

(No Model.)

M. C. BRAGDON.
AUTOMATIC GAS VALVE.

No. 386,520.

Patented July 24, 1888.

Fig. 1,

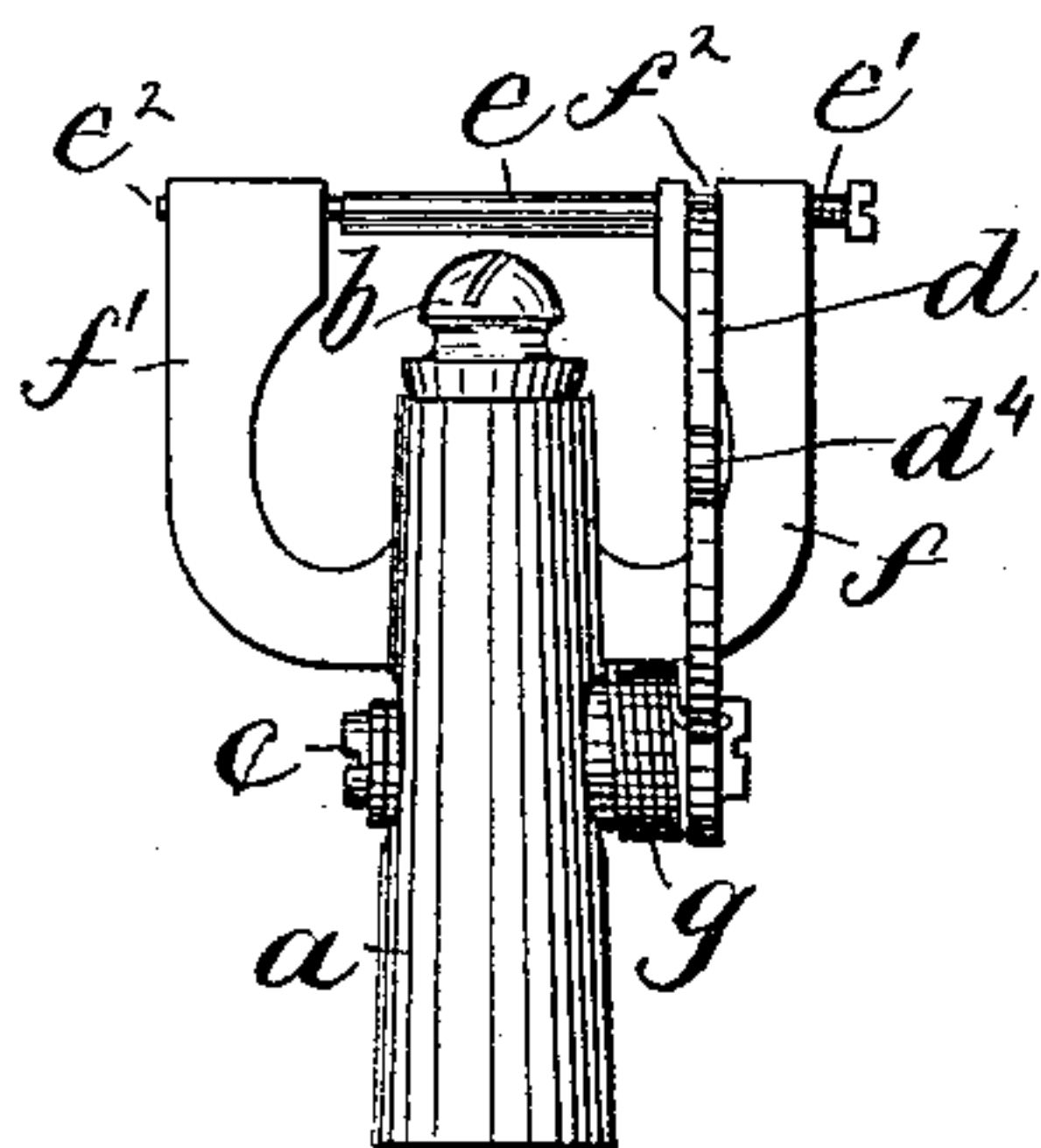


Fig. 2

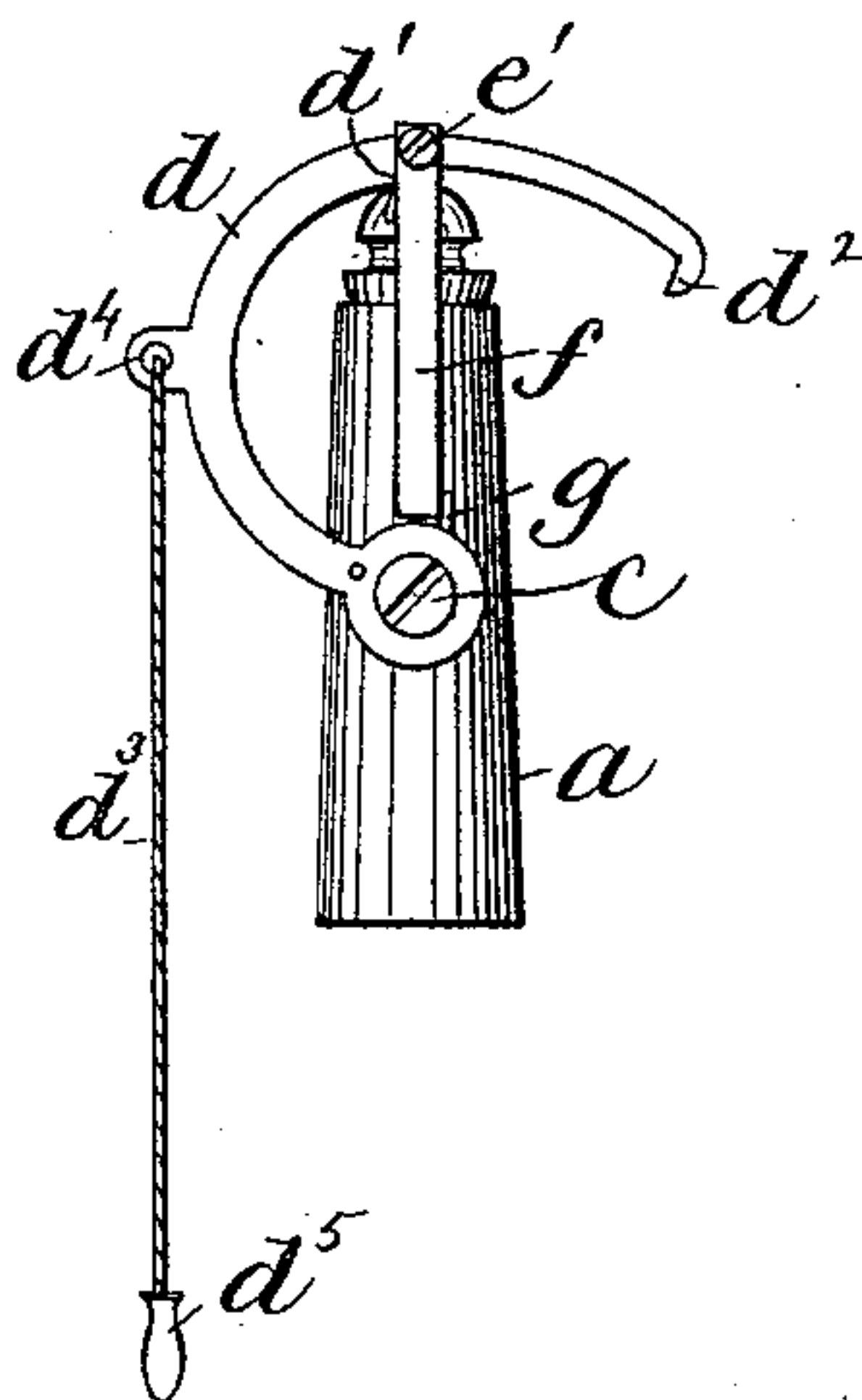


Fig. 3

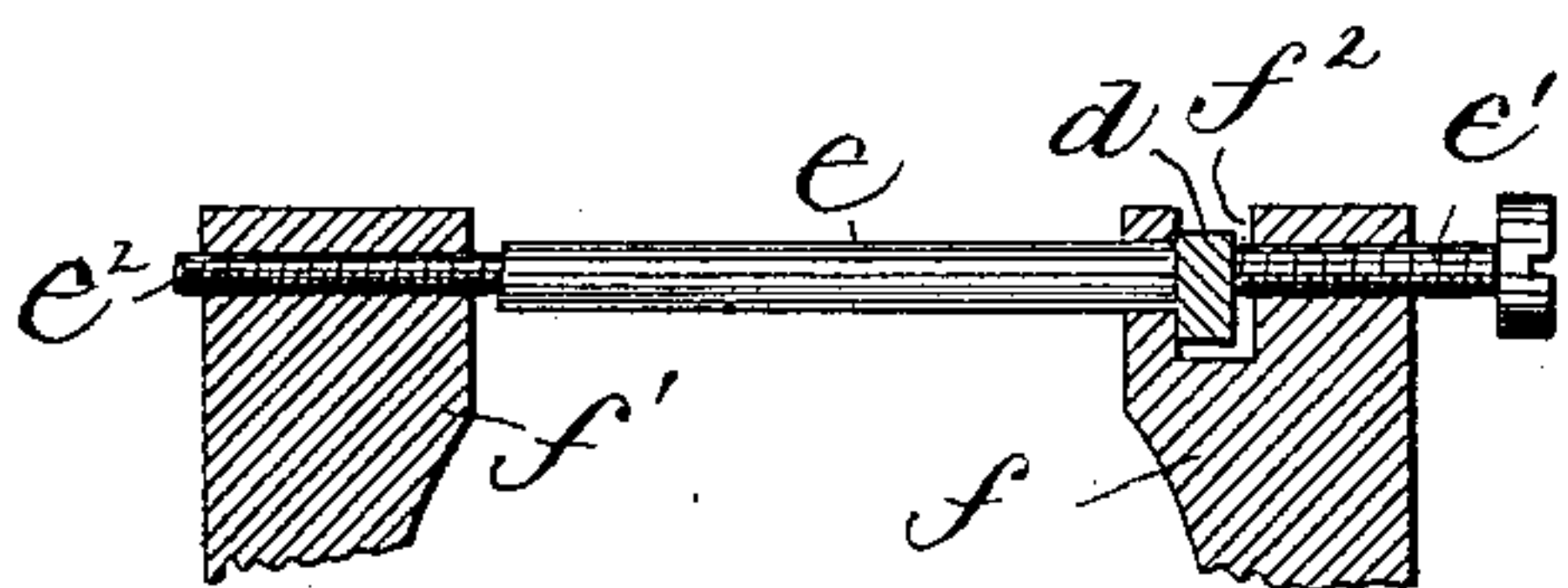


Fig. 5,

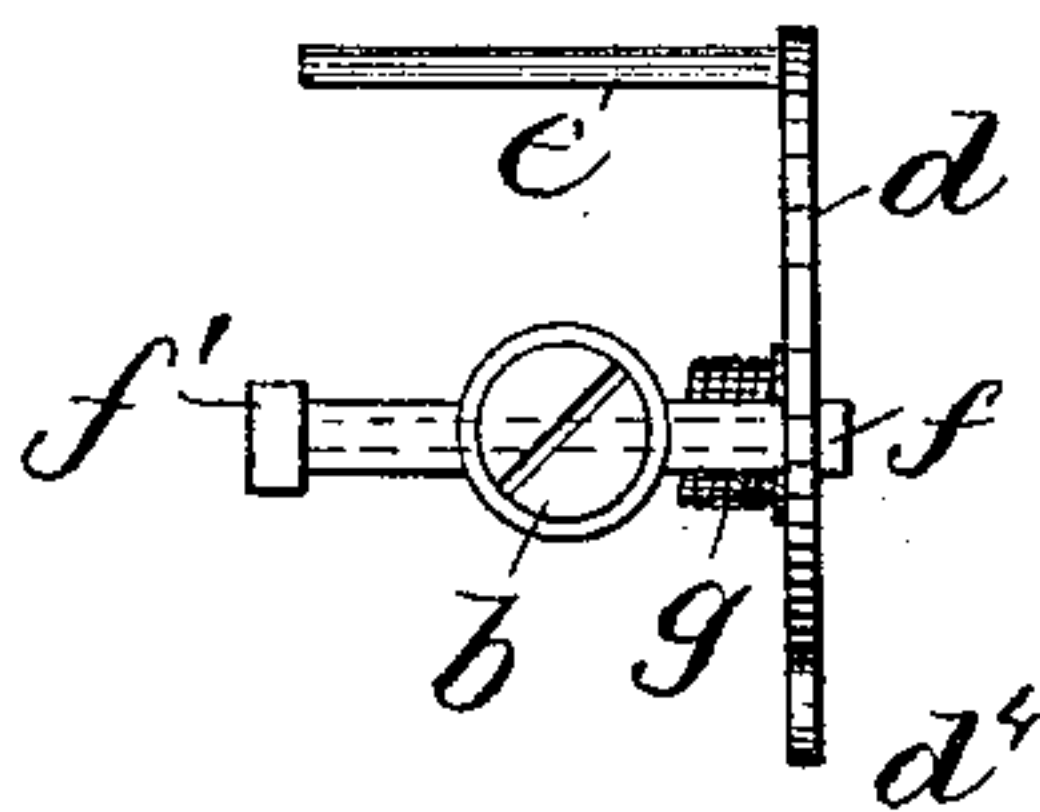


Fig. 4,

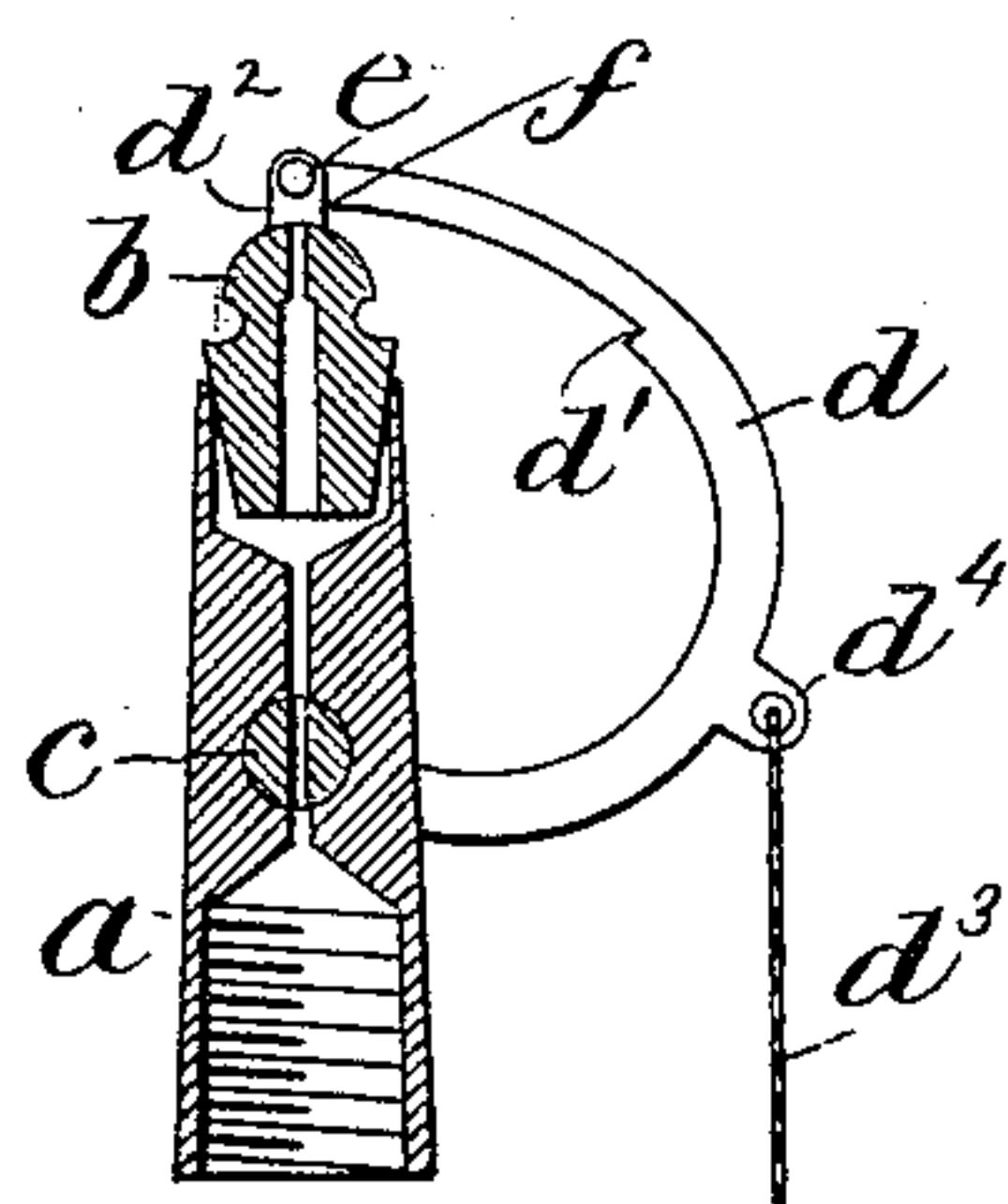
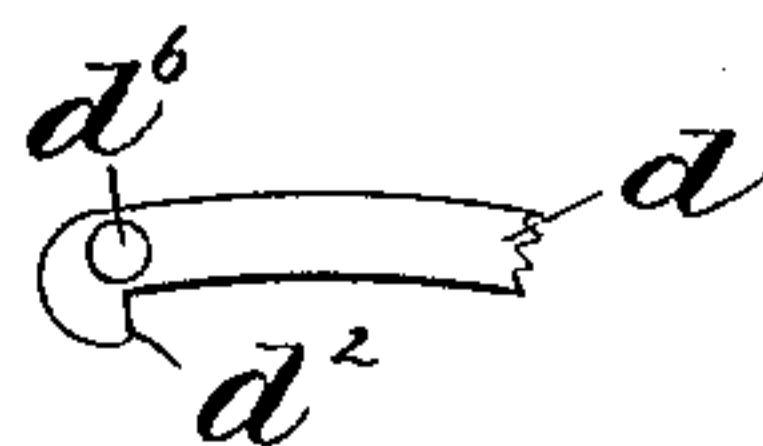


Fig. 6.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC GAS-VALVE.

