

E. C. JONES.
GAS BURNING APPLIANCE.
APPLICATION FILED FEB. 10, 1904.

2 SHEETS—SHEET 1.

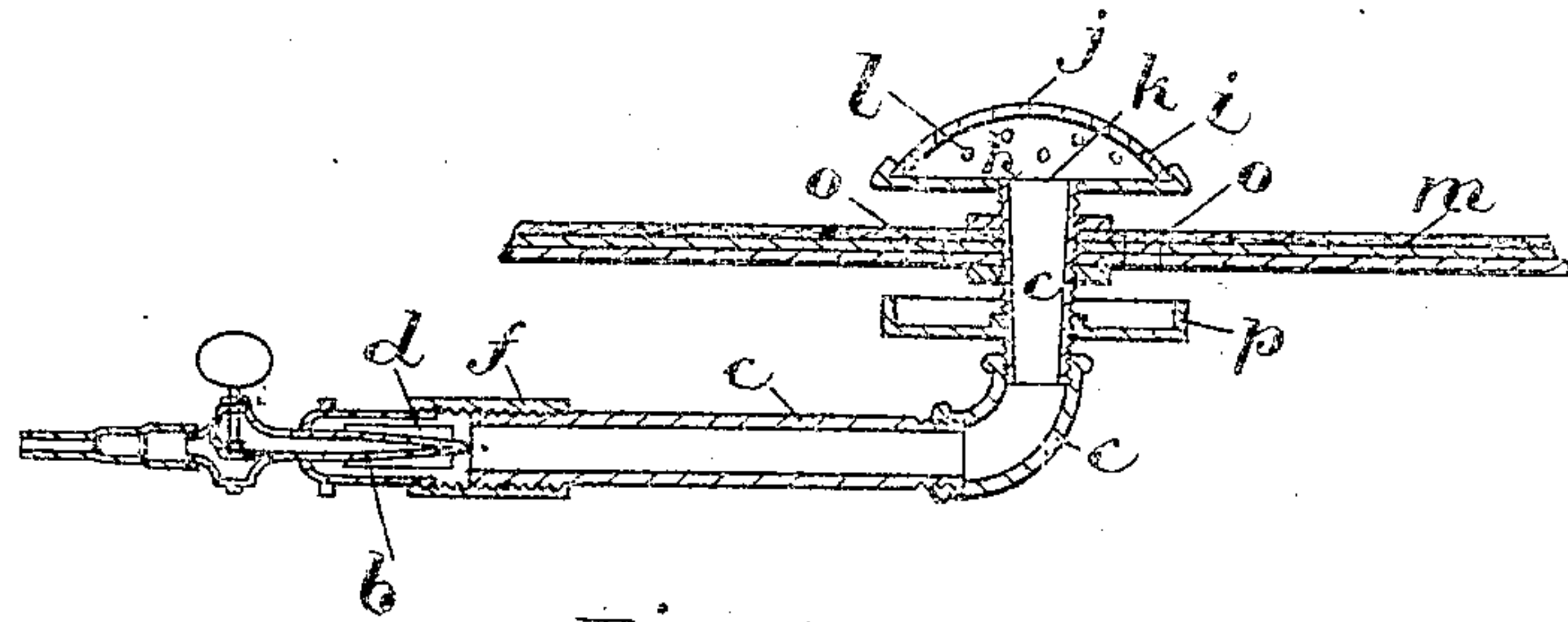


Fig. 3.

