

J. S. HULL.  
Gas Heater for Cooking, &c.

No. 56,052.

Patented July 3, 1866.

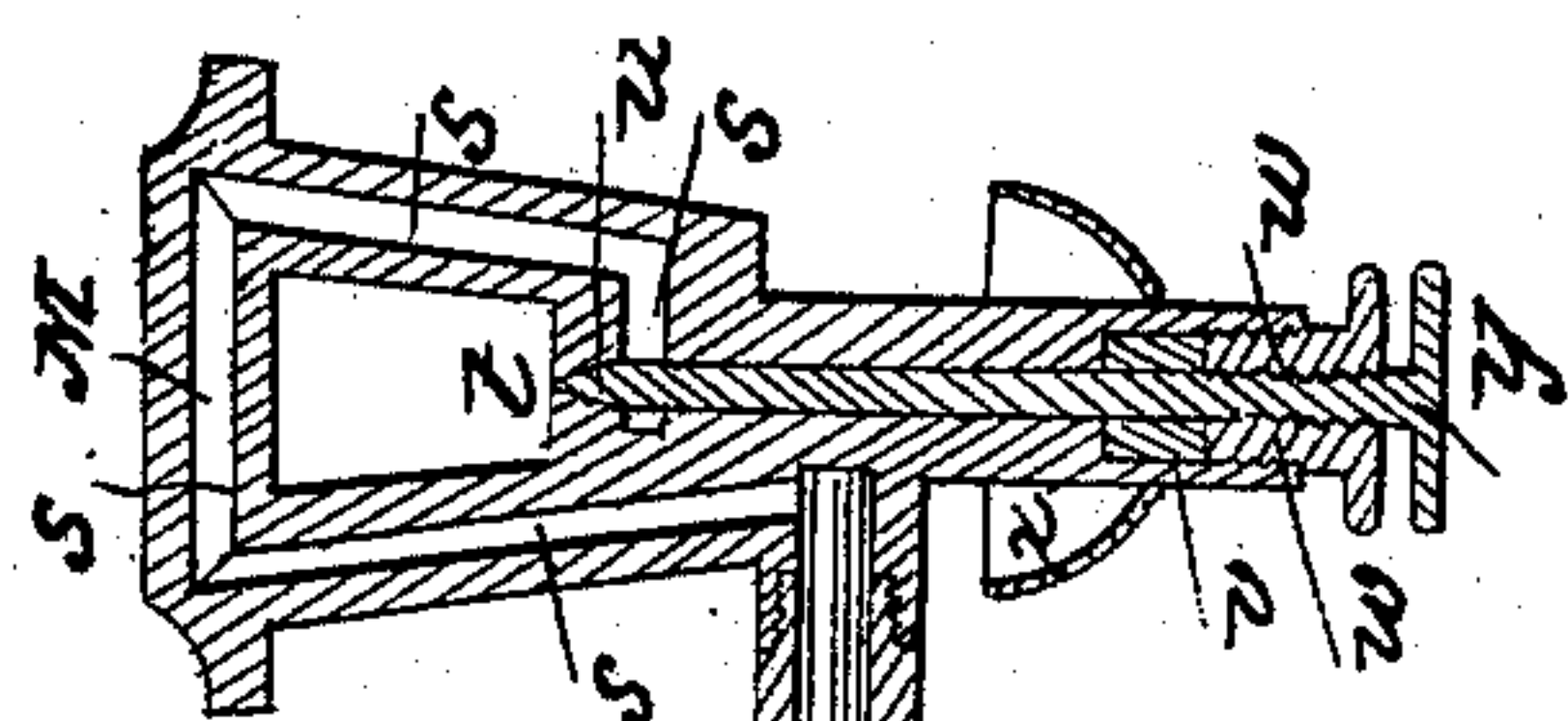


Fig. 3.

