C. E. BALL.

Vapor-Burner.

No. 167,150 Patented Aug. 31, 1875.

Fig 1

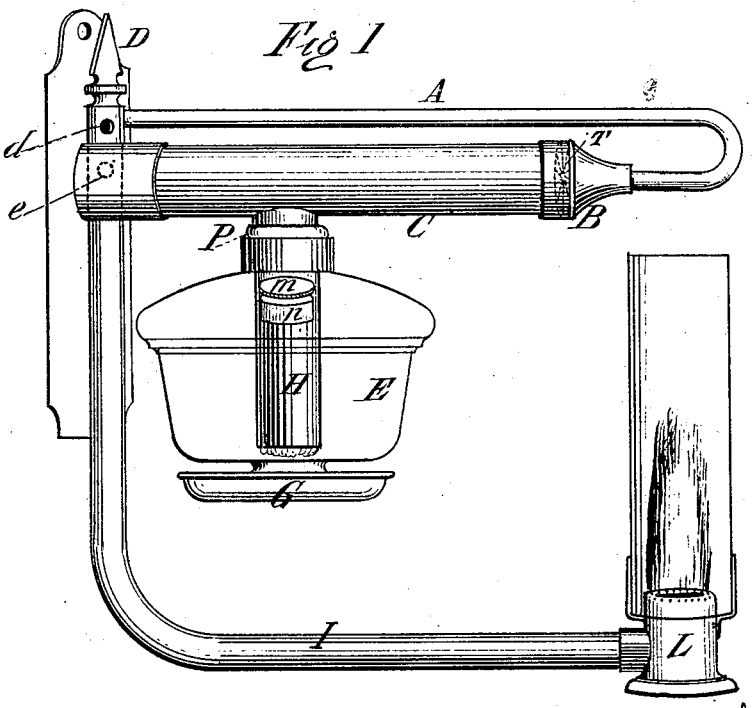
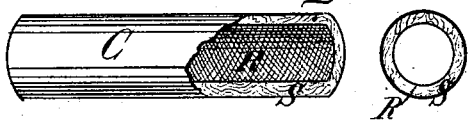


Fig 2



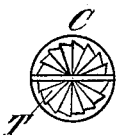


Fig 3.

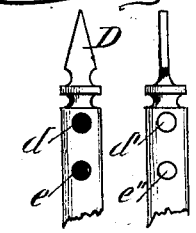


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES E. BALL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **167,150**, dated August 31, 1875; application filed July 22, 1874.

To all whom it may concern:

Be it known that I, CHARLES E. BALL, of Philadelphia, county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Apparatus for Carbureting Common Air, of which the following is a specification:

My invention relates to the construction of parts, and the combination and arrangement of the parts, of a machine for carbonizing common air and burning the same, for the purpose of producing light; and these my improvements will be hereinafter described with reference to the accompanying drawings, in which—

Figure 1 represents a side view, in perspective, of an entire apparatus embracing my improvements; Fig. 2, a like view of the pipe C, broken away on one side in order to display the cotton packing inclosed in its interior, and the cylinder of wire cloth or gauze placed within the packing, and also a face view of the draft-wheel T in position in cap B of the same pipe; Fig. 3, two different side views of the valve-tube D; Fig. 4, a vertical central section of the top portion of pipe I, and a like view of valve-pipe D, displaying the horizontal partition therein.

The containing-vessel E may be made of glass or any other suitable material, and may be filled with the hydrocarbon fluid to be used through neck n'' and vertical pipe H, which last-named pipe is connected at its top end by a tight joint with horizontal pipe C, and its lower end extends down to a point near the bottom of the containing-vessel E, and a tight joint is made between the containing-vessel E and the vertical pipe H at P. Pipes H and C both inclose concentric cylinders of wire-gauze, of considerably smaller diameters than their own, in order that space may be left between their interior surfaces and the exterior surfaces of said wire-gauze cylinders, as shown in Fig. 2, where S indicates a cotton packing which fills that space, and R indicates the cylinder of wire-gauze.

The upper or left-hand end of supply-pipe A branches out from feed-pipe I, and receives common air through orifices *d* in pipe I only, and conducts the air into cap B and through draft-wheel T, which serves to distribute it equably over the interior surfaces of the wire-cloth cylinders in pipes C and H, where it takes up as much of the hydrocarbon fluid as it will hold, and then, partly by the force of the draft caused by the heat from the burner L, and by partly its own gravity, the carbonized air will be forced down pipe I and through the Argand burner L.

The upper end of pipe I is provided with a close horizontal partition, as shown in Fig. 5, so that the air which enters it through orifice *d* must traverse its entire length, and enter pipe C through cap B.

In order to regulate the production and feeding of the carbonized air, a valve-pipe, D, having two holes therein, *d* and *e*, is inserted into the top end of pipe I, which is also provided with two corresponding holes, so that when the valve-pipe is so turned that its holes are opposite to the holes in pipe I, the common air flows into pipe A through hole *d*, and the carbonized air flows from pipe C into pipe I through hole *e*. Now, by simply turning the valve-pipe to the right or left the admission of fresh air is partially or wholly cut off, and the feeding of carbonized air to the burner L is likewise partially or wholly cut off. Thus both operations can be regulated at will.

As before stated, the burner L, by its flame under pipe T and cap B, will add force to the currents through the machine.

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

1. The combination of the pipes H and C, and packing S, and wire-gauze cylinder R contained in them, substantially as and for the purpose described.

2. The combination of the valve D, the pipes A, I, and C, constructed and arranged substantially as and for the purpose described.

CHARLES E. BALL.

Witnesses:

MORRIS NEALE,
JNO. D. PATTEN.