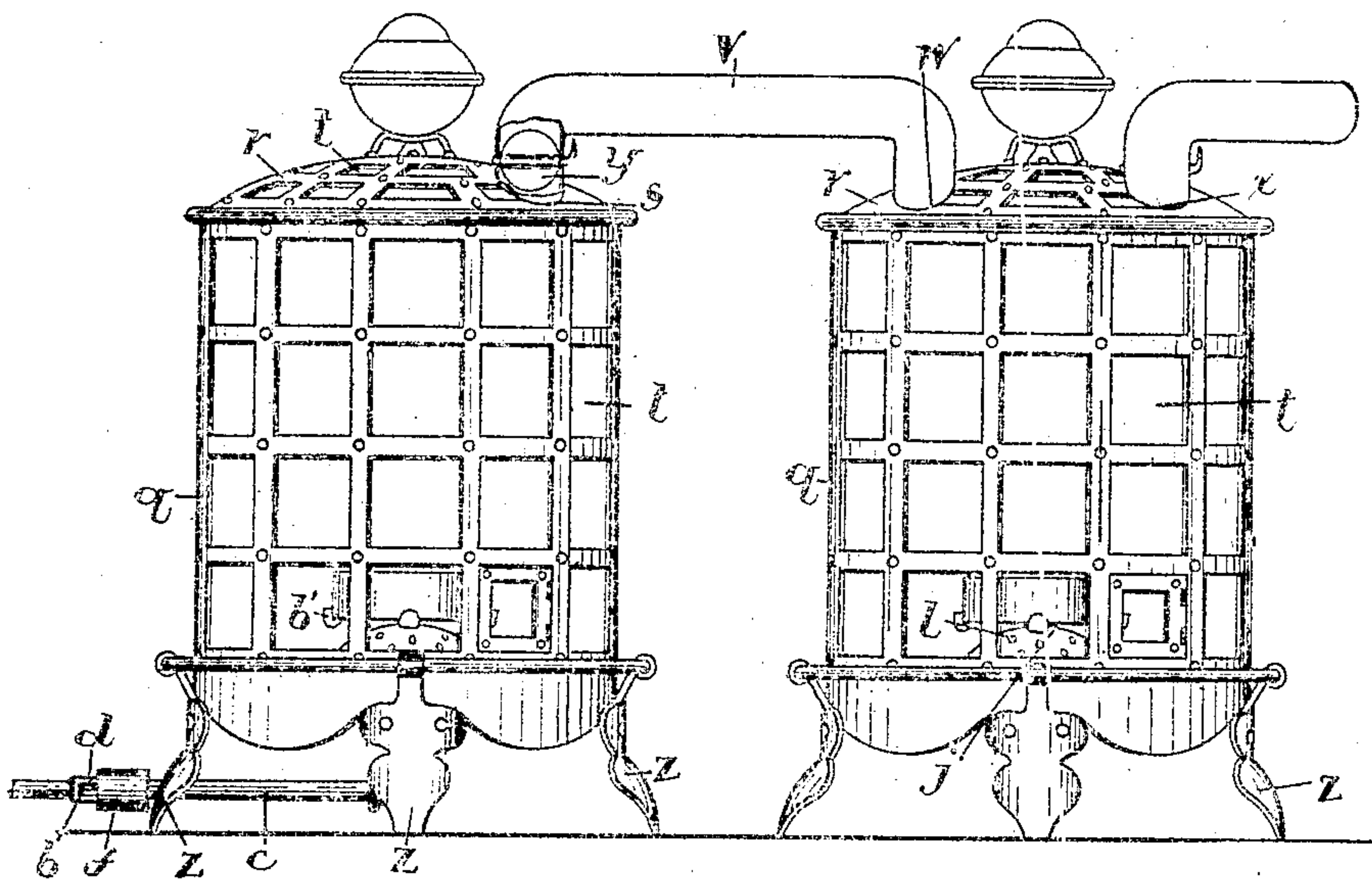


Fig. 1.