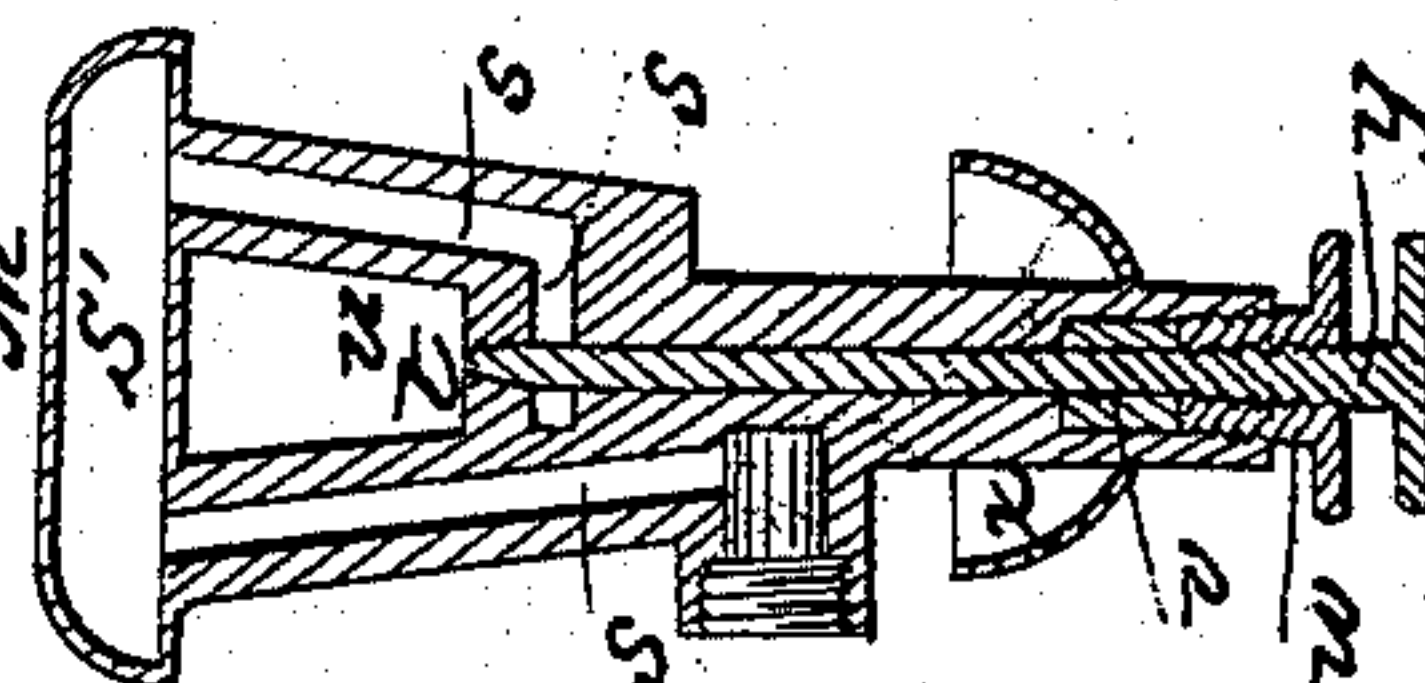


Fig. 2.

