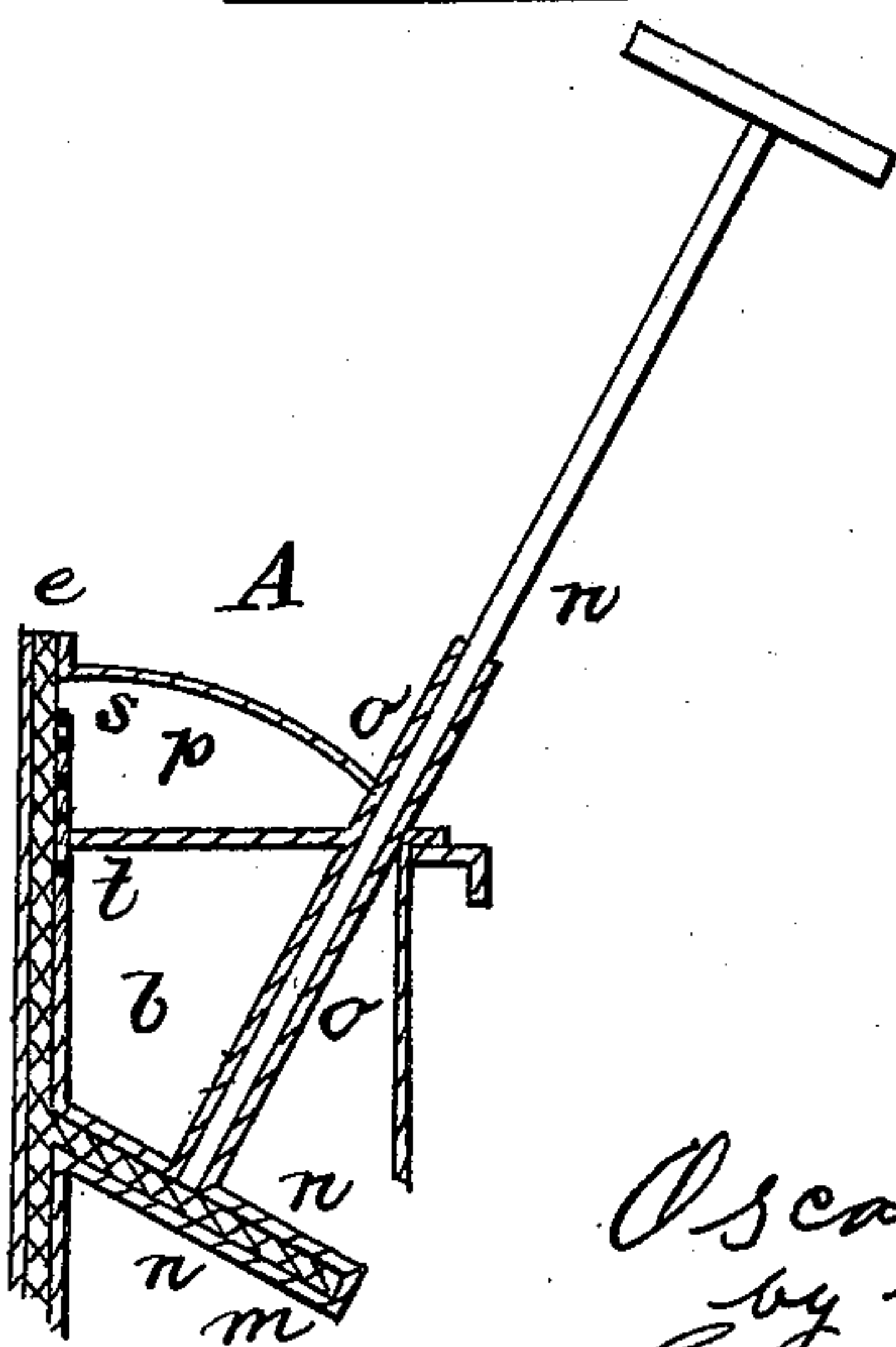
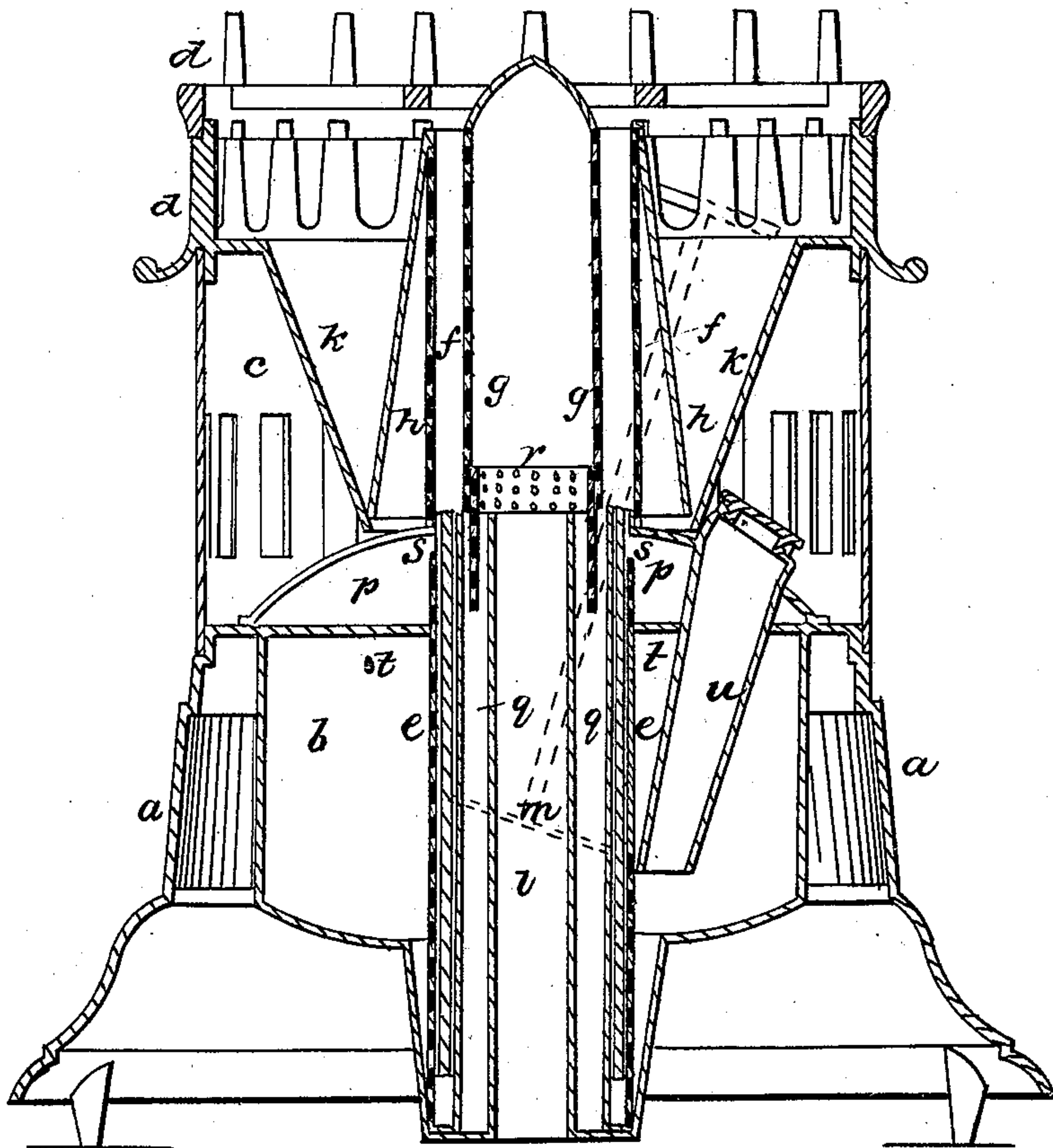


