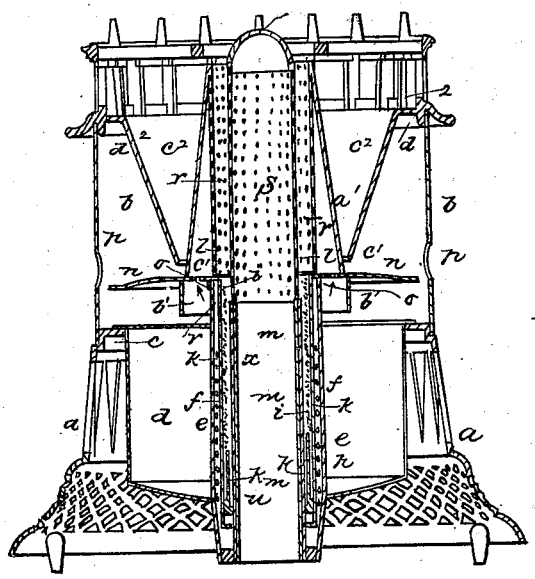
O. F. MORRILL.

Apparatus for Cooking by Coal Oil Burners.

No. 55,033. Patented May 22, 1866.

FIG. 1



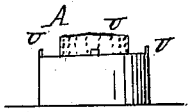


FIG. 3

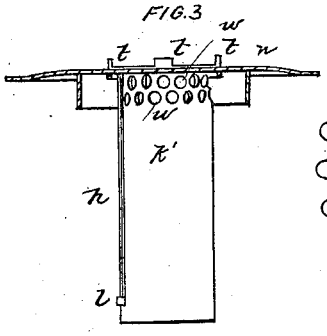


FIG. 2

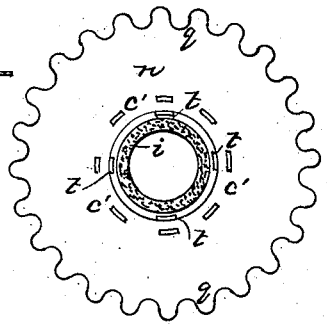
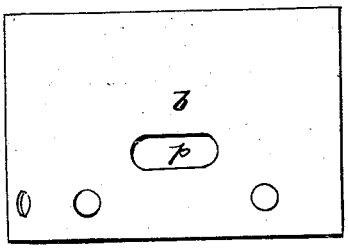


FIG. 4



WITNESSES

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OSCAR F. MORRILL, OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR COOKING BY COAL-OIL BURNERS.

Specification forming part of Letters Patent No. **55,033**, dated May 22, 1866.

To all whom it may concern:

Be it known that I, OSCAR F. MORRILL, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented Improved Heat-Generating Apparatus; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to the construction and arrangement of parts of stoves for burning oily or fatty matters, and particularly to that class of such stoves in which petroleum or the products thereof, and the various products from the distillation of coal, constitute the fuel, an Argand lamp being employed for the combustion thereof.

On the 4th day of October, 1864, Patent No. 44,548 was granted to me for a heat-generating apparatus employing an inner and an outer foraminous cylinder or chimney, in connection with a tubular wick burned between them, the space between forming the flame-chamber, to which air for the support of the flame was disseminated through the perforations of such chimneys; and my present invention consists in the various details of construction by which more perfect combustion of fuel is obtained in such apparatus, by which the heat is kept from diverging or radiating laterally, and by which the heat from the flame is kept from communication with the oil-reservoir.

The drawings represent an apparatus embodying my invention, Figure 1 showing a vertical and central section of it; Fig. 2, a top view of the wick-tube and the plate to which it is attached and by which it is elevated and lowered; Fig. 3, a side view of said tube; Fig. 4, an elevation of the stove-cylinder surmounting the base.

a denotes the base, supporting a cylinder, *b*, and having suspended within it, from a flange, *c*, the oil or liquid fuel containing reservoir, *d*. Through the center of this reservoir a tube, *e*, extends, said tube projecting down below the bottom of the reservoir, and having within it a smaller screw-tube, *f*, carrying a helical or screw thread for effecting the elevation or depression of the wick, the latter tube extending through the reservoir and being open at bottom, as seen in Fig. 1, for the supply of air to the inner surface of the tubular flame.

The tube *e* is provided with perforations to allow the oil to flow freely from the reservoir into the tube and from such tube into the wick-tube *k'*, through the vertical opening *h* in the side of the same.

The wick *i* is fastened at its lower end to a wick ring or carrier, *k*, from which extends a stud, *l*, projecting through the vertical opening *h*, and allowing the wick-carrier to slide vertically while rotating in connection with the tube.

The carrier is provided with a lip or traveler, *u*, which, as the carrier is rotated, travels around upon the screw or helical thread *m*, and effects the raising or lowering of the wick, as will be readily understood.

