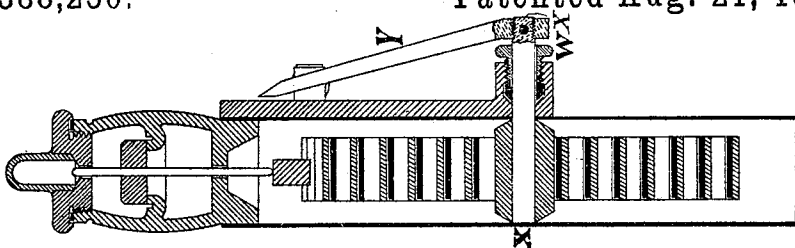


Fig. 2.

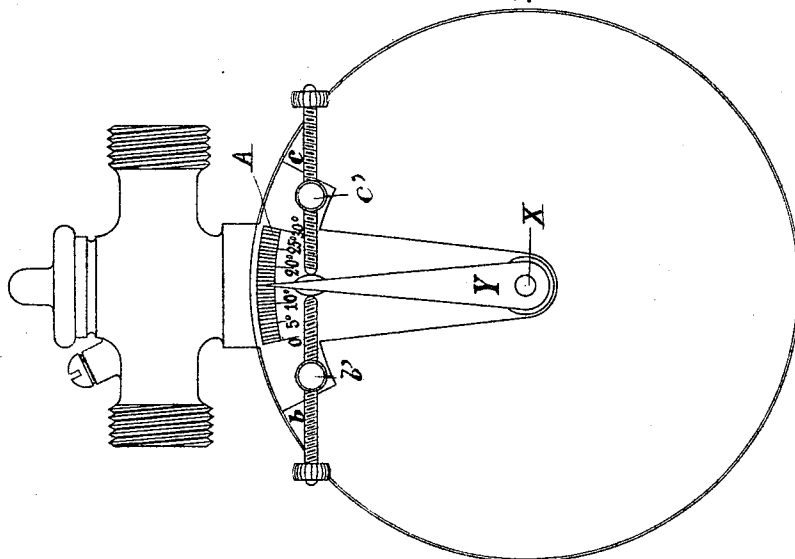
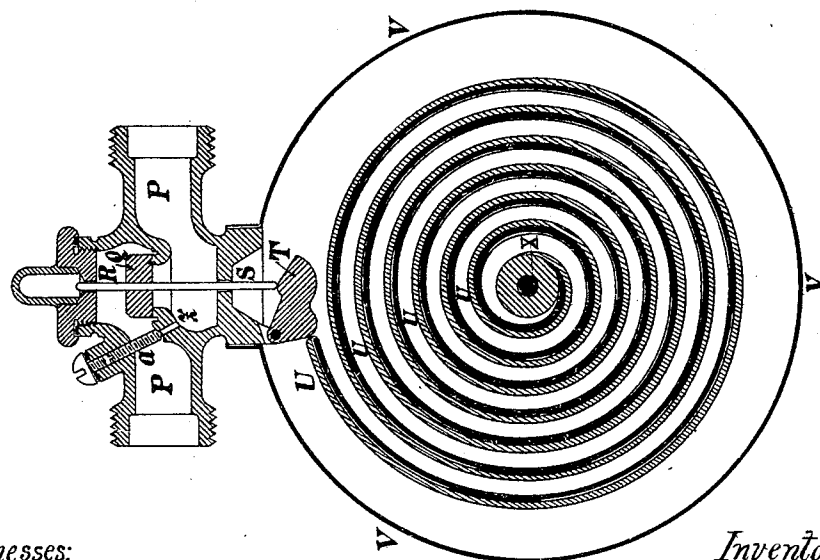


Fig. 1.



Witnesses:

Fred^m W. Rubien.

C. E. McDonald

Inventor:

Otto Böhm.

per. Junger & Ebner.
Attorneys.

UNITED STATES PATENT OFFICE.

OTTO BÖHM, OF STUTTGART, WÜRTEMBERG, GERMANY.

AUTOMATIC TEMPERATURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 388,250, dated August 21, 1888.

Application filed April 6, 1888. Serial No. 269,853. (No model.)

To all whom it may concern:

Be it known that I, OTTO BÖHM, a subject of the King of Würtemberg, residing at Stuttgart, in the Kingdom of Würtemberg and Empire of Germany, have invented a new and useful Improvement in Automatic Devices for Regulating the Temperature of Gas-Heating Apparatus, of which the following is a specification.

