

A. J. GRIFFIN.

HYDROCARBON BURNER AND GAS-GENERATOR.

No. 171,278.

Patented Dec. 21, 1875.

Fig. 1.

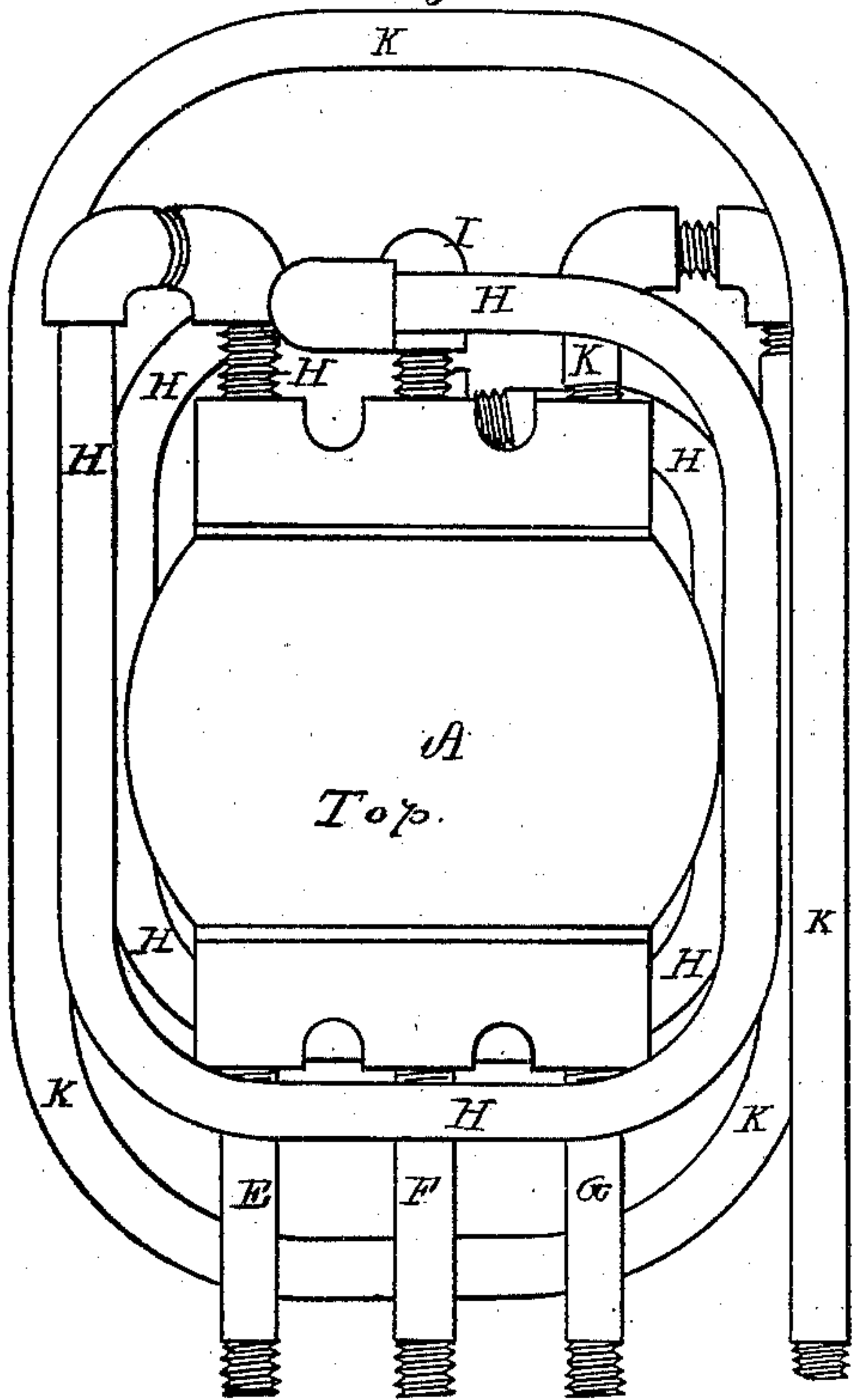


Fig. 3.