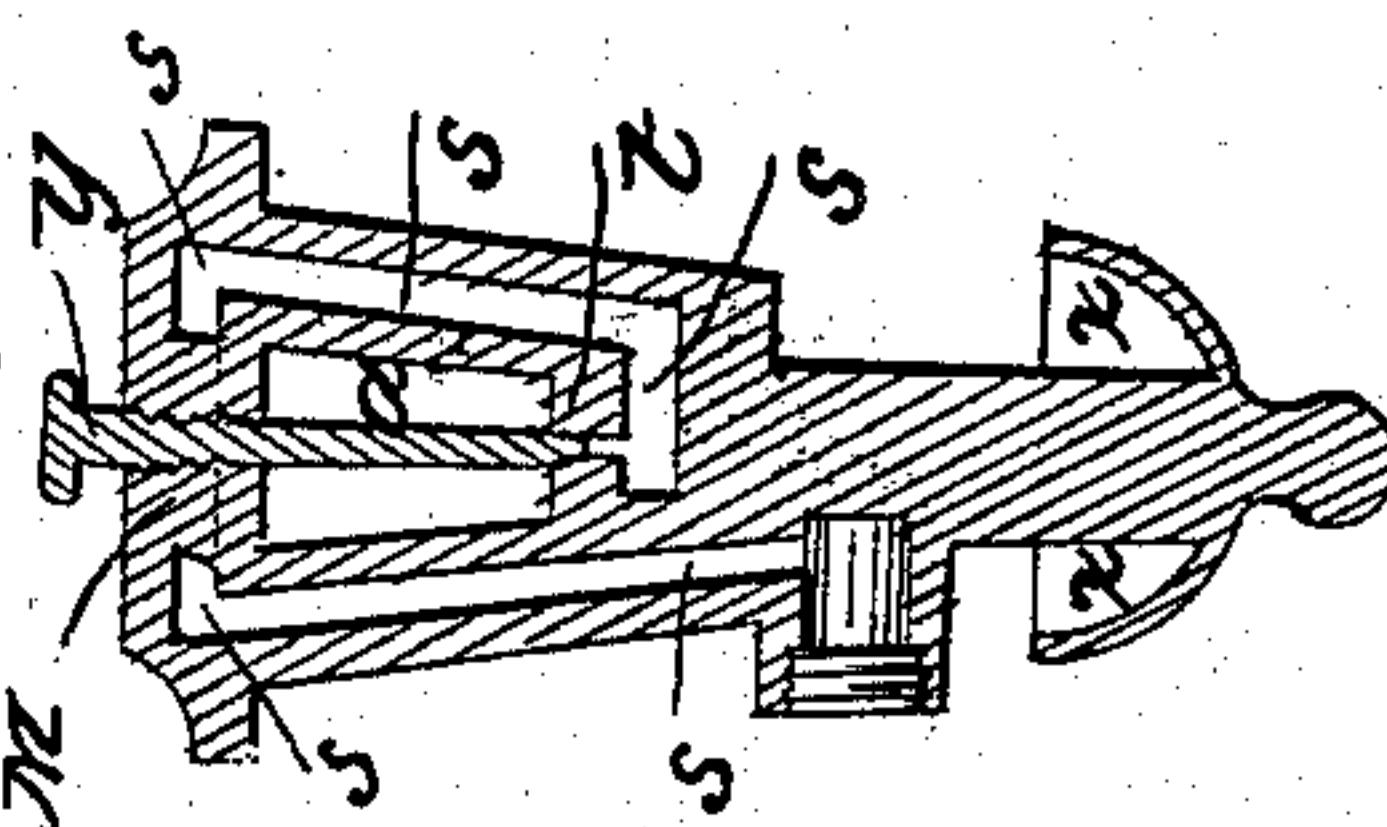
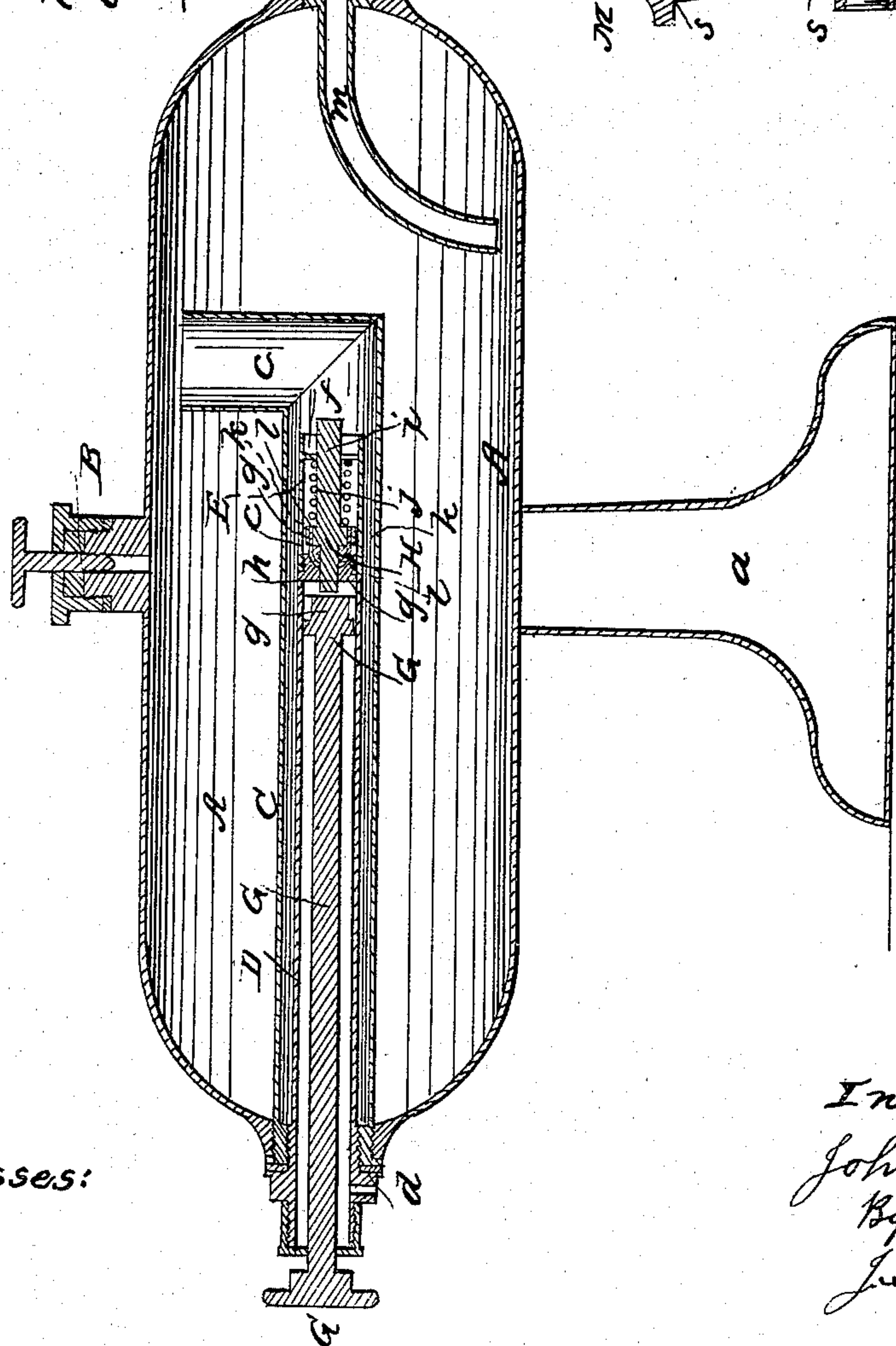