10 The nature of the invention consists in the combination, with a hollow cylindrical case and a cock mounted thereon, said cock having within it a valve and valve-stem by the motion of which the flow of a current of gas passing through said cock is controlled, of a spiral spring within said case, attached by its inner end to a shaft within the interior of said case and having its outer end bearing upon a lever pivoted to said cock, said spring being composed of two strips of different kinds of metal, of equal length and of differing dilatibility, so arranged that the more expansive metal is placed within, so that as the spring is heated it will tend to unwind and as it grows cooler it will tend to wind up, a lever pivoted to said cock, moved by said spiral spring, and itself bearing upon and moving said valve-stem to control the flow of gas as aforesaid, an index-hand mounted upon said shaft without the said case and moving upon a graduated arc upon the exterior of said case, and two screws working in nuts attached to said case, one on either side of said index-hand, to limit its motion.

15 The nature of the invention also consists in the details of combination and construction, substantially as illustrated in the drawings hereinafter described and subsequently pointed out in the claims.

20 Figure 1 is a vertical sectional view illustrating my invention. Fig. 2 is an exterior view illustrating my invention. Fig. 3 is a sectional view illustrating the same on a plane at right angles to the plane of Fig. 1.

25 V designates the cylindrical case. Upon this is mounted the gas-cock P. Within this cock is the valve Q, adapted to fit upon a seat in said cock and close off the flow of gas through said cock. The stem of this valve is guided by the bearings S and R, and, extending below the bearing S, rests upon the lever T. This lever is pivoted to a lug at the lower side of said cock, is of the form illustrated,

and moved by the spring U. The spring U is of spiral form, composed of two strips of metal of different kinds and of different dilatibility. These two different strips of metal are fastened together through the whole length of the spring, and the more expansive of the two is placed upon the inner side of the spring. The inside end of this spring is fastened to a shaft, X, which passes within said cylindrical case. The other end of this spring U rests upon the lever T. Without the case V, upon the shaft X, is mounted the index-hand Y, which moves over the graduated arc A, also without the said case. This arc may be graduated to represent different degrees of temperature. The screws *b* and *c*, working in the nuts *b'* *c'*, can be so adjusted as to limit the motion of the index-hand on either side. The hole *z* of the stop-cock P is provided with a conical pointed screw, *a*, by means of which it may be closed or opened at pleasure.

30 To use this device it must be placed where the heat of the gas-heating apparatus will affect the spring U sufficiently to cause it to expand when heated. As soon as the spring grows cooler it begins to contract. This draws the end of the spring U against the lever T, and, turning it on its pivot, causes it to raise the valve-stem and valve Q. This allows the gas to flow in larger quantities through the cock P into the heater to produce a higher temperature. With the rising temperature, the expanding spring moves away from the lever T, and the valve Q is allowed of its own weight to fall back on its seat and shut off the gas, and thus an equal temperature of the heating apparatus may be obtained. The screw *a* may be adjusted in the hole *z*, so that there will always pass enough gas to keep the heater burning when the valve Q is shut off.

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

1. The combination, with a hollow cylindrical case and a cock mounted thereon, said cock having within it a valve and valve-stem by the motion of which the flow of a current of gas passing through said cock is controlled, of a spiral spring within said case, attached by its inner end to a shaft within the interior of said case and having its outer end bearing upon a lever pivoted to said cock, said spring being composed of two strips of two different

kinds of metal, of equal length and of different dilatability, so arranged that the more expansive metal is placed within, so that as the spring is heated it will tend to unwind and as it grows cooler will tend to wind up, a lever pivoted to said cock, moved by said spiral spring, and itself bearing upon and moving said valve-stem to control the flow of gas as aforesaid, an index-hand mounted upon said shaft without the said case and moving upon a graduated arc upon the exterior of said case, and two screws working in nuts attached to said case, one screw on either side of said index-hand, to limit its motion, substantially as and for the purpose set forth.

2. The combination, with the cylindrical case V and the cock P, mounted upon said cylindrical case, the valve Q and its stem, the

screw e, and the hole z within said cock, of the lever T, pivoted to said cock, the spring U, attached by its inner end to the shaft X and bearing with its outer end upon the lever T, the shaft X, journaled in said cylindrical case, the index-hand Y, mounted upon said shaft, moving upon the graduations A, the graduated arc A, and the screws b and c, working in nuts upon said case and limiting the motion of said index-hand, all substantially as and for the purpose set forth.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 16th day of January, 1888.

OTTO BÖHM.

Witnesses:

AUGUST HECTTLER,
ADOLF BRANTZ.