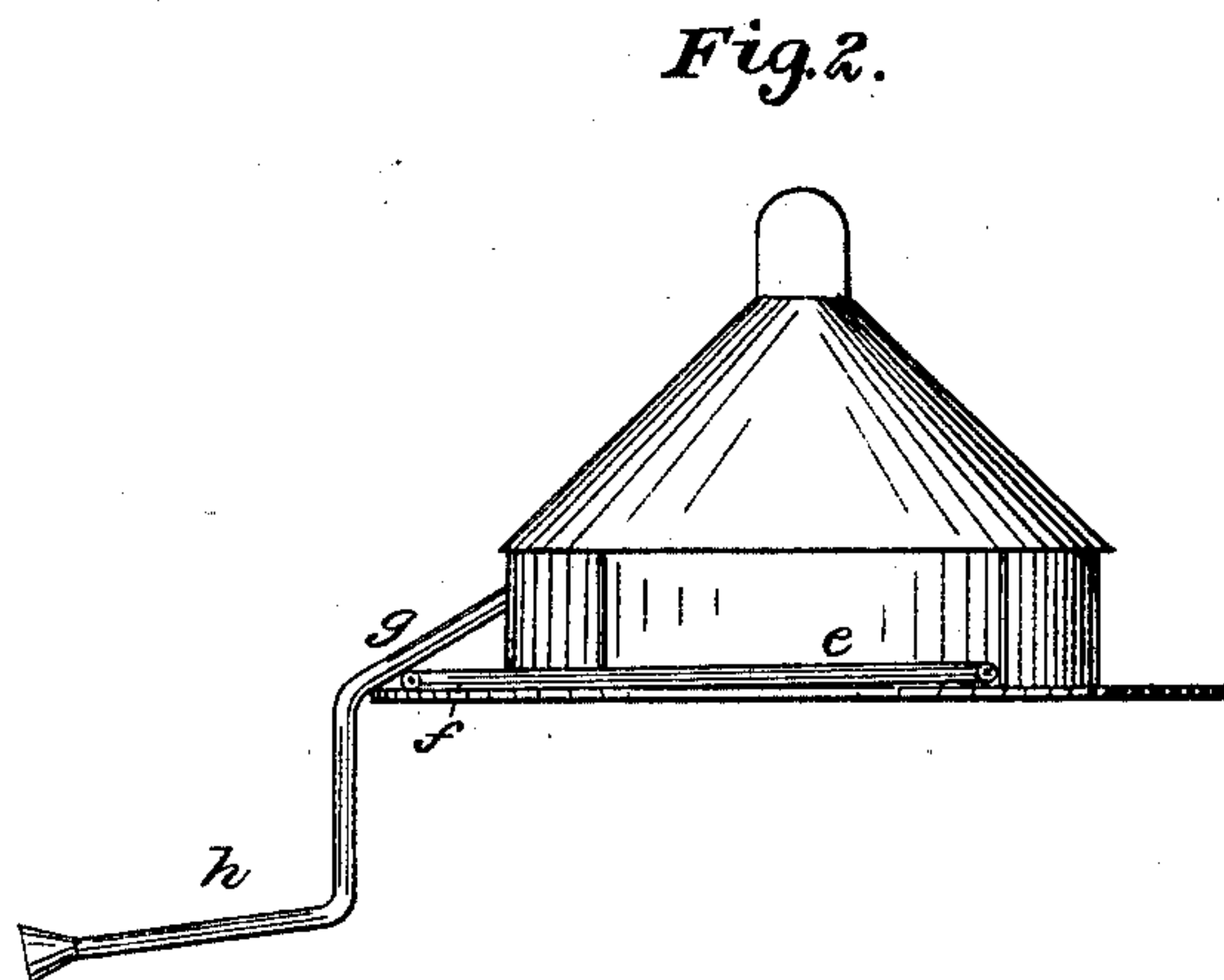
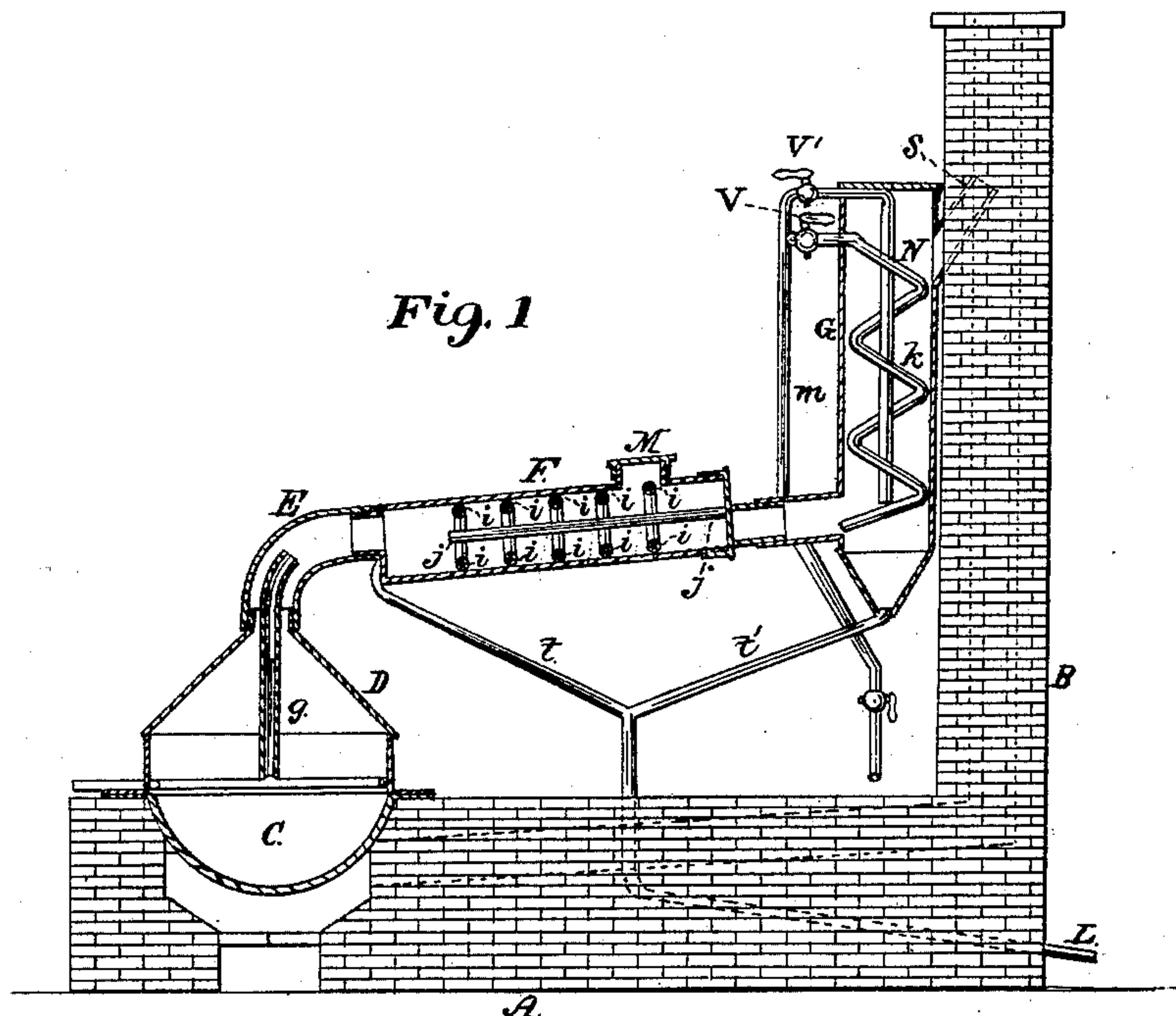