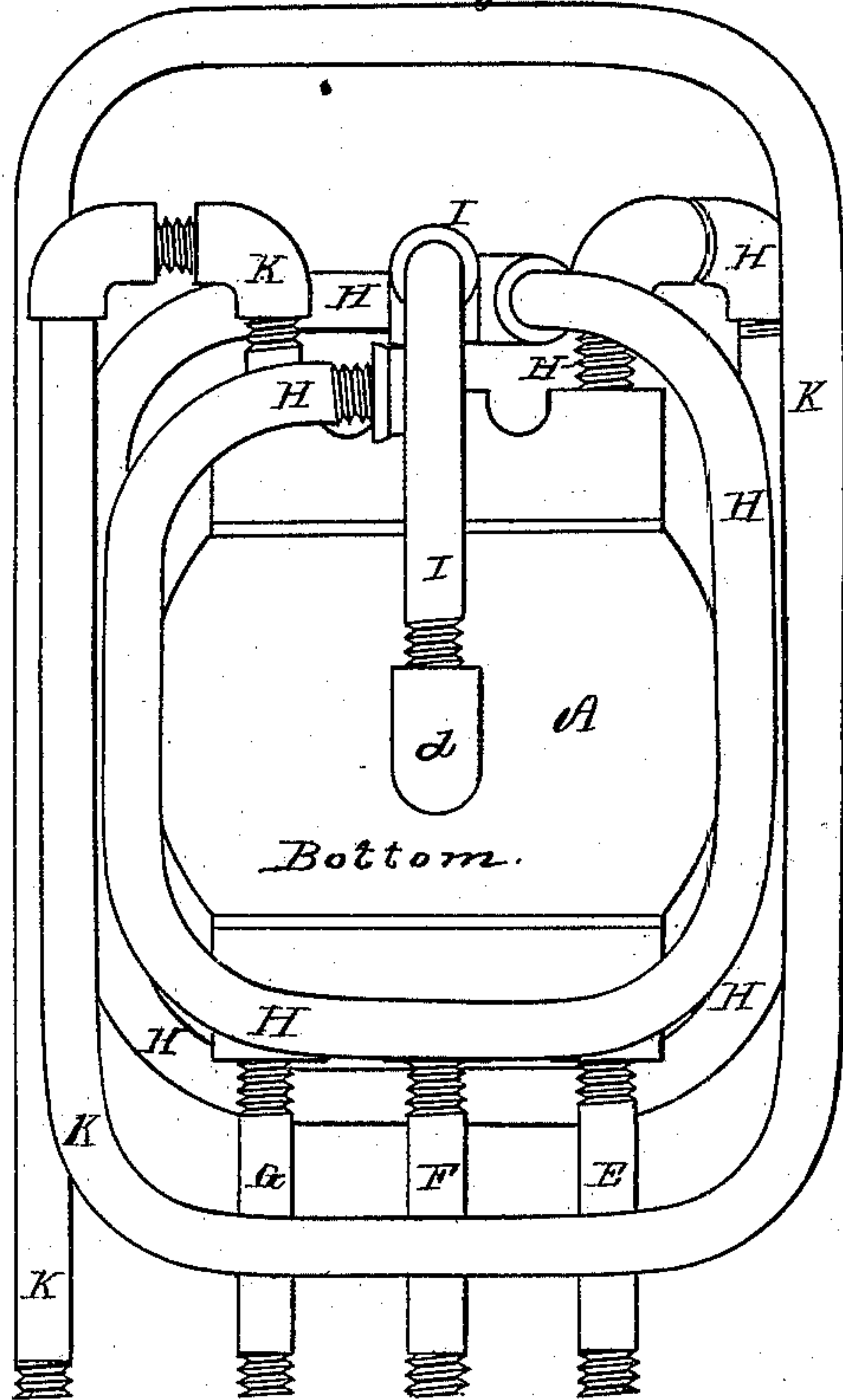


Fig. 2.

