

(No Model.)

H. W. RAPPLEYE.
Gas Regulating Burner.

No. 238,435.

Patented March 1, 1881.

FIG. 1.

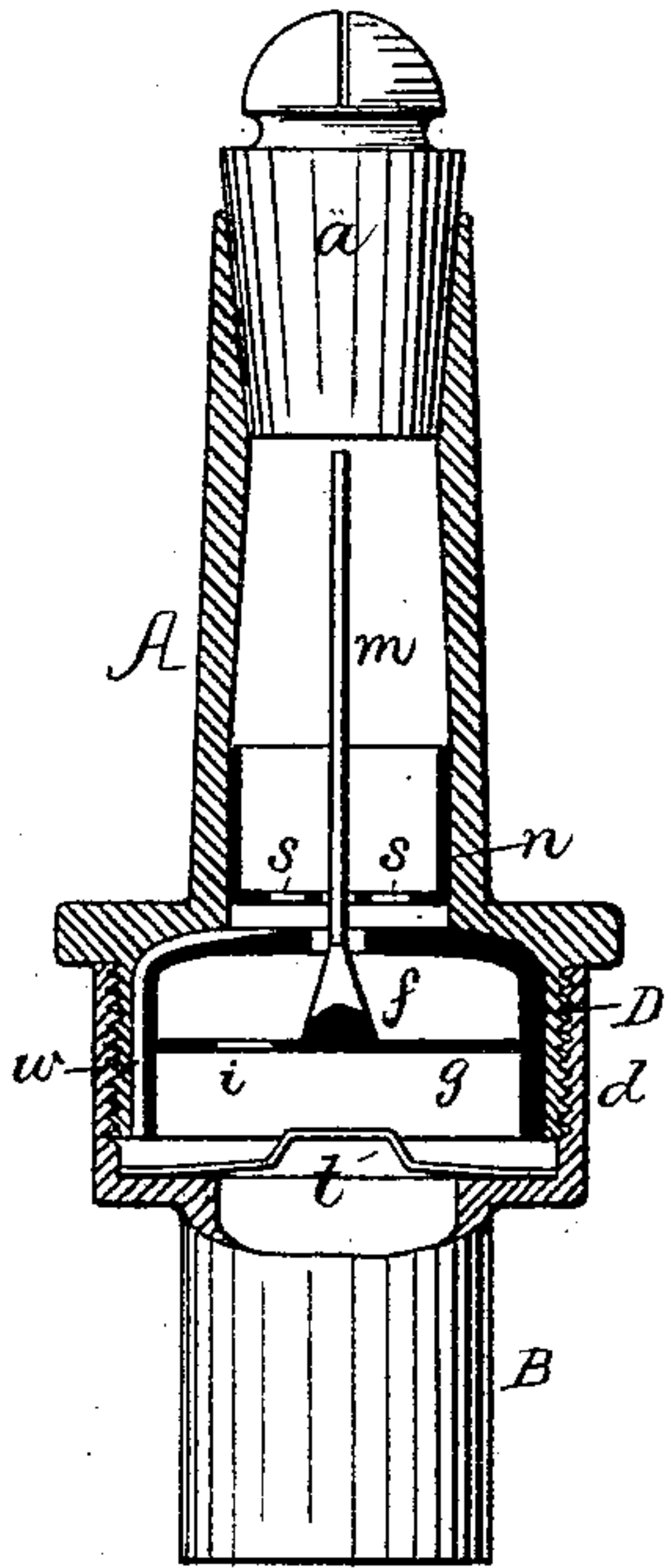


FIG. 3.