O. F. MORRILL.

Heat Generating Apparatus for Cooking Purposes.

No. 55,340.

Patented June 5, 1866.



Witnesses  
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# UNITED STATES PATENT OFFICE.

OSCAR F. MORRILL, OF CHELSEA, MASSACHUSETTS.

## HEAT-GENERATING APPARATUS FOR COOKING PURPOSES.

Specification forming part of Letters Patent No. 55,340, dated June 5, 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 an Improved Heat-Generating Apparatus; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms 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 of that class of stoves for burning fluid hydrocarbons in which a tubular wick is employed, the flame from which is burned between two foraminous air distributing and heating cylinders, my present improvements consisting, primarily, in the method of regulating the height of this tubular wick and in the details of construction, having reference to the safety of the apparatus or the insulation of the oil-reservoir from the heat of the flame.

The main view in the drawing represents a central vertical section of an apparatus embodying the invention and the detail.

A shows a section of the wick-regulating device.

*a* denotes the base or stand supporting the fuel-reservoir or lamp *b* and the cylinder *c*, which upholds a ring or rings, *d*, having pins or projections for the support of the vessel to be heated.

*e* is the tubular wick; *f* and *g* the two perforated cylinders, the space between which constitutes the flame-chamber.

*h* is a shield for protecting the tube *f* from lateral currents of air, and for causing the vapors which get between the shield and outer tube to pass through the perforations and be consumed.

*k* is a heat-deflector, and *l* a tube passing centrally through the reservoir *b* for the supply of air to the inner tube, *g*.

The pins which support the vessel to be heated are so disposed with reference to the top of the flame-chamber between the two foraminous cylinders or chimneys as to support the vessel at such distance above the chamber as to allow the free passage of the flame. When these cylinders are not employed the location of the pins as to height is not of great importance; but in this construction, if they are so placed as to bring the bottom of

the vessel into close proximity with the top of the flame-chamber, they retard the passage of the flame and cause jets of unconsumed gas to be driven outward through the perforations of the outer chimney, from whence, being beyond the flame, they sometimes escape unconsumed from the stove.