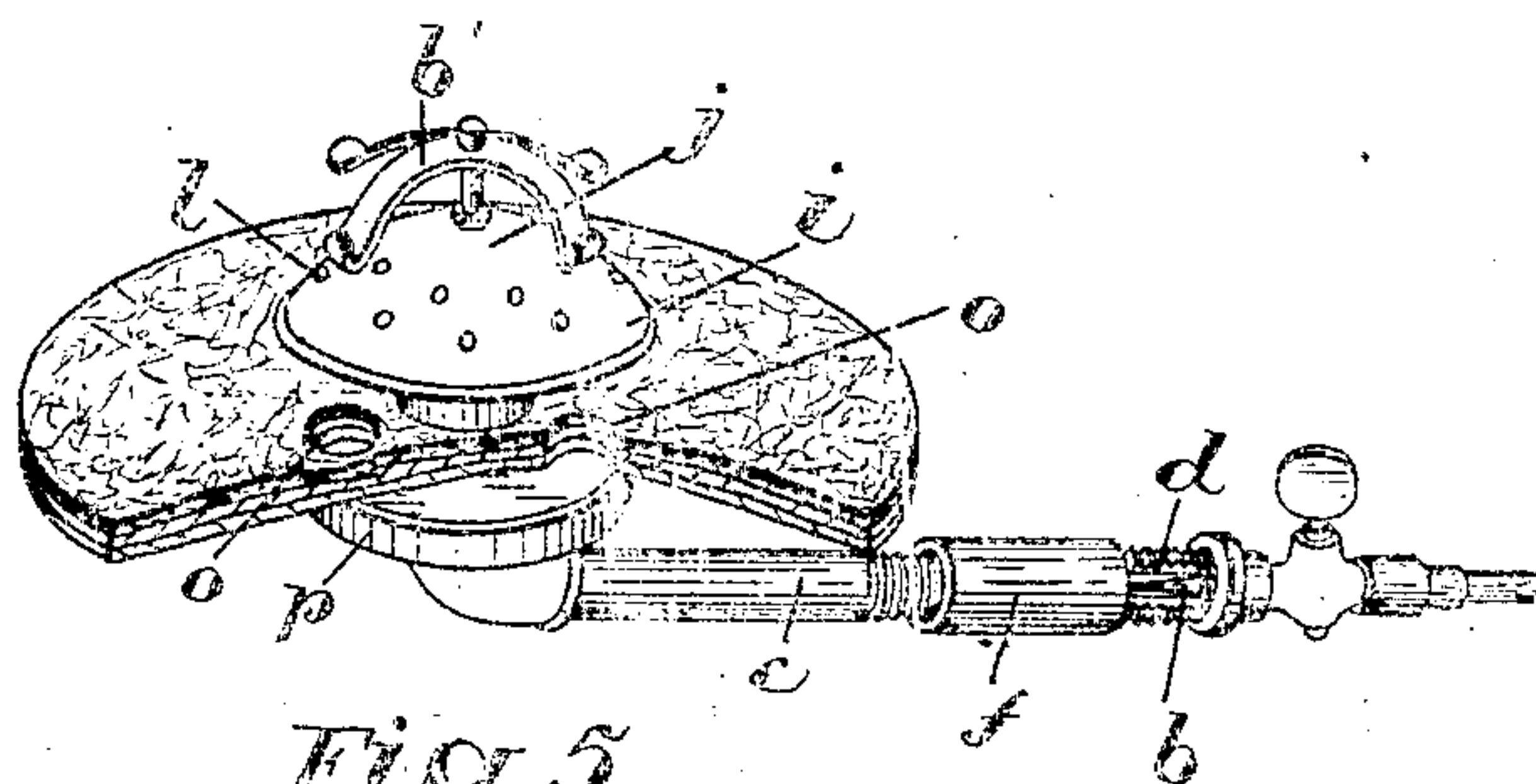


Fig. 5.

Witnesses.

H. L. Trumble
L. A. Rock

Inventor.

E. C. Jones
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his attorney.

No. 786,647.

PATENTED APR. 4, 1905.

E. C. JONES.
GAS BURNING APPLIANCE.

APPLICATION FILED FEB. 19, 1904.