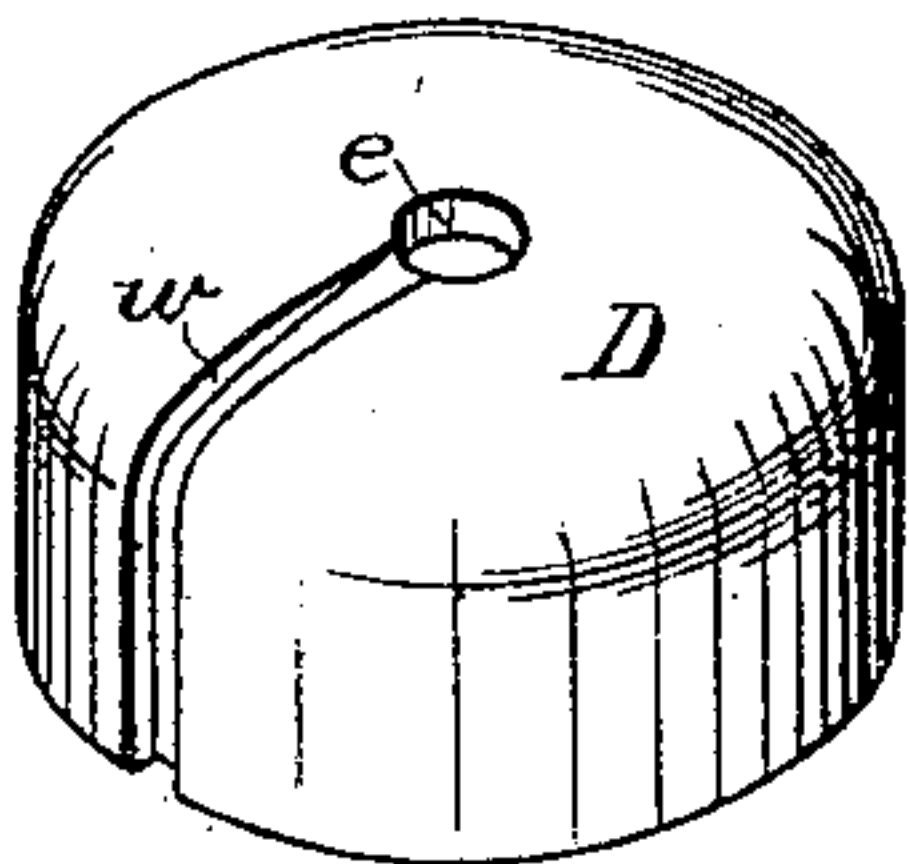
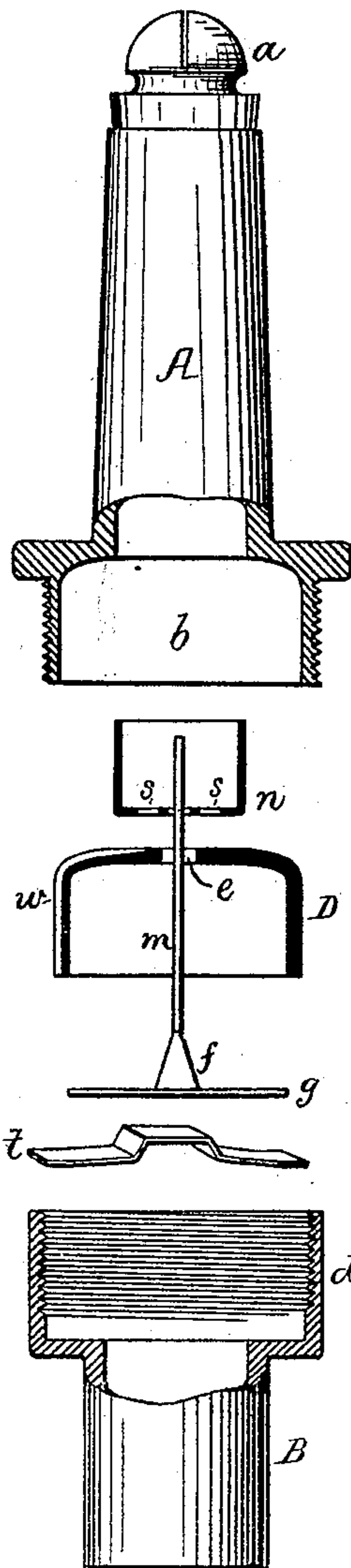


FIG. 2.



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UNITED STATES PATENT OFFICE.

HANNIBAL W. RAPPLEYE, OF PHILADELPHIA, PENNSYLVANIA.

