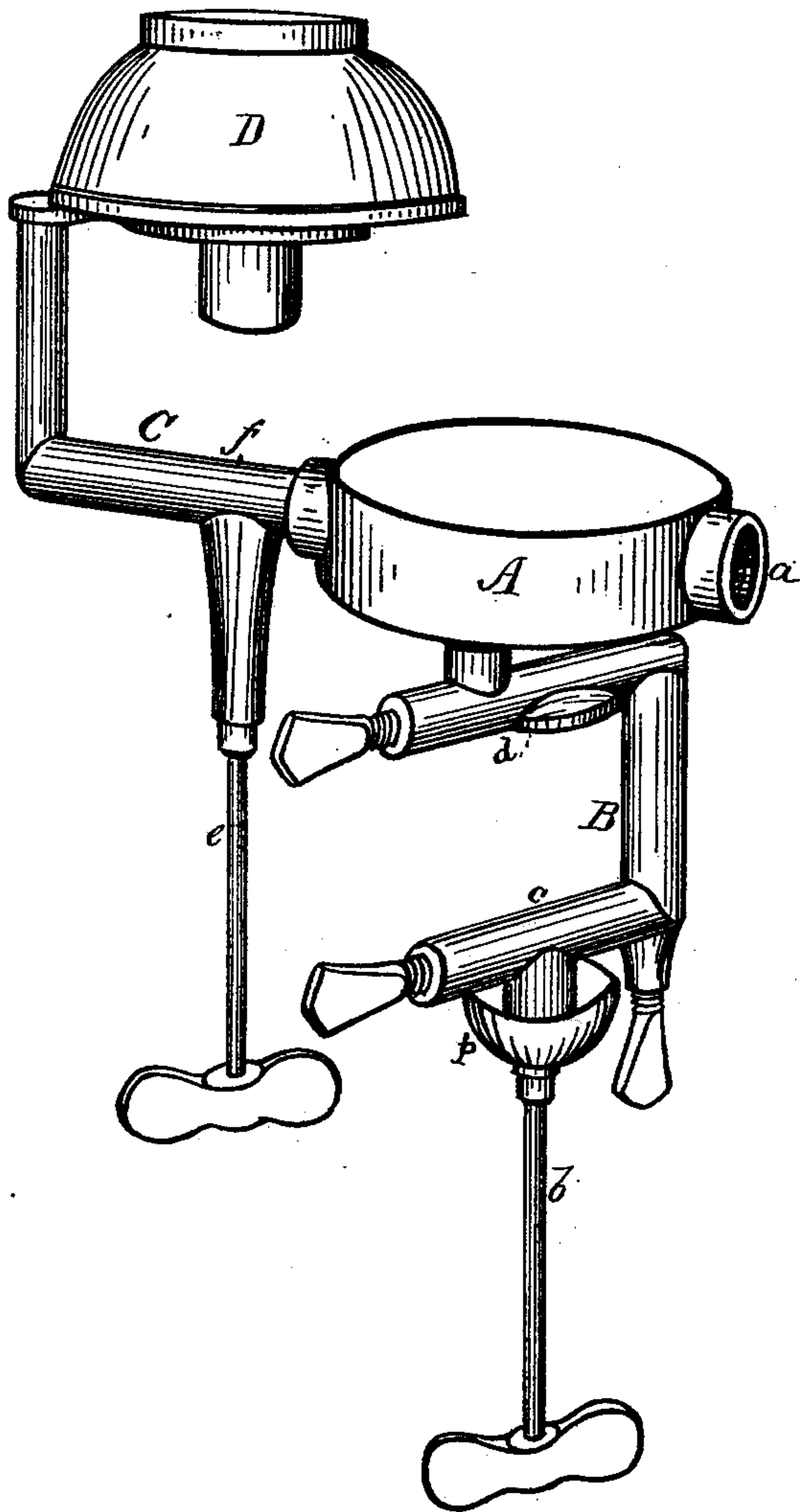


G. W. BILLINGS.
Vapor Burner.

No. 229,799.

Patented July 13, 1880.



Witnesses;

J. H. Cadwell

E. S. O'Connor

Inventor;

Geo. W. Billings

By Geo. W. Tibbitts Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. BILLINGS, OF CLEVELAND, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 229,799, dated July 13, 1880.

Application filed September 30, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. BILLINGS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Vapor-Burner, which is fully set forth and described in the following specification and accompanying drawing, which is a perspective view.

The object sought to be accomplished by this invention is the production of a burner by which crude petroleum or any of its products may be vaporized to be used for heating purposes. It is designed particularly for vaporizing oils of heavy gravity.

The nature of the invention will fully appear from the subjoined description when considered with reference to the accompanying drawing.

A is a gas or vapor generating chamber, and consists of a hollow disk having at one side an opening, *a*, for connecting it with a pipe for feeding it from a fount. It is made shallow, in order to give it a wide area to enhance its capacity for generating vapor. Beneath said generator is arranged a burner, B, for heating it, which consists of a small pipe cast in two right angles, as shown, the upper arm of which is attached to and connected with the generating-chamber, the lower arm being provided with a valve-stem, *b*, and jet-orifice *c*, located so as to discharge a jet of vapor up against a small heater-plate, *d*, on the upper arm of said pipe B, the flame spreading under and upon the bottom of the generator. The burner B is supplied with vapor from the said generator for its consumption, for providing the aforesaid heat.

An opening is made in the side of the generator A opposite to the opening *a*, to which is attached a pipe, C, provided with a valve-stem, *e*, and a jet-orifice, *f*, above which is located a cap or dome, D, supported by suitable means, to receive the vapor issuing from said orifice *f*, where it is burned.

The drawing illustrates a full-sized burner for ordinary culinary purposes. By enlarging the generating-chamber to twice or three times the size of that shown, and increasing the capacity of the burner beneath it in proportion,

a burner is provided which may be employed in oil-refineries, varnish-works, and the like.

It will be observed that the burner B is a supplemental one, and is located directly under the generator, which provides a great heat, sufficient to vaporize the heaviest oil, thus enabling heavy oils to be used in a vapor-burner for heating purposes, which no gasoline-burner is capable of doing.

It is necessary, when the burner is first used, to place a quantity of alcohol or gasoline in the cup *p*, which is situated under the pipe or burner B, and around the valve-stem *b*. This is ignited, and the flame caused thereby heats the pipe or burner B, and soon generates enough vapor to allow of ignition at orifice *c*. The vapor is afterward constantly supplied from generator A.

I am aware that it is not broadly new to vaporize gasoline by applying to the bottom of a receptacle containing the same the heat of an ignited jet of gas, and therefore I do not broadly claim the same.

What I do claim is—

1. In a vapor-burner, a pipe bent into the form of three sides of a square, having on the under side of its upper horizontal arm a plate, *d*, and in the upper side of its lower horizontal arm, directly below said plate, an opening, *c*, and below said lower arm a receptacle for combustible material, by the heat of which the gas is generated in said lower arm, substantially as set forth.

2. In combination with the dome D, pipe or burner C, provided with an orifice and valve-stem, the generator A, having an inlet, *a*, double right-angle burner B, receptacle *p*, and valve-stem *b*, substantially as set forth.

3. A vapor-burner constructed of the generator A, with the inlet *a*, the double right-angle burner B, provided with a heating-plate, *d*, and orifice *c*, directly under said plate, in combination with receptacle *p* and valve-stem *b*, as and for the purpose herein set forth.

G. W. BILLINGS.

Witnesses:

GEO. W. TIBBITTS,
E. W. LAIRD.