2 SHEETS—SHEET 2.

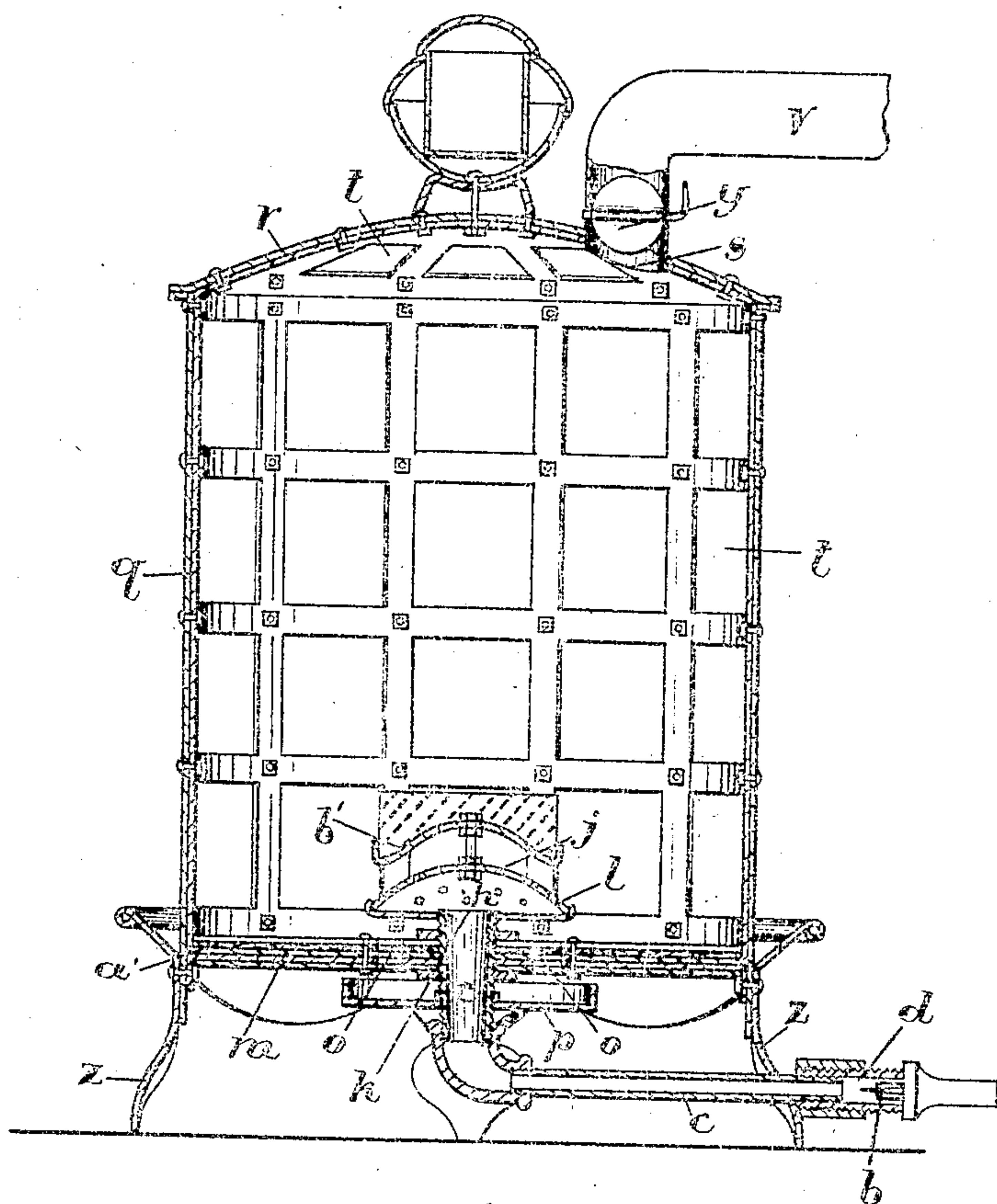


Fig. 4.

