(No Model.)

J. D. BOWMAN.

THERMOSTATIC REGULATOR FOR GAS BURNERS.

No. 542,234. Patented July 9, 1895.

Fig. 1.

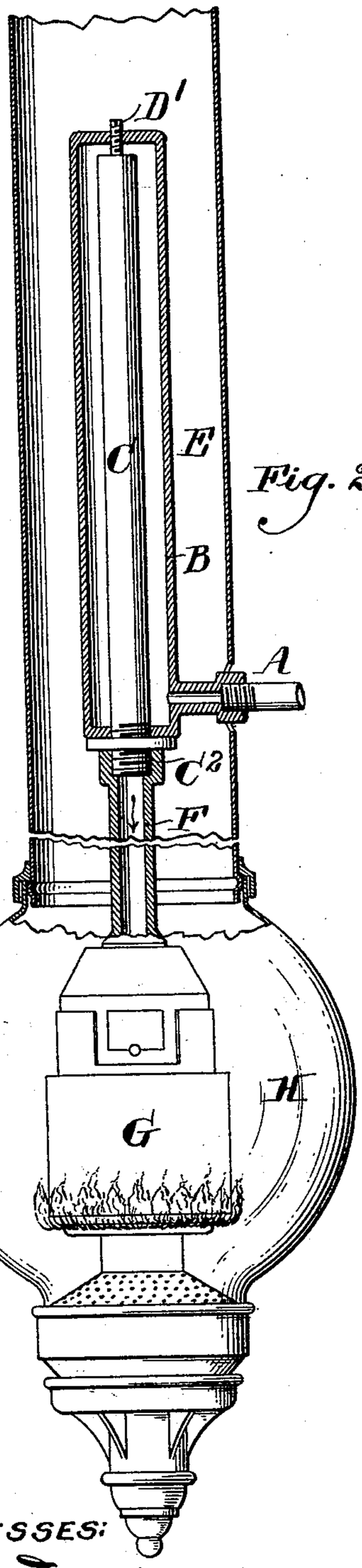
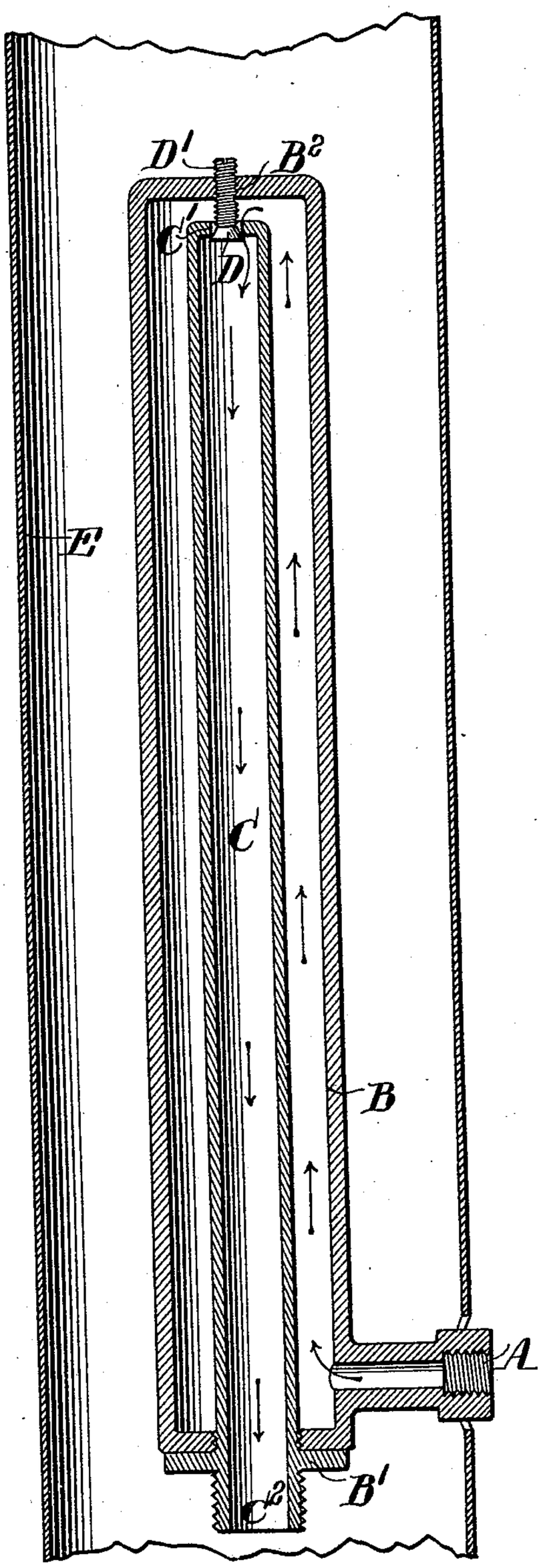


Fig. 2.