SPECIFICATION forming part of Letters Patent No. 386,520, dated July 24, 1888.

Application filed April 19, 1887. Serial No. 235,326. (No model.)

To all whom it may concern:

Be it known that I, MELVILLE C. BRAGDON, of Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Automatic Gas-Valves, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to an automatic gas-valve by which the flow of gas is automatically stopped immediately after the flame has been extinguished, so that the gas cannot escape if the flame has been extinguished in any other manner than by turning off the gas, thus preventing accidents that occur when the gas is blown out.

The invention is embodied in a gas-burner having a valve controlled by a thermo device consisting of a metallic rod or bar arranged to be exposed to the flame and acting by its direct linear expansion to clamp or lock an arm or lever connected with the valve.

Figure 1 is a front elevation of a gas-burner provided with an automatic valve embodying this invention; Fig. 2, a side elevation thereof, showing the parts in the position assumed when the valve is closed; Fig. 3, an enlarged sectional detail of the thermal locking device; Fig. 4, a longitudinal section of the burner with the valve in its open position; and Figs. 5 and 6, modifications, to be referred to.

The burner-tube *a*, provided with a tip or jet, *b*, of any suitable or usual construction, contains a cock or valve, *c*, which may be of usual construction, controlling the passage through the said burner-tube, being arranged to open or close the said passage by a small angular movement, as will be readily understood from Fig. 4. The said valve is provided with a controlling arm or lever, *d*, shown as curved upwardly and arranged to be operated upon by the thermal locking device *e*. (Best shown in Figs. 1 and 3.)

