

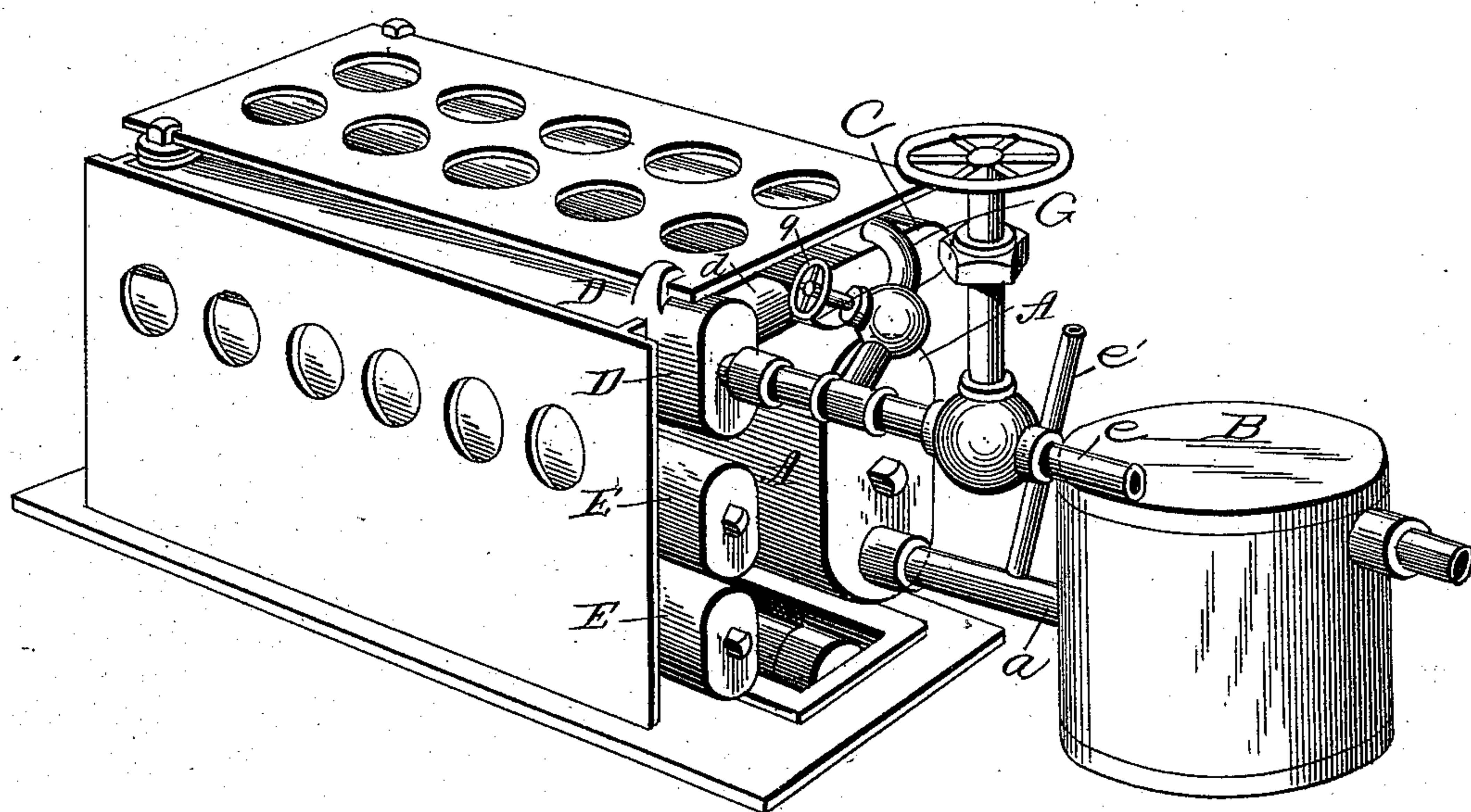
(No Model.)

E. POLLARD.

BURNER.

No. 402,476.

Patented Apr. 30, 1889.



Attest  
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# UNITED STATES PATENT OFFICE.

EDWARD POLLARD, OF EAST CAMBRIDGE, MASSACHUSETTS.

## BURNER.

SPECIFICATION forming part of Letters Patent No. 402,476, dated April 30, 1889.

Application filed July 7, 1888. Serial No. 279,299. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD POLLARD, of East Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Burners; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to vapor-burners, and is an improvement upon that class of vapor-burners shown in Letters Patent of the United States No. 229,355, granted June 29, 1880, and No. 292,616, granted January 29, 1884; but the invention is obviously applicable to burners operating on the general principle illustrated in these patents.

The accompanying drawing shows in perspective a burner made in accordance substantially with the patents above specified.

In the drawing, A represents a steam-generator, which is supplied with water from a pipe, *a*, through a regulator, B. Above the generator is a superheater, C, connected to the generator by a suitable pipe. By the side of the superheater is a mixing-chamber, D, which a pipe, *d*, connects with the superheater. A pipe, *e*, enters the mixing-chamber leading from any suitable source of liquid hydrocarbon supply, although crude petroleum may be used. Below the mixing-chamber is another chamber, E, in which the vaporization is completed. Two of these are shown. The vapor after being heated passes into the burner F, which is located between the two tiers of chambers and a little below. The upper part of this chamber is perforated to allow the vapors to escape, and when ignited the flames pass upward in contact with the chambers, heating them and generating steam and vapor. The apparatus is adapted to fit the fire-box of an ordinary cooking-stove; but the shape is immaterial.

The above apparatus as above described has not been successful by reason of the rapidity with which steam is generated in the boiler, which causes excess of pressure, and the result of this is to force the water back into the regulator and at other times to blow the fire entirely out by seeking relief through the mixing-chamber to the burner. My ob-

ject is to overcome this objection, to prevent the extinguishment of the flame, and to cause it to burn constantly as long as desired and without irregularity. By experiment I have found that this excess of pressure is relieved by providing a vent, preferably in the form of a short vertical tube, acting as a stand-pipe to take up the back-pressure. This vent I prefer to make in the form of a short vertical open pipe, *e'*, in the pipe *a*. While I have shown the pipe *e'* as located in the feed-water pipe, it may of course be in direct connection with the generator, as its purpose is to take up the excess of pressure. I may also add a blow-off pipe, G, provided with a suitable cock, *g*, in connection with the mixing-chamber through the oil-supply pipe, so as to prevent condensation by allowing the vapor to blow off after the fire is extinguished, and the end of this pipe may be into the fire, so as to prevent any offensive odors, the vapor escaping into the draft. The vent, however, will usually be found sufficient for the purpose without the aid of the blow-off.

I claim as my invention—

1. In combination with a vapor-burner consisting of a generator, a superheater above the generator, a vaporizer in connection with said superheater, a burner arranged below the vaporizer and generator, so as to heat both, and an open vent in connection with the generator for preventing the extinguishment of the flame, substantially as described.

2. In combination with a vapor-burner, a generator, a superheater above the same, a vaporizer in connection with the superheater, a burner and pipe connections from the vaporizer, whereby a vapor of mixed steam and carbon is fed to the burner, and an open vent-pipe in the water-feed pipe to the generator, substantially as described.

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

EDWARD POLLARD.

Witnesses:

JOHN L. AMBROSE,  
THEO CHUD.