

(No Model.)

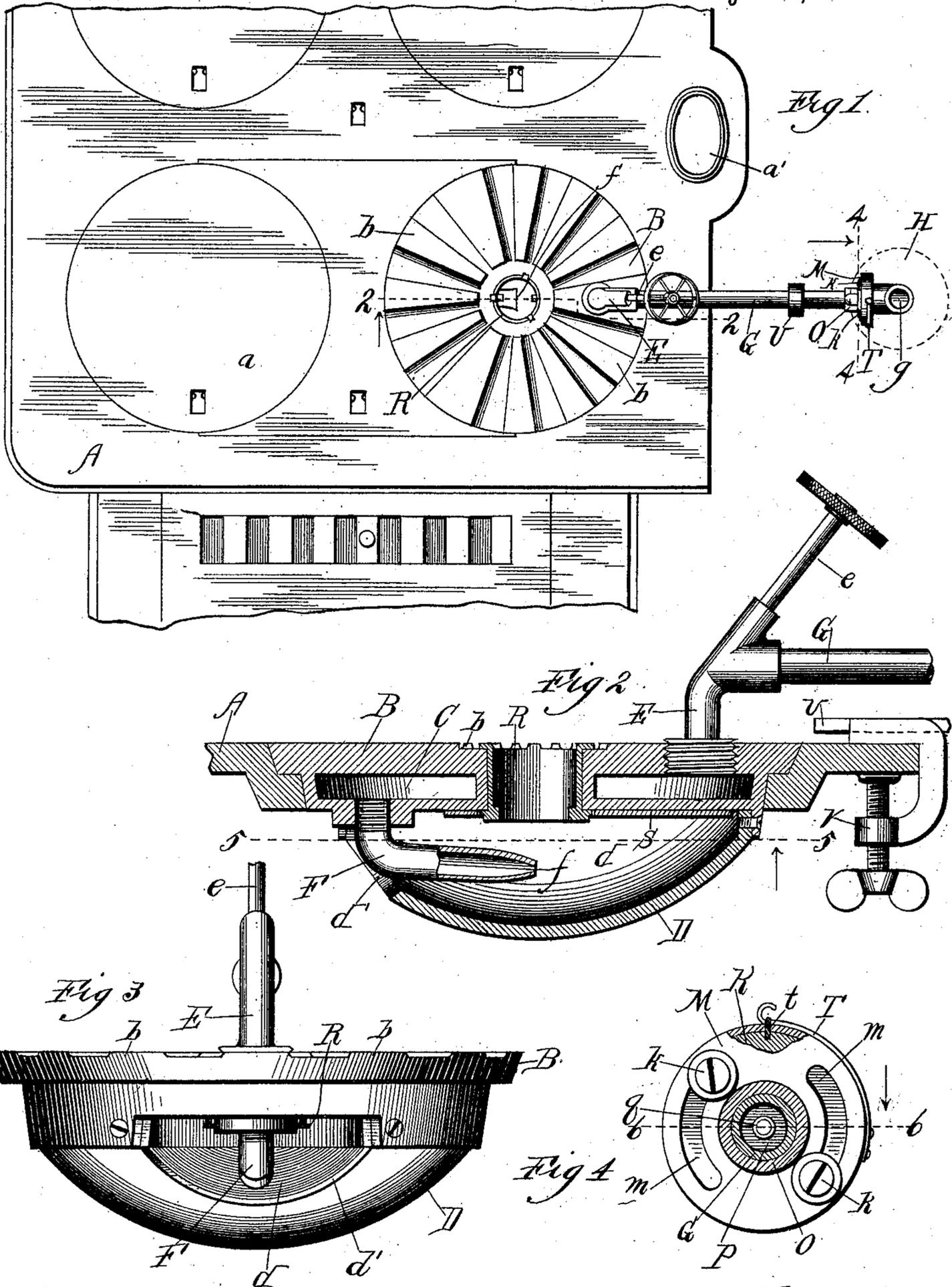
2 Sheets—Sheet 1.

J. G. W. ENTWISTLE, F. STARR, O. P. TALLEY & H. E. LORANCE.

VAPOR GENERATOR AND BURNER.

No. 603,680.

Patented May 10, 1898.