The wick *e* is raised and lowered by means of a large spur-wheel, *m*, having a diameter approximating to the diameter of the wick. This wheel is fixed to the bottom of a long stem or spindle, *w*, which inclines outwardly from the wick-tube and laterally with respect thereto, and extends up through the reservoir, as seen at A. The teeth upon one edge of the wheel project through the outer tube of the wick-chamber and into the surface of the wick. The wheel is set at such angle with reference to the surface of the wick that its rotation imparts not only a rotative but a vertical movement to the wick, or a spiral movement, elevating or depressing it accordingly as the wheel may be turned in one or the opposite direction. By employment of a spur-wheel to effect the adjustment of the wick I dispense with the screw-thread and traveler which are usually employed for such purpose, and very much simplify the construction of the wick-regulating mechanism.

If a small spur-wheel, or one of much less diameter than the wick, is employed, the teeth, to take sufficient hold upon the wick to move it, have to set or project so far into the surface of the wick that they hook into and drag the threads thereof from the tube, and soon fail to effect its movement; but by giving to the wheel a diameter about equal to that of the wick a larger number of teeth take hold upon it, and the threads slide from each tooth before it comes into such position that it can drag the threads from the tube with it. The teeth are bent down from the plane of the wheel, as seen at A, in order to present them at right angles to the wick, insuring a more perfect action or hold upon the wick-surface than when they are inclined with respect thereto.

The wheel is incased in a box, *n*, extending from the wick-chamber, as seen at A, but having no communication with the reservoir *b*, into which it projects, and from this chamber a tube, *o*, passes up to and through the top of the reservoir, thus serving as a bearing for



rotation of the spindle and incasing the spindle and wheel from the reservoir.

In the use of these stoves the heat from the flame is of such intensity that it is very important to preserve, so far as is possible, the fluid in the reservoir and the inflammable or explosive vapors generated therein from the effects of such heat. For this purpose I provide the reservoir with a compartment at the top, which I fill or pack with plaster or other similar earthy or non-conductive substance *p*, thus interposing a layer of such material between the flame and the fluid; and to preserve the inner wick-tube from such heat I fill the space between it and the air-tube *l* with a similar packing, *q*. I also embed the lower end of the cylinder *r*, which supports the inner flame-tube, *g*, in the top of this packing *p*, as seen in the drawing, by which application all connection of the tube *g* by metal with the reservoir is cut off. The outer wick-tube does not connect directly with the outer chimney, *f*, but has a space, *s*, between its top and the flange upon which the chimney rests, this space being filled with the packing *p*, thus insulating the outer wick-tube from the chimney. To break the continuity of heat-conducting metal the tube *r* and the top of the outer wick-tube are made of perforated metal, as seen in the drawing. The heat communicated to the fluid in the reservoir generates vapors, the pressure of which has a tendency to explode or burst the lamp. I therefore provide passages *t* at the top of the reservoir, communicating with the wick-chamber, through which these vapors are driven into the wick, in which they are carried up and consumed when they reach the flame. The filling-tube *u* extends down into the reservoir and nearly to its bottom, thus preventing the escape of vapors from the top of the reservoir through this tube.

I claim—

1. The employment of the inclined spur-wheel for effecting the adjustment of the wick

by imparting a rotative spiral movement, substantially as set forth.

2. The incasement of this wheel in the chamber or box *n*, substantially as and for the purpose set forth.

3. Bending the teeth of the inclined spur-wheel so that they act at right angles to the surface of the wick, substantially as described.

4. In combination with the spur-wheel and spindle, the tube *o*, extending up through the reservoir, substantially as described.

5. Giving to the feed-wheel such construction with reference to the wick, which it rotates, that its teeth shall not drag the threads from the wick-tube or become entangled therein, each tooth freeing itself from the wick before it reaches the surface of the tube through which the wheel projects, as described.

6. The employment, in combination with a tubular wick and two foraminous cylinders, of a non-conductive or slow-conductive packing, *p*, over the top of the fluid-containing chamber, or between the flame and said chamber, substantially as described.

7. In combination with a tubular wick and two foraminous cylinders, the packing *q*, between the air-tube *l* and the wick-tube.

8. Supporting the inner flame-tube, *g*, upon this packing or a tube, *r*, extending therefrom.

9. The passage *t*, communicating from the upper part of the reservoir-chamber with the wick-chamber, substantially as described.

10. So applying the outer wick-tube that there shall be a space, *s*, between the outer wick-tube and the outer flame-tube, which space is filled with the packing *p*, substantially as described.

11. Making the supporting-tube *r* and the upper part of the outer wick-tube of perforated metal, for the purpose described.

OSCAR F. MORRILL.

Witnesses:

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