Fig. 1.



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# UNITED STATES PATENT OFFICE.

JOHN S. HULL, OF CINCINNATI, OHIO.

## GAS-HEATER FOR COOKING, &c.

Specification forming part of Letters Patent No. 56,052, dated July 3, 1866.

*To all whom it may concern:*

Be it known that I, JOHN S. HULL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Cooking Apparatus arranged for gasifying and burning petroleum, naphtha, benzine, and other carbon liquids; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a central longitudinal vertical section of the apparatus; Figs. 2 and 3, central vertical sections of modified forms of the burner.

Like letters designate corresponding parts in all of the figures.

The liquid employed is placed in an air-tight vessel or reservoir, A, and is forced therefrom to the burner M by atmospheric pressure, produced by pumping air into the vessel till the desired force of pressure is obtained. This reservoir A may be of any convenient form, resting on any suitable base or standard, *a*, and has a device, B, for introducing the oil, arranged so as to close air-tight and to let out the over-pressure air when desired.

The pump-barrel D, whether arranged horizontally or vertically in the reservoir, is inclosed by a close tube, C, provided with an extension, *c*, extending nearly to the top of the reservoir, and open at the upper end, so as to allow a free passage of air into the reservoir, and to exclude the oil or other carboniferous liquid from coming into contact with the pump. This keeps the pump free from the inconvenience of the liquid in pumping, and prevents any injury which it might do to the valve or packing.

The pump-barrel is screwed to the reservoir so as to be firm and tight, and has a valve-seat, *g'*, near its inner end, of conical form, into which fits a valve, H, of rounded or partially-spherical form. The face of this valve is composed of a piece of cork, *k*, covered with buckskin *l* or equivalent packing-surface. Thus constructed, and firmly pressed against the conical valve-seat by a coiled spring, *j*, around its stem *i*, it closes perfectly air-tight, and never fails to retain the pressure of the air over the liquid in the reservoir when once obtained by pumping. There is another guide-

stem, *h*, on the outer end of the valve, sliding freely through the valve-seat, for a guide. In order to introduce the valve into the pump-barrel between the valve-seat *g'* and the valve-diaphragm *f*, a portion, E, screws upon the main portion at *e*.