Witnesses
 W. C. Coe
 C. A. Crawford

Inventors.
 James G. W. Entwistle
 Fred Starr
 Orrin P. Talley
 Henry E. Lorange
 By Louis K. Gibson
 atty.

(No Model.)

2 Sheets—Sheet 2.

J. G. W. ENTWISTLE, F. STARR, O. P. TALLEY & H. E. LORANCE.

VAPOR GENERATOR AND BURNER.

No. 603,680.

Patented May 10, 1898.

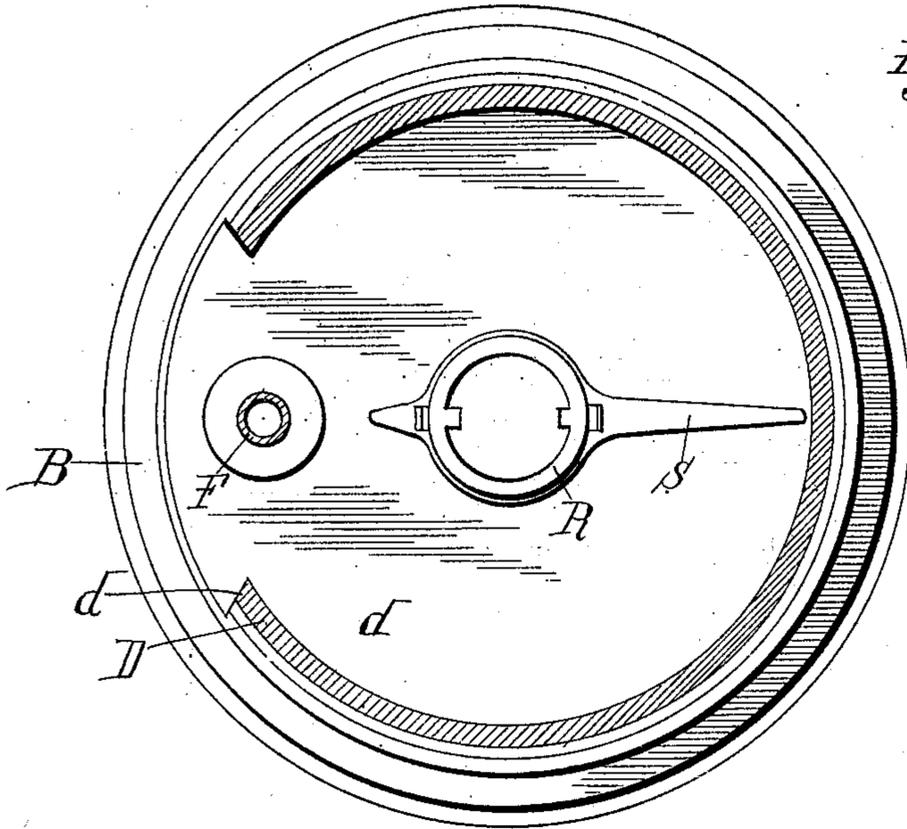


Fig 5

Fig 6

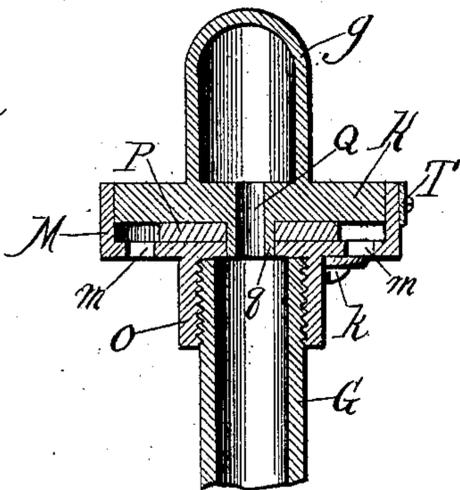


Fig 7

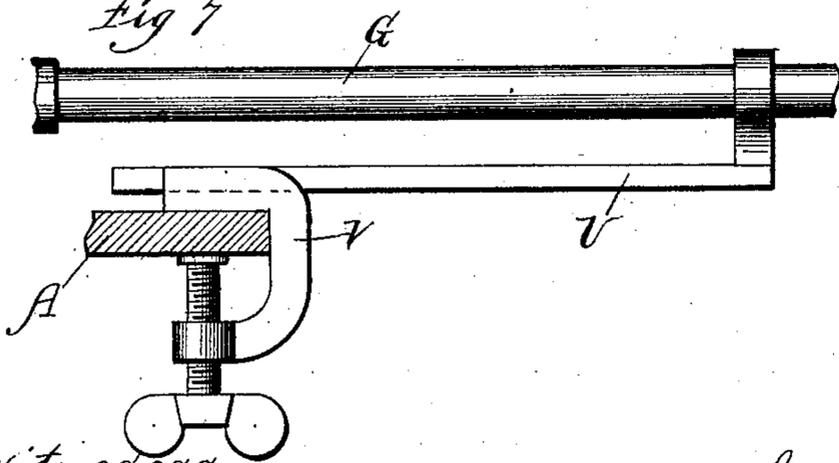
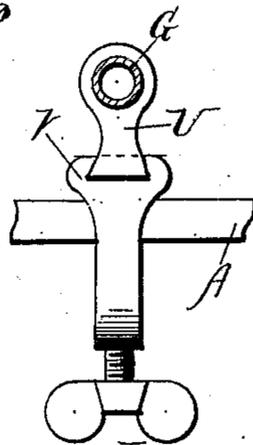


Fig 8



Witnesses
 W. C. Corlies
 C. A. Crawford

Inventors.
 James G. W. Entwistle
 Fred Starr
 O. P. Talley
 Henry E. Lorange
 By Louis H. Gibson
 Atty.

UNITED STATES PATENT OFFICE.

JAMES G. W. ENTWISTLE, FRED STARR, ORREN P. TALLEY, AND HENRY E. LORANCE, OF CHICAGO, ILLINOIS.

VAPOR GENERATOR AND BURNER.

SPECIFICATION forming part of Letters Patent No. 603,680, dated May 10, 1898.

Application filed November 23, 1896. Serial No. 613,057. (No model.)

To all whom it may concern:

Be it known that we, JAMES G. W. ENTWISTLE, FRED STARR, ORREN P. TALLEY, and HENRY E. LORANCE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vapor Generators and Burners; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to that class of vapor generators and burners which are adapted for use in connection with coal or wood stoves; and it consists of a chambered plate adapted to fit within one of the stove-holes, and being served by an induction-tube for the delivery of liquid, such as kerosene, and being provided with a combustion-chamber, to which the vapor generated from the liquid is delivered by a suitable nipple, an aperture for the escape of the flame into the fire-box of the stove and thence to its flue being provided in the wall of the combustion-chamber.

The object of the invention is to secure complete vaporization of the liquid before its delivery to the combustion-chamber.