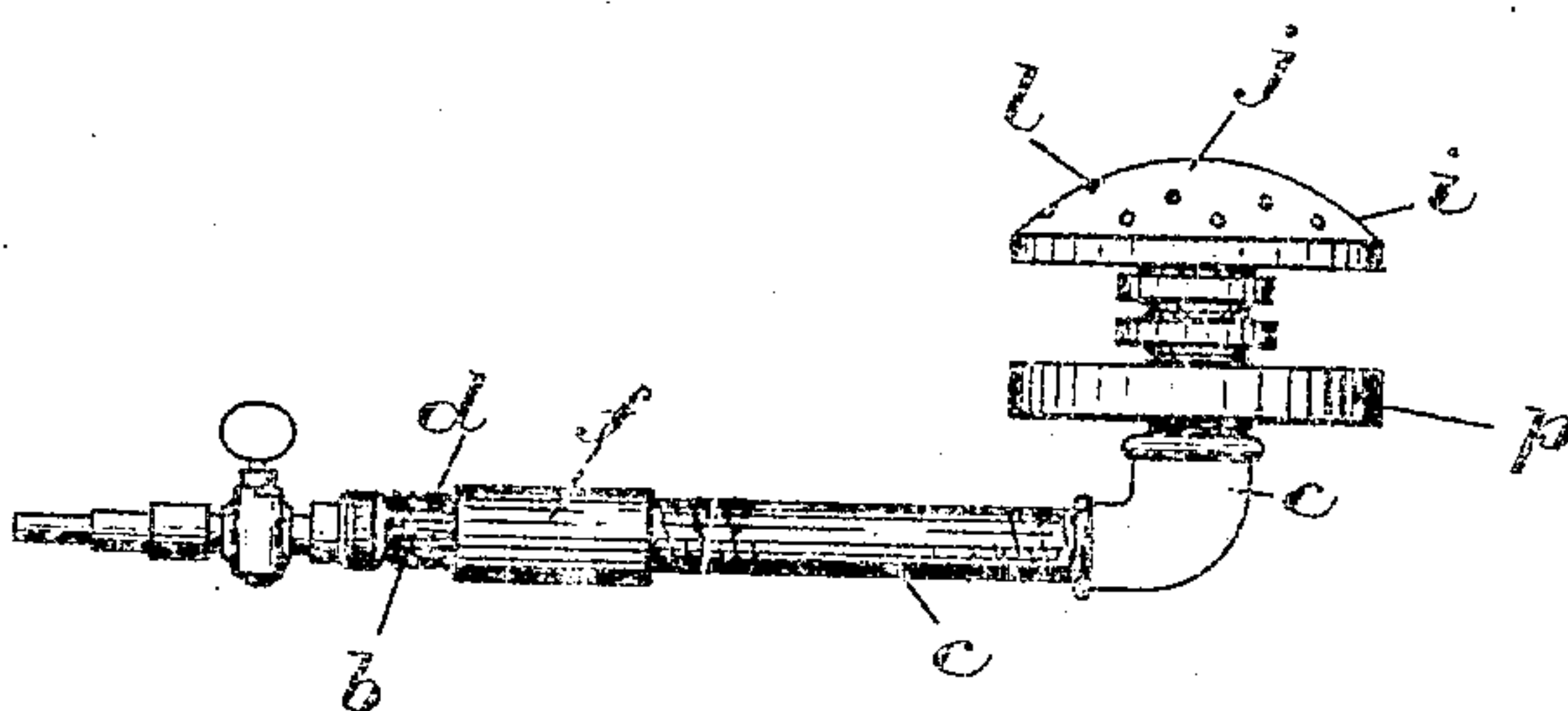


Fig. 2.

Witnesses.

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L. F. Brock.

Inventor.

Edwin C. Jones
by Chas. H. Smith
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UNITED STATES PATENT OFFICE.

EDWIN C. JONES, OF WOODSTOCK, CANADA.

GAS-BURNING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 786,647, dated April 4, 1905.

Application filed February 19, 1904. Serial No. 194,455.

To all whom it may concern:

Be it known that I, EDWIN CHARLES JONES, of Woodstock, in the county of Oxford and Province of Ontario, Canada, have invented certain new and useful Improvements in Gas-Burning Appliances; and I hereby declare that the following is a full, clear, and exact description of the same.

To effect a practically perfect combustion of hydrocarbon or other combustible gas, it is necessary to combine with it oxygen-gas or air proportionate in volume to the volume and quality of the combustible gas employed as the heating or illuminating agent. To carry this part of the invention into practice, I employ a hollow burner-tip having therein a distributing-chamber in the bottom of which is an inlet-port for the admission of the mixture of gas and air and in the top of which are a series of outlet-apertures and an imperforate portion opposed to and projecting beyond the inlet-port to baffle the inflowing mixture of gas and air and effect its even distribution to all parts of the mixing-chamber to equalize the pressure of the same as it passes through the outlet-apertures. To the inlet-port is connected the burner-pipe, fitted with the mixer, which consists of a gas-injecting nozzle opposed to the bore of the burner-pipe, an air intake or inlet aperture or opening in juxtaposition to the injecting-nozzle, and a tubular valve adjustable on the burner-pipe to vary the dimensions of the air-intake opening or aperture and regulate the volume of air admitted therethrough to mix with the inflowing combustible gas.

The second part of the invention relates to the gas-burner, which is inclosed, preferably, by a substantially gas and air tight casing having an air-inlet port below the gas-burner controlled by an adjustable valve for the admission of air to the interior of the heater to not only support the combustion of the mixture of combustible gas and air, but also to create a draft through the heater to force the heated gases to the outlet-port, which is preferably connected with a second heater having an inlet-port for the admission of the heated gases from the first heater and an outlet-port for the exit of the same therefrom to a third

heater similar in all respects to the second, and so on to the last heater of the series, the outlet-port of which is preferably connected with the chimney outlet-duct or outside atmosphere. To prevent the radiated heat burning or scorching the supporting-base for the heater, the bottom of each heater is lined with asbestos, mineral wool, or other similar non-conducting material, while the sides and top of the heater are provided with apertures fitted with mica or other translucent heat-conducting closures for heat radiation, as well as for illuminating and ornamental purposes.