The pump-piston G, having a solid head, packed air-tight at *g*, is worked in and out the whole length of its rod at each stroke, and when it is drawn fully out it comes behind an aperture, *d*, in the side of the barrel D, through which air from the outside immediately rushes to fill the vacuum produced therein by drawing the piston back.

A tube, *m*, reaching nearly to the bottom of the reservoir A, conducts the liquid to the burner. If it is desired to have the burner swing round to any direction, a swivel-joint is made at *m'*, packed and tightened by a screw-cap, substantially as shown in Fig. 1; but this joint may be in most cases dispensed with.

The flow of the liquid into the passage *r*, which leads to the burner, must be regulated so as to be limited to a very small amount—just enough to supply the burner. The means of regulating this flow is by screwing down a conical stop, *n*, into the upper end of the duct *q*, which opens into the passage *r*. By screwing this stop fully down the flow may be entirely stopped, as when discontinuing the use of the apparatus at any time, and by turning it up the liquid is again admitted to the burner, and the amount regulated at pleasure. The screw-stop *n* is packed tightly, so as not to allow any escape of the liquid along its stem, by a disk, *o*, of cork or its equivalent, compressed to any desired degree by screwing a cap, *p*, down upon it. If any additional check to the flow of the liquid is required, a stuffing of fine wire-gauze is placed in the passage *r*—as many thicknesses as necessary.

The passage-tube *r* leading to the burner may be of any desired length. Upon the outer end of this the burner M is screwed.

The burner has a disk situated over the flame, and through which the gas-generating duct *s* from the passage *r* leads, and thence down to the conical jet-opening *t*, directly underneath the disk, substantially as shown in the figures. This disk may be called the "burner-retort," since in it the liquid is gasified by the heat of the flame beneath, and is



heated and rarefied to the requisite degree for producing a blowing jet similar to that of a blow-pipe, whereby an intense heat is produced upon the article or substance to be cooked or heated.

The flame is regulated by a conical point, *u*, adjustable up in the conical jet-opening *t*, so as to allow any desired amount of gas to escape or to stop it entirely. This conical jet-regulator is adjusted by a screw, *F*, on the lower end of its stem, and turned by a milled head, as represented.

In order to prevent the escape of any gas down by the regulator-stem, I employ a packing, *v*, of asbestos around it, compressed by a screw-cap, substantially as shown in the drawings. The use of the asbestos packing is important, since it resists the action of any degree of heat, and any other packing could not withstand the heat of the metal of the burner.

Fig. 2 represents a modification of the arrangement of the jet-regulator *u* of the jet-opening by having its stem pass down through and adjusted in the burner-retort above. In Fig. 3 the burner-retort is represented as hollow, instead of having a single small gas-passage through it.

A cup, *x*, is employed to hold a few drops of alcohol or other combustible liquid for generating the first flow of gas to start the burner with.

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

1. The employment of atmospheric pressure to force the liquid to the burner, in combination with a self-generating gas-burner for cooking and heating purposes, so as to produce a blowing jet of flame at any distance from the reservoir, substantially as herein specified.

2. The gas-generating burner-retort *M*, constructed and operating substantially as described, in combination with the condensing-pump and reservoir for forcing the oil to the retort, for the purpose specified.

3. The air-valve *H*, having a cork cushion covered with buckskin or its equivalent, when applied to the condensing-pump of the reservoir of a cooking apparatus supplied by the force of atmospheric pressure, substantially as described.

4. Surrounding the pump with the case or tube *C*, arranged in combination with the condensing-pump and reservoir of a cooking apparatus supplied by the force of atmospheric pressure, substantially as set forth.

5. The packing of asbestos around the stem of the jet-regulator, for the purpose herein set forth.

The above specification of my improved cooking apparatus signed by me this 18th day of July, 1865.

JOHN S. HULL.

Witnesses:

J. S. BROWN,  
F. A. FOLLETT.