W. S. DYER.

Gas Burner.

No. 41,981. Patented March 22, 1864.

Fig: 1.

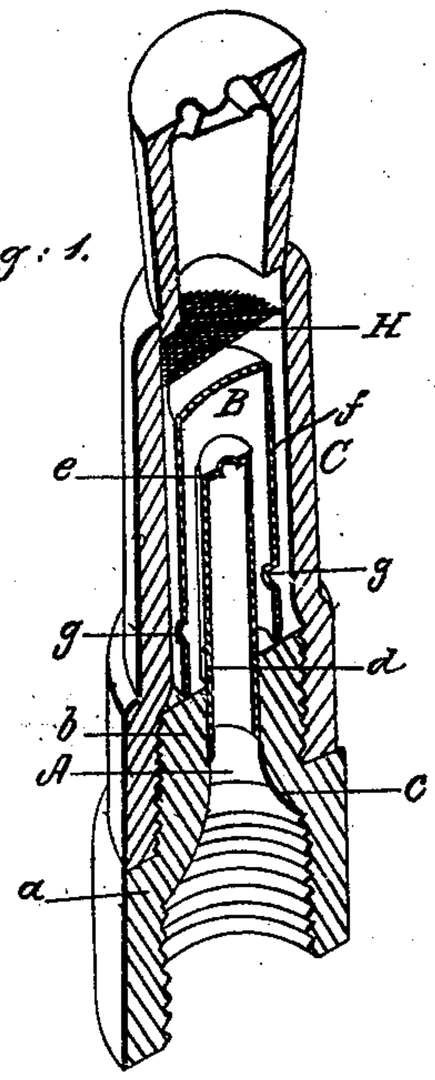


Fig: 2.

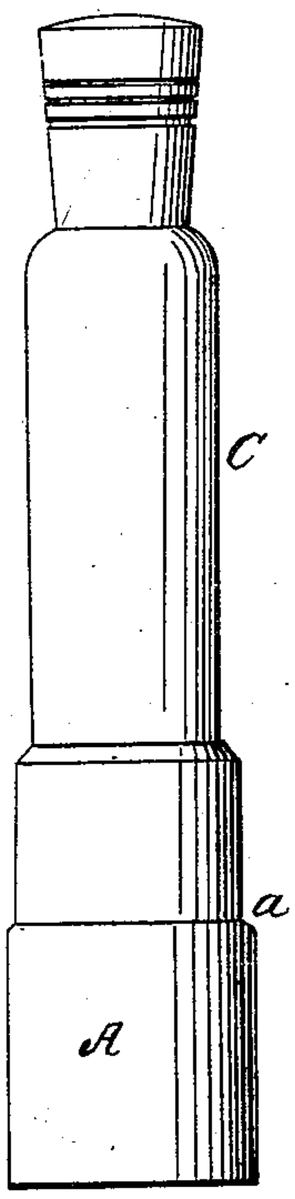


Fig: 4.

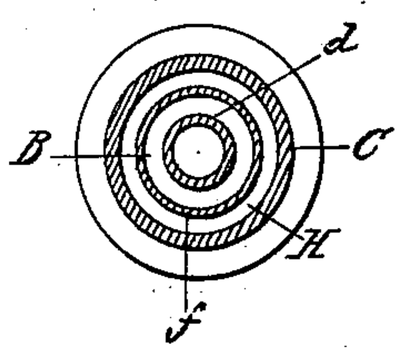
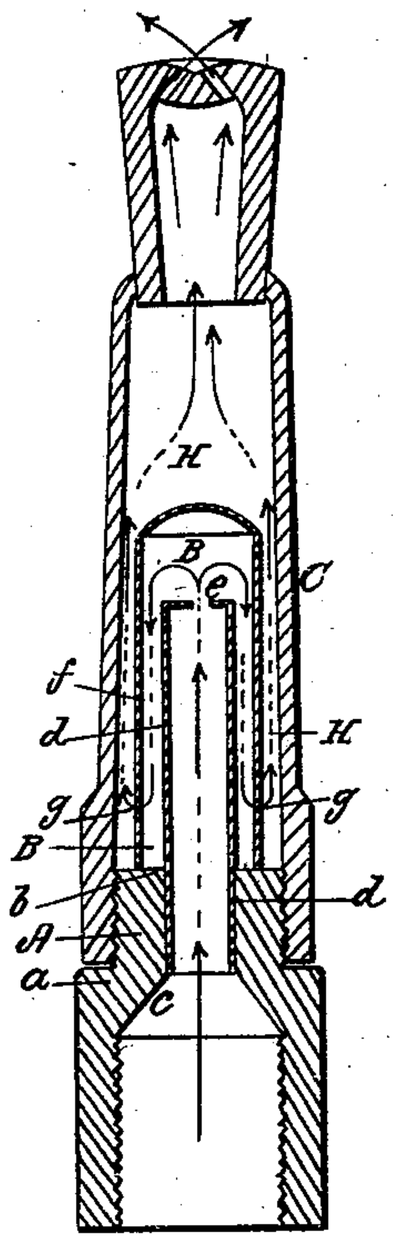


Fig: 3.