GAS-REGULATING BURNER.

SPECIFICATION forming part of Letters Patent No. 238,435, dated March 1, 1881.

Application filed January 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, HANNIBAL W. RAPPLEYE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Regulating Gas-Burners, of which the following is a specification.

The objects of my invention are to simplify and cheapen the construction of the burner, to insure the accurate movement of the regulating-valve, and to prevent an undue diminution of the flow of gas through the burner when there is an excessive pressure in the pipes. These objects I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a regulating gas-burner constructed according to my invention; Fig. 2, a view, partly in elevation and partly in section, and showing the parts of the burner detached from each other; and Fig. 3, a perspective view of part of the device.

The upper portion, A, of the burner is provided with the usual lava tip *a*, and is enlarged in diameter at the lower end, so as to form a chamber, *b*, said enlarged portion of the burner being threaded for adaptation to the enlarged and internally-threaded upper portion, *d*, of the base B of the burner. To the chamber *b* is snugly fitted an inverted cup, D, having a central opening, *e*, to which is adapted the conical valve *f*, secured to or forming part of a piston, *g*, fitted to the cup D, so as to slide freely therein and provided with an opening, *i*. The stem *m* of the valve is adapted to a central opening in a guide-plate, *n*, fitted to the interior of the burner-tube A, and having flanges whereby its bearing in said tube is increased and its secure retention insured. The plate *n* has, in addition to the central opening for the valve-stem, openings *s* for the passage of the gas.

A transverse plate, *t*, having a central elevated portion, serves to retain the piston *g* above the mouth of the cup D, and thus prevents the jamming of the piston by the catching of the latter against the lower edge of the cup.

In putting the burner together the guide-plate *n* is first fitted to the burner-tube A,

the cup D is then driven into the chamber *b*, the piston *g* with its valve and valve-stem inserted, the plate *t* applied to the base, and the two parts A and B screwed together, as shown in Fig. 1.

Gas passes through the opening *i* in the piston, through the opening *e* of the cup D, and through the openings *s* of the guide-plate to the burner, the flow being governed by the position of the valve *f* in respect to the opening *e* of the cup D, a position which is automatically regulated by variations in the pressure of the gas on the under side of the piston *g*. Thus if the pressure of gas in the pipes is excessive the piston will be forced upward, and the valve *f* elevated, so as to restrict the freedom of the flow through the opening *e*, the piston descending and the valve opening as the pressure in the pipes decreases. In order, however, to prevent an undue restriction of the flow of gas to the burner such as would be caused by excessive upward pressure on the piston *g*, causing an undue closing of the valve *f*, I form in the outside of the cup D a groove, *w*, Fig. 3, so that when the cup is applied to the chamber *b* of the burner, as shown in Fig. 1, a passage is formed from the lower part of said chamber to the interior of the tube A of the burner, this passage being open at all times, and thus insuring a certain flow of gas to the burner independent of that allowed to pass through the opening *e* by the valve *f*.

The flow of gas through the opening *w* of course increases as the pressure in the pipes increases, and by this means I am enabled to maintain a uniform flow of gas through the burner-tip, the supply through the opening *w* increasing to compensate for any undue decrease in the flow through the opening *e*.

I claim as my invention—

1. The combination of the section A of the burner having a chamber, *b*, the base B, the perforated guide-plate *n*, the inverted cup D, having an opening, *e*, the piston *g*, adapted to the cup, the valve *f*, connected to the piston and adapted to the opening *e*, and the valve-stem *m*, adapted to the opening in the guide-plate *n*, as set forth.

2. The combination of the burner-casing, the regulating-valve and piston, and the in-

verted cup D, having an opening, *e*, and an external groove, *w*, forming with the burner-casing a gas-passage independent of the opening *e*, as set forth.

- 5 3. The combination of the burner-casing, the inverted cup D, the regulating valve and piston, and the transverse supporting-plate *t*, as specified.

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

H. W. RAPPLEYE.

Witnesses:

JAMES F. TOBIN,
HARRY SMITH.