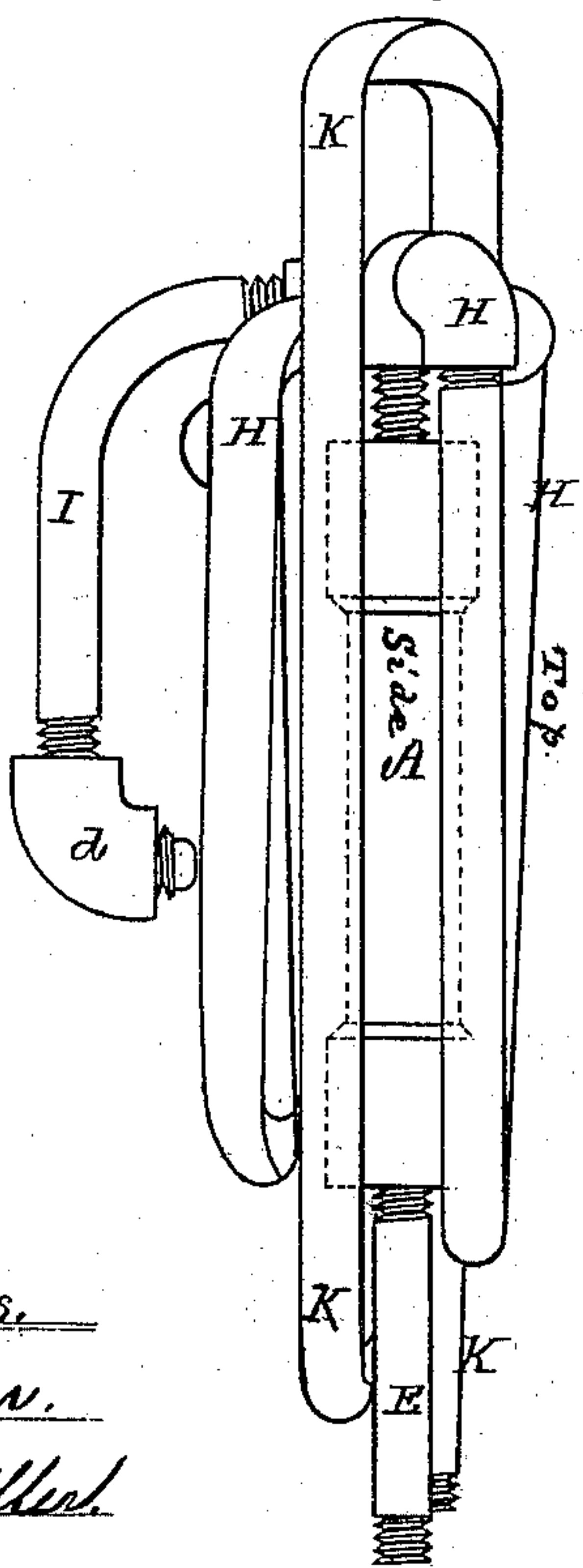
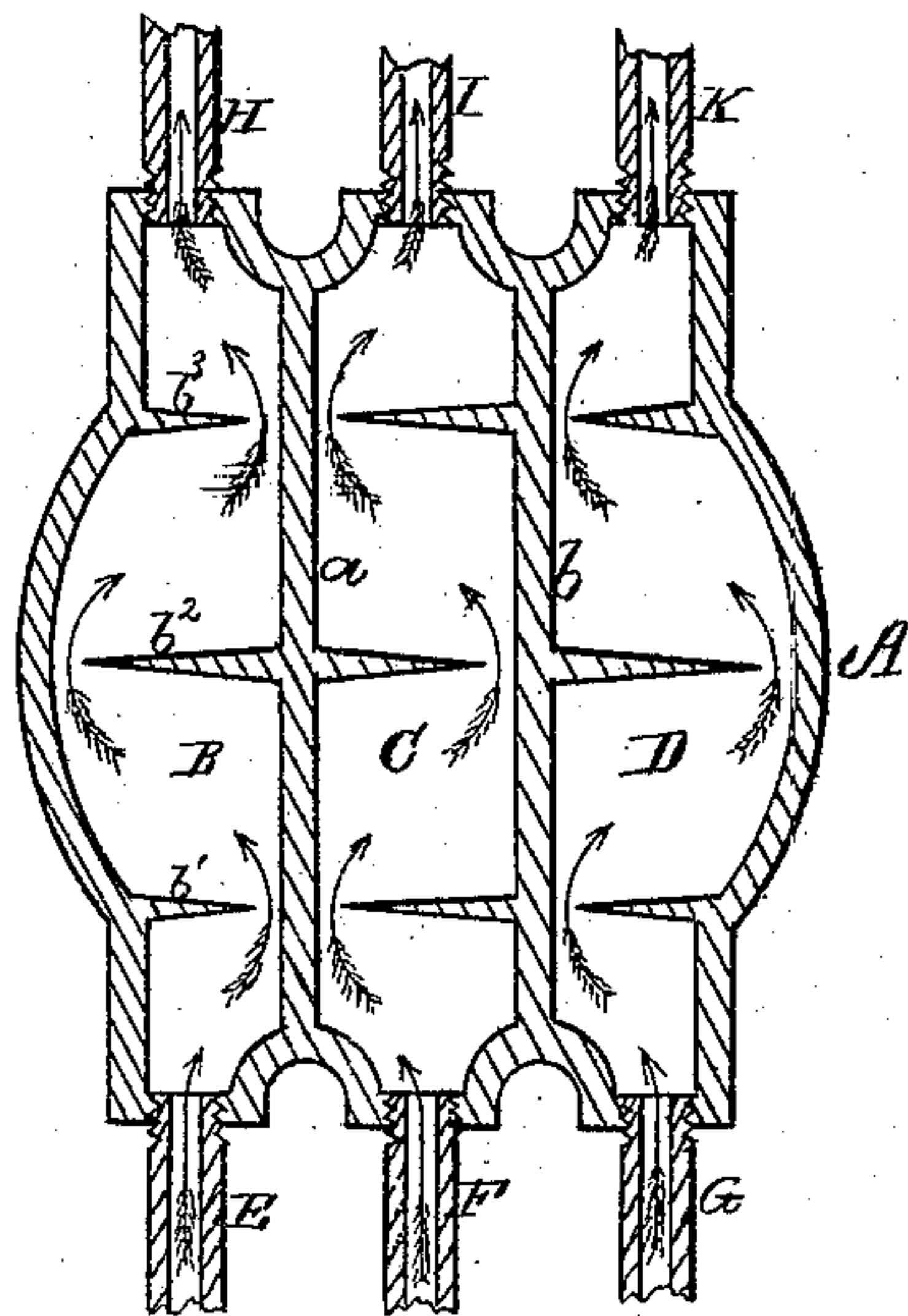