It has for other objects the convenient attachment of the service-tube, leading from the oil-reservoir to the induction-tube, and the cleaning of the combustion-chamber, these objects being accomplished by means of the construction hereinafter set forth.

In the drawings, Figure 1 is a plan view of a portion of an ordinary coal or wood stove having our generator and burner applied thereto. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is an edge elevation of the generator and burner. Fig. 4 is a sectional view on the line 4 4 of Fig. 1. Fig. 5 is a bottom plan section on the line 5 5 of Fig. 2, and Fig. 6 is a sectional view on the line 6 6 of Fig. 4. Figs. 7 and 8 are details of the clamping device by means of which the burner and its appurtenances may be attached to the stove.

The top of an ordinary cooking-stove is

shown at A, and one of its covers is designated at *a* and its smoke-flue at *a'*.

The generator and burner comprises a plate B, adapted to fit within one of the stove-holes, and having radial ribs *b*, upon which any cooking utensils, such as a kettle, may stand, and is centrally apertured and provided with an internal annular chamber C. A bowl-shaped shell D is fixed to the under side of the plate B, thereby forming a combustion-chamber *d*, the wall of the shell D being at one side apertured, as indicated at *d'*, for the escape of the flame. Liquid is led to the chamber C by means of an induction-pipe E, and the vapors developed within the chamber C are discharged by means of a nipple F, leading through the bottom of the plate B into the chamber *d* at a point remote from the induction-pipe E, as shown diametrically opposite thereto, and directly over the aperture *d'*. The nipple F has a right-angled bend, so that its tip *f*, which is flattened, is directed to the center of the chamber *d*, and is located immediately below the central aperture of the plate B.