The burner-tube is provided with upwardly-extending arms or brackets *f f'*, the former of which is notched at *f²* to receive the arm *d*, which is provided with shoulders *d' d²*, that co-operate with the said bracket to limit the movement of the arm *d* and connected valve *c*, which is acted upon by an actuating device (shown as a spring, *g*) tending to turn the arm until the shoulder *d'* thereof is brought in en-

gagement with the bracket *f*, in which position the valve is closed.

The thermal device *e* consists of a metallic rod or bar, having one end fastened in the bracket *f'* and its other end free to move in an opening in the bracket *f*, that passes into the notch *f²* thereof, and the bar *e* is so set or adjusted that at ordinary temperatures it will not extend into the notch *f²*, so as to bear on the portion of the arm *d* therein; but when heated by the flame when the gas is lighted it will expand, so as to engage the said arm and clamp it firmly by pressure between the end of the rod *e* and the bracket *f* at the opposite side of the notch *f²*, or, preferably, an adjustable clamp member, *e'*, (shown as a screw,) having a tight fit in the bracket *f* and terminating opposite the arm *d*, so that when the rod *e* is expanded it will clamp the arm *d* tightly between it and the co-operating clamp member *e'*, and thus lock the said arm and the connected valve as long as the said rod *e* is retained heated.

In using the burner, the gas is first admitted by turning the usual key, and then, before it can be lighted, the arm *d* has to be turned to open the valve *c*, and retained in this position for a moment after the gas is lighted until the thermal clamping device has expanded and fastened it, a second or two only being required for the expansion of the bar *e*.

In order to facilitate the turning of the arm *d*, it is provided with an operating device (shown as a cord or wire, *d³*) connected with an eye, *d⁴*, on the arm, and provided with a suitable knob or handle, *d⁵*, so that by pulling down upon the said knob the valve *c* is opened.

In case the gas should be extinguished in any other way than by closing the usual valve, the rod *e* would cool in a few seconds' time, and release the arm *d* and permit the valve to be closed by the spring *g*, and if the usual valve should be opened accidentally at any time when the gas is not lighted the valve *c* would prevent the escape of gas.

Instead of using the adjustable member *e'* of the clamp the rod *e* might be adjustable at its point of attachment of the bracket *f'*, and it might be desirable to make it adjustable—for example, by a screw-thread, *e²*, (best shown in Fig. 3)—even when the screw *e'* is also em-

ployed; and instead of holding the arm *d* by friction or direct pressure the said arm might be provided with an opening or recess, as shown at *d'*, Fig. 6, to receive the end of the rod *e* when expanded, although it is believed to be better to hold the arm by friction.

In the modification represented in Fig. 5 the thermal device is connected with the end of the arm *d* and is brought in position to engage the bracket *f'*, as shown in dotted lines, by the movement that opens the valve.

The expansion of the rod *e* produces pressure between the brackets *f f'*, and thus fastens the rod and arm *d* in substantially the same manner as before described, the brackets *f f'* in both cases forming fixed abutments to receive the pressure of the clamping device.

It is obvious that the construction may be otherwise modified and mechanical equivalents substituted for the device shown without departing from the invention.

I claim—

1. The combination of the burner-tube provided with brackets *f f'* at each side of the tip,

with a gas-valve having a controlling-arm, *d*, working in one of said brackets, and an expansive rod or bar, *e*, located in position to be exposed to the flame and extending from one to the other of said brackets and constituting a locking device for said valve-controlling arm, substantially as described.

2. The combination of the burner-tube provided with brackets at opposite sides of the tip, with a gas-valve having a controlling-arm working in a notch in one of said brackets, a rod connected with the other bracket, extending over the burner, and terminating opposite one side of said arm, and a co-operating adjustable clamping member secured in the bracket at the other side of said arm, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MELVILLE C. BRAGDON.

Witnesses:

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JAS. J. MALONEY.