Fig. 4.



Witnesses.

S. W. Piper.

L. W. Mollen.

Alvah J. Griffin.

by his attorney

R. H. Eady.

UNITED STATES PATENT OFFICE.

ALVAH J. GRIFFIN, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN HYDROCARBON-BURNERS AND GAS-GENERATORS.

Specification forming part of Letters Patent No. 171,278, dated December 21, 1875; application filed November 9, 1875.

To all whom it may concern:

Be it known that I, ALVAH J. GRIFFIN, of Lowell, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Hydrocarbon-Burners and Gas-Generators; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, and Fig. 3 a bottom view, of my improved apparatus. Fig. 4 is a horizontal section of it.

My present invention is an improvement with reference to those heretofore patented by me, and described in my United States Patents No. 56,143, of July 3, 1866, and No. 63,881, of April 16, 1867.

In my present apparatus each of the longitudinal chambers of the heater has in it a series of partitions, by which a tortuous current is effected in the fluid or matter which may pass through it, such serving to heat such fluid or matter to better advantage than heretofore. My present invention, however, relates more particularly to the arrangement of the eduction-pipes with respect to the heater, whereby they become exposed to the blaze and heat of the burner, and, as a consequence, not only is the water vaporized to better advantage, and the steam superheated, but the petroleum and the fluid to be converted into gas are also better heated and vaporized. Furthermore, other beneficial results follow from the improvement.

In the drawings, A denotes a hollow vessel, heater, or retort, divided lengthwise by two partitions, *a b*, into three chambers, in each of which is a series of transverse partitions, *b¹ b² b³*, which are arranged as shown. Each of them projects from one side of the chamber, and terminates near the opposite side thereof, each partition being extended from that side which is opposite to that from which the next one projects, the series causing the fluid or water in passing through the chamber to have a sinuous current, whereby it becomes heated to better advantage. Conduits E F G lead into these chambers at one end of the retort. Other pipes, H I K, also lead out of them at the opposite end of such retort. The pipe H extends around outside of the entire retort, and thence descends and passes around

underneath it, and is closed at its lower end. Furthermore such pipe, where below the retort, is foraminous on its upper surface, or punctured with a series of holes for steam to be discharged from it when the apparatus is in operation. The pipe I simply descends and passes underneath the retort, and terminates in a jet, *d*, placed directly under the center of the retort. The pipe K, leading out of the chamber D, passes entirely around the retort, or about its sides and ends, in manner as shown. This pipe is to take from the chamber D the vapor and gas produced therein.

When the apparatus is in use water enters the chamber B by the induct E, and in passing through such chamber becomes highly heated and converted into steam, which flows through the pipe H, and becoming superheated in such will be discharged beneath the retort into the flame of the burner or gas-jet. Petroleum also is passed into the chamber C by the pipe F, and, being heated and vaporized, escapes from the chamber through the pipe I and its jet, upon which it is enflamed.

The chamber D receives from the induct G the hydrocarbon fluid intended to be resolved into gas. In passing through the said chamber D and the pipe K the conversion of the fluid into gas is very thoroughly accomplished, particularly by the educt K, heated by exposure to the flame of the burner, which spreads laterally in all directions under the retort with great power and effect.

I claim as my invention in the said gas apparatus as follows:

1. The retort having the transverse partitions *b¹ b² b³* of its chambers arranged relatively to the longitudinal partitions *a b*, as described and represented.

2. In combination with the retort, the steam and gas pipes H and I, arranged to discharge beneath it, as described, each pipe H K coiled around the sides and ends of the retort, substantially as shown, so as to be exposed to the flame of the combined jets of steam and vaporized petroleum, as explained, when the apparatus may be in operation.

ALVAH J. GRIFFIN.

Witnesses:

R. H. EDDY,
J. R. SNOW.