The generator and burner is provided with liquid from a reservoir H, (indicated only by dotted lines in Fig. 1,) supported upon a vertical tube *g*, which leads to a horizontal tube G, connected with the service-pipe E, the latter being provided with a needle-valve of ordinary construction, which we have not deemed it necessary to show in detail, which is controlled by means of a valve-stem *e*. The joint connecting the pipes G and *g* is swiveled, so that the latter pipe may be thrown to a horizontal position for convenience in filling the reservoir, and this joint consists of a centrally-perforated disk K, secured to the lower end of the pipe *g* and fitting within a cap M, which is secured by means of an apertured neck O to the pipe G. The disk K and cap M are secured together by means of screws *k*, passing through segmental apertures *m m* in the cap and entering the disk, so that the disk is free to rotate within the cap to the extent of the length of the segmental slots. A spring T, secured to the periphery of the cap M, is provided with a lug *t*, adapted to enter suitable apertures in the rim of the cap M and in the edge of the disk K, these two

apertures being so located that they register when the pipe *g* is vertical, and the joint is consequently securely locked in that position. A gasket *P* is interposed between the disk *K* and the cap *M*, surrounding a neck *q*, which projects from the face of the disk through the cap and is apertured to form a continuation of the aperture *Q* in the disk. The aperture *Q* is of much less diameter than the pipe *G* for better protection against leakage of this swiveled joint, the capacity of the pipe *G* being ample to rapidly convey the liquid away from the joint, thereby reducing the back pressure, which would tend to give rise to leakage. The pipe *G* rests within an adjustable chair *U*, which is secured by means of any suitable clamping device, as *V*, to the top *A* of the stove.

A rotatable sleeve *R* fits within the central aperture of the plate *B*. To its lower end is fixed a finger *S*, which extends laterally almost to the edge of the shell *D* and is in contact with the under surface of the plate *B*, so that by rotating the sleeve *R* by means of any suitable tool the finger *S* is caused to sweep the under surface of the plate *B*, in order to remove any accumulation of soot.

In use a little liquid is discharged into the combustion-chamber *d* and ignited, thereby developing sufficient heat to vaporize the liquid discharged into the chamber *C* by turning the valve-stem *e*. The flame being directed away from the aperture *d'* heats the generator to a high temperature, thereby insuring the complete vaporization of the liquid. The flame escapes from the combustion-chamber through the aperture *d'*, and circulating through the fire-box and flues of the stove, heats the latter in an efficient manner.

We claim as our invention—

1. In a vapor generator and burner, the combination with a centrally-apertured plate having an annular chamber substantially co-extensive with its body, of a laterally-aper-

45 tured shell secured to the lower side of the plate to form therewith a combustion-chamber, an induction-tube entering the chamber of the plate, and a burner-nipple leading from such plate-chamber, remote from the induction-pipe, to the combustion-chamber and being directed away from the aperture of the shell. 50

2. In a vapor generator and burner, the combination with a centrally-apertured plate having an annular chamber substantially co-extensive with its body, of a laterally-apertured shell secured to the lower side of the plate to form therewith a combustion-chamber, an induction-tube entering the chamber of the plate, and a burner-nipple leading from such plate-chamber, remote from the induction-pipe, to the combustion-chamber, a rotatable sleeve fitted within the central aperture of the plate, and a finger attached to the sleeve and adapted to frictionally sweep the lower surface of the plate. 65

3. The combination with a vapor generator and burner, of a service-pipe having a swiveled joint, comprising a centrally-apertured cap having segmental slots and being attached to one section of the pipe, and a centrally-apertured disk fitted rotatably within the cap and fixed to the cooperating section of the pipe, a pair of headed pins passing through the segmental slots and fixed within the disk, and a nipple leading from the aperture of the disk through the cap and being of less capacity than the pipe-section to which the cap is attached. 70 75

In testimony whereof we affix our signatures in presence of two witnesses. 80

JAMES G. W. ENTWISTLE.
FRED STARR.
ORREN P. TALLEY.
HENRY E. LORANCE.

Witnesses:

SAKE D. THOMPSON,
LOUIS K. GILLSON.