For a full understanding of the invention reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a side elevation of the heaters and burner. Fig. 2 is a side elevation of the burner. Fig. 3 is a longitudinal section through the burner. Fig. 4 is a vertical section through the heater and burner; and Fig. 5 is a detail view of the bottom of the heater, showing the air-inlet port and controlling-valve.

Like letters of reference refer to like parts throughout the specification and drawings.

The gas is discharged from the gas-main through the gas-injecting nozzle *b* into the burner-pipe *c* and mixes therein with the air or oxygen admitted through the intake or inlet aperture or opening *d*. The intake or inlet aperture or opening *d* is preferably formed in the burner-pipe *c* in juxtaposition to the injecting-nozzle *b* to enable the air and gas to intermix as they flow through the burner-pipe. To control the volume of inflowing air, the outer surface of the burner-pipe *c* contiguous to the opening is screw-threaded, and mounted upon the burner-pipe is a tubular valve *f*, having its inner face screw-threaded to intermesh with the screw-threaded surface of the burner-pipe and longitudinally adjust the tubular valve thereon to regulate the volume of air admitted through the intake or inlet aperture or opening to mix with the combustible gas discharged from the nozzle into the burner-pipe. Owing to the variations in the quality and pressure of the gas, it is necessary to provide for the regulation of the admission of the volume of air to the burner-

pipe, as an excess of air would have the effect of destroying the combustible properties of the gas, while an insufficient quantity would not effect a perfect combustion. The burner-pipe *c* as it approaches the burner increases in diameter, so that the combustible gas and air or oxygen can expand and intimately mix before passing to the mixing-chamber *h* of the burner-tip, where the intermixing of the air and gas is completed. In the top *i* for the mixing-chamber *h* is an imperforate portion *j*, opposed to the inlet-port *k* to baffle the inflowing mixture of air and gas from the burner-pipe and evenly distribute it to all parts of the mixing-chamber to equalize its pressure as it passes through the outlets *l*, surrounding the imperforate portion *j*. By reference to Fig. 5 it will be noticed that a baffle *l'* for the flame and gases extends upwardly from the center of the imperforate portion of the burner-top and when acted upon by the flames intensifies the heat radiation and increases the heating value of the appliance by directing the heated gas to the sides of the casing.

By reference to the drawings it will be noticed that the burner is located within the heater, preferably in close proximity to the heater-bottom *m*, and surrounding the opening for the burner-pipe *c* in the heater-bottom *m* is an air-inlet *n*, controlled by an adjustable valve *p* to regulate the volume of air admitted to the interior of the heater. The sides *q* and top *r*, which may be of any suitable design, are practically air and gas tight to prevent the escape of the heated gases or any part thereof from the interior of the heater except through the outlet *s* in the heater-top. In the sides and top are openings *t*, fitted with translucent closures, preferably of mica or other non-combustible heat-radiating material, to not only add to the illuminating and ornamental qualities of the apparatus, but also to increase its heat-radiation properties. The heated gases are conducted,

by means of a pipe *u*, from the outlet *s* of the first heater to the inlet *u* of the second heater, through which they circulate and pass to the outlet *u* and from there to the inlet of the third heater, and so on to the outlet of the last heater, from which they are conducted to the chimney outlet-duct or other duct leading to the outer atmosphere. The discharge of the gas from the outlet *s* may, if desired, be controlled by a damper *y* placed in the outlet *s* of the first heater or in the outlet of any of the other heaters of the series. The bottoms of the heaters are fitted with supporting-feet *z* to raise the heater a sufficient distance from the supporting-base to allow of access to the air-inlet valve *p* and further assist in preventing the radiation of the heat from the heater-bottom setting fire to the supporting-base or scorching it, the feet being assisted in this respect by a lining *a'*, of asbestos, mineral wool, or other material of similar non-conducting properties.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a gas-burning appliance the combination of a heat-conducting casing having an air-inlet and an adjustable valve to control the air-inlet with a burner within the heat-conducting casing consisting of a mixing-chamber having a bottom with an inlet-port and a top having an imperforate portion opposed to the inlet port and a perforate portion surrounding the imperforate portion, a baffle extending upwardly from the burner-top and a burner-pipe fitted to the inlet-port of the mixing-chamber, and a heat-insulator interposed between the gas-burner and the casing-bottom.

Toronto, January 11, 1904.

E. C. JONES.

In presence of—

C. H. RICHES,
L. F. BROCK.