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THERMOSTATIC REGULATOR FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 542,234, dated July 9, 1895.

Application filed March 1, 1895. Serial No. 540,145. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. BOWMAN, a citizen of the United States, residing in the city of Altoona, county of Blair, State of Pennsylvania, have invented a certain new and useful Improvement in Thermostatic Regulators for Gas-Burners, of which the following specification is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to the regulation of the flow of gas to a burner by the heat generated by said burner, and which generally is greater or less as the light of the flame is greater or less; and my object is to provide a simple, durable, and reliable thermostatic regulator which can be secured in the chimney or take-off of the burner-gases.

My invention will be best understood as described in connection with the drawings, in which it is illustrated, and in which—

Figure 1 is an elevation, partly in section, of a burner provided with my improvement; and Fig. 2 is a sectional elevation, on a larger scale, of my regulator.

A is a gas-entrance port, which is connected by any convenient piping to a gas-reservoir (not shown) and which enters the tubular casing B, preferably near its bottom. The casing B is provided with a threaded opening B′ at its bottom and preferably with a threaded hole B^2 at its top. It is made of such diameter as may be convenient in view of the area of the flue or chimney E in which it is to be placed, and its length is determined by the amount of expansion desired. I have found eight inches to be sufficient for good results.

C is a tube which enters and opens through the bottom of casing B, as by screwing into its orifice B′, as shown at C^2. It is open, or, rather, has an opening C′ at its top near the top of casing B, and this opening is controlled and regulated in area by a valve D, which is secured to the upper end of casing B, preferably by a screw D′, passing through the threaded opening B^2, as shown, and by which the position of the valve can be adjusted.

F is a pipe connection uniting the end C^2 of pipe C with a gas-burner, such as G, and H is a globe around the burner, connecting with chimney E.

It will be seen that the hot gases from the burner surround the casing B, which, of course, is expanded by the heat, while the pipe C is not only protected from heat by the casing but kept materially cooler than B by the gas flowing around and through it. It will also be obvious that by introducing the gas near the lower end of the casing and withdrawing it from its upper end it will be heated to a considerable degree in passing through the annular space between the casing and tube, and this is of pronounced advantage in its economical use. The tube C will usually be made of a metal having a less rate of expansion than that of casing B; but the difference in the temperatures to which they are exposed would of itself cause an unequal rate of expansion. It is obvious, of course, that each movement of lateral expansion in casing B will draw valve D closer to its seat C′, and thus narrow the orifice through which gas flows to pipe C and the burner, while a fall of temperature and consequent decrease of length in the casing will force valve D away from its seat and increase the flow of gas.

I have referred to the upper and lower ends of the casing and tube as a convenient way of distinguishing the parts; but it will be understood that the structure and my invention would be the same in any position the casing might assume.

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

1. A thermostatic regulator for gas burners consisting of an outer tubular casing B, an inner tube C secured to and extending through the casing at one end and opening into said casing at its other end, and a valve D secured to the upper end of casing B and arranged to operate on the open end of tube C as the casing expands and contracts.

2. A thermostatic regulator for gas burners consisting of an outer tubular casing B, an inner tube C secured to and extending through the casing at one end and opening into said casing at its other end, and an adjustable valve D secured to the upper end of casing B and arranged to operate on the open end of tube C as the casing expands and contracts.

3. A thermostatic regulator for gas burners consisting of an outer tubular casing B, an inner tube C secured to and extending through the casing at one end and opening into said casing at its other end, a gas entrance port situated near the lower end of casing B, and a valve D secured to the upper end of casing B and arranged to operate on the open end of tube C as the casing expands and contracts.

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