Witnesses:

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Inventor:

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by his Attys
Mason Fenwick & Lawrence.

UNITED STATES PATENT OFFICE.

WHITMAN S. DYER, OF PORTLAND, MAINE.

IMPROVEMENT IN GAS-BURNERS.

Specification forming part of Letters Patent No. **41,981**, dated March 22, 1864.

To all whom it may concern:

Be it known that I, WHITMAN S. DYER, of Portland, in the county of Cumberland, State of Maine, have invented a new and useful Improvement in Gas-Burners; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the acccompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective section; Fig. 2, a side view; Fig. 3, a vertical section, and Fig. 4 a horizontal section of my improvement.

The same letters of reference in the several figures indicate corresponding parts.

My invention relates to an improvement in the gas-burner patented by E. P. Gleason, April 14, 1857, and the design of my improvement is to more perfectly prevent the "blowing" of the gas-flame, when the pressure on is very great, than is accomplished with the Gleason gas-burner.

My invention has also for its object rendering practical the use of a gas-burner which has an unobstructed throat at a point below the device which produces the regular supply to the burning-orifices, and thus obviating any difficulty from choking with sediment at said point. The arrangement, as a whole, saves gas to the consumer and at the same time gives him a regular flame or light.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The leading idea in the construction of my burner is the formation of a chamber, B, above and all around the tube A, such chamber being inclosed by a tube, C, which has the jet-passages in its tip, and said chamber B being the receiver and checker of the gas as it flows from the tip of the tube A, and then the discharger of the same into the jet-tube near the base thereof as fast as the consumption at the burning-orifices requires.

From an inspection of the drawings it will be seen that the base A of the burner consists of an internally-screw-threaded tube, with a shoulder, *a*, and a reduced extension, *b*, rising from this shoulder, said extension being screw-threaded externally. The under side of the extension internally is cono-concave, as at *c*. Into the extension *b* a small brass or other metallic tube, *d*, is fastened, such tube having its upper end capped, and in this capped end a small orifice, *e*, is formed. Thus far the construction is such that the gas flows straight and uninterrupted through the burner.

It will further be seen from the drawings that a tube, *f*, with its upper end capped and closed, is placed around and over the tube *d*, so as to form the chamber B above and all around this tube. The tube *f* rests gas-tight down upon the extension *b*, and is fastened thereto in a proper manner. With this construction there must be an outlet for the gas, and I therefore form one, two, or more small orifices, *g*, in the tube *f* near the extension *b*, as shown. Around the tubes *d* and *f* the burner-tube C, with jet-passages in its tip, is now placed so as to form a chamber, H, all around and above the tube *d*, as represented. The burner is now completed, and when in use the gas has a free, straight, and upward flow through the base A and the tube *d* thereof. In its flow it strikes the cap of the tube *f*, and then takes a straight downward course, and escapes through the orifices *g* into the chamber *h* and again takes an upward course and flows through the jet-passages of the tube C. The arrows indicate the course of the gas, as described. The gas is checked or caused to recoil in the chamber B so perfectly that its flow through the orifices *g g* is very regular.

It will be observed that the stream of gas is allowed to flow out of the tube *d* before it is caused to recoil, whereas in Gleason's burner the stream of gas is checked within the tube *d*. In my burner the effect is more thorough, because a large column of gas is in the chamber B, and this column acts as a cushion between the outlet *e* of tube *d* and the outlets *g g* of the tube *f*. The fact that a narrow stream under pressure, acting upon a large column, produces a regular flow from a small orifice at the base of such column, whether of air or water, is well understood in connection with blow-pipes, syringes, &c.

A cheap and practical mode of making my burner is as follows: Take a piece of tubular wire, *d*, eleven-sixteenths of an inch long and five thirty-seconds of an inch in diameter and fit it to the upper part of the inside of the shoulder *a*. Solder on a piece of metal upon the top of the tube *d*, and drill a hole, *e*, of No. 18 wire, the said wire being fitted to "Stub's gage." Next take a piece of tubular wire, *f*, twenty-five thirty-seconds of an inch long and

one-fourth of an inch in diameter internally, and solder a cap on one end thereof and drill the holes *g g* of the size of No. 22 wire, the said wire being fitted to "Stub's gage." The metal of the tube *d* is made about one thirty-second of an inch thick. The tube C is made with an inside space of three-eighths of an inch in diameter. The parts *a* and C are put together by a screw, and are commonly used. The tip *m* is "Schwarz's lava or steatite."

The above-described burner will consume three feet of gas per hour and produce as much light as those in common use, which consume much more gas per hour with the same pressure of gas on.

I do not claim a gas regulating and checking burner *per se;* nor do I claim, broadly, the constructing of a gas-burner with an intermediate chamber. Neither do I claim a gas-burner with a chamber, B, when such burner is constructed in accordance with the plan shown in Wright's patent of 1858.

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

The gas-burner constructed and operating in the manner described and represented, as an improved new article of manufacture.

WHITMAN S. DYER.

Witnesses:
ALFORD DYER,
JOSEPH H. CLARK.