The wick-tube *k'* is provided at top with a circular plate or wheel, *n*, which rests upon projections *v*, formed upon or fixed around the upper end of the tube *e*, as seen at A, which is an elevation of the upper end of the tube, a lip or ring, *o*, extending down around the top of said tube *e* to keep the wick-tube in position laterally. The plate *n*, resting upon the projections *v*, instead of directly upon the top of the tube, insulates to a large extent the body of the tube *e* from the heat of the wick. This insulation is still further promoted by cutting away the material of the tube *e*, as seen at *w* in Fig. 3.

The plate *n* extends outward nearly to the surface of the cylinder *b*, and this cylinder is provided with one or more apertures, *p*, through which the fingers may reach the periphery of the wheel or plate *n* to impart rotation to it, the wheel being provided with teeth *q*, to facilitate such rotation. By turning the wheel the wick-carrier is rotated, and the screw-threaded tube being stationary, the traveler *u*, resting upon such thread, is, with the wick, raised or lowered in accordance with the direction of rotation of the wheel. This thread is not cut upon the surface of the tube, but the tube is made of thin material, and a strip of wire, *m*, or a narrow strip of metal, is drawn around and soldered to the surface, thus cheapening the construction and permitting a thin material to be used for the tube, which, on account of such thinness, is comparatively non-conductive of heat from the flame to the oil-reservoir.

The hollow wick *i* is burned at the top of its tube, and the air for supporting combus-

tion is supplied to the outer surface of the flame through a foraminous cylinder or air-disseminator, *r*, and to the inner surface thereof through a foraminous cylinder or air-disseminator, *s*. The cylinder *r* rests upon the wheel or plate *n*, and is kept in central position thereupon and with relation to the wick by centering pins or projections *t*, extending up from the plate *n*, as seen in Fig. 3.

The cylinder *s* surmounts a frusto-conical tube, *x*, extending from the plane of the top of the tube *f* down to the bottom of said tube, as seen in Fig. 1. This conical or tapering construction enables the disseminator *s* to be tipped laterally upon it to adjust it to the center of the outer disseminator, *r*.

There being nothing new in the arrangement of these foraminous disseminators, one within the other, to furnish air in fine currents or jets for the support of the flame burning from the wick between them, such arrangement does not need to be further set forth, and for a better understanding of the use and arrangement of the parts, in combination with a fluid-fuel-supplying reservoir, reference may be had to my said Patent No. 44,548.

The disseminator *r* is surrounded by a cone or shield, *a'*, which protects the flame from the effect of lateral currents of air, the arrangement of such shield being substantially the same as in another apparatus for which I have already made application for a patent.

To prevent the escape of any vapor arising from the reservoir through the tube *e* a flange or ring, *b'*, projects down from the under surface of the wheel *n*, and within this ring passages *c'* extend through the wheel into the cone *a'*, the vapors shut in by the ring *b'* passing up through these passages, as denoted by the arrows in Fig. 1, and are thence drawn through the disseminator and consumed in the flame.

To intercept the currents of heat thrown laterally from the surface of the shield *a'*, and deflect them upward, a deflector, c^2, is placed within the cylinder *b*, such deflector depending from a ring, d^2, that surmounts said cylinder *b*, the said lateral currents being, by the employment of said deflector, utilized by causing them to impinge upon the vessel to be heated, placed over the stove.

The plate or wheel *n* is used as an interceptor of the heat in the cylinder *b* downward to the reservoir *d*.

After many experiments of various kinds of material for the construction of the foraminous chimneys or disseminators, I have discovered that the composition known as brass is best for that purpose, said composition withstanding the effects of a high degree of heat better than iron or copper.

The tube *e* extends below the reservoir, and is united to the tube *f* at bottom, as seen in Fig. 1. This construction or arrangement prevents heat communicated to the tube *x* from passing around the oil-reservoir, as will be readily understood.

Each and all of these various improvements tend to perfect this class of stoves and render them of great value for use in culinary operations and in the arts.

I claim—

1. The deflector c^2, placed within the cylinder *b*, to give an upward tendency to the lateral currents of heated air, substantially as set forth.

2. Placing an interceptor-plate between the fuel-reservoir and the flame-chamber, as set forth.

3. Making the interceptor-plate *n* the wheel for regulating the height of the wick, substantially as set forth.

4. The vapor-passages *c'*, for conducting vapors from the reservoir into the cone.

5. In combination with such passages, the ring *b'*, for preventing lateral escape of such vapors.

6. Supporting the plate *n* or wick-tube *r* upon points or projections *v*, to insulate the reservoir from the heat of the flame, substantially as described.

7. The construction of the top of the tube *k'* or the plate *r* with projections *t*, to centralize and keep in position the outer disseminator, when they are arranged in the manner described.

8. The conical or tapering tube for so supporting the inner disseminator as to permit it to be adjusted substantially as described.

9. Placing the inner chimney, *s*, upon a tube which is insulated from the oil-reservoir, substantially as set forth.

OSCAR F. MORRILL.

Witnesses:
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F. GOULD.