W. M. BARTRAM.  
Lard-Rendering Apparatus.

No. 82,195.

Patented Sept. 15, 1868.



Witnesses:

*J. Alfred Cox*  
*J. W. Myster*

Inventor:

*W. M. Bartram*  
Per  
*J. H. Alexander*  
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# United States Patent Office.

WILLIAM M. BARTRAM, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 82,195, dated September 15, 1868.*

## IMPROVED VAPOR-CONDENSER FOR LARD-RENDERING KETTLES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM M. BARTRAM, of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Vapor-Condensers for Tallow and Soap-Boiling Pans; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 represents a vertical section of my condenser, and

Figure 2 a front view of boiler-cap.

The nature of my invention consists in its construction and arrangement, the peculiarities of which will be hereinafter fully set forth.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation.

In the accompanying drawing, A designates the furnace, and B the chimney.

C is the kettle which contains the soap or grease, and is constructed with a flange, which rests on the upper surface of the furnace. On this flanged kettle, the cap, D, is placed, with a flange at bottom, corresponding to that on kettle C. In the interior of cap, D, the trough *e* is secured, one end of which communicates with pipe *f*, the object of which will be hereafter explained.

*g* represents an air-tube, having a funnel-shaped mouth, and slide, *h*, by which the supply of air in the cap, forced into the pipe *g* by a bellows or otherwise, can be regulated.

E is a goose-necked pipe, connecting cap, D, with condenser F, the said condenser being supplied with the water-pipes J and cross-pipes I, which are open at both ends, and also with cap, M, the object of these small pipes being intended, when filled with water, to increase the condensing-surface.

The pipe *j* will receive its supply of water from the conduit *m*, which will be fed from the hydrant or reservoir.

G represents a vertical condenser, which communicates with the condenser F on one side, and, on the opposite side, is furnished with pipe S, that enters the chimney, (see fig. 1.) It will be observed the conduit *m*, after ascending on the outer side of condenser G to near its top, will, after being bent at right angles, enter the condenser G, and then, bent at a right angle downwards, will terminate opposite the centre of the pipes which connect the two condensers F and G.

N represents a spiral pipe, which enters conduit *m* near its upper end, outside of condenser G, then penetrates into condenser G, coils around the descending part, *k*, of conduit *m*, and terminates at the lower part of the pipe connecting the two condensers F and G together.

L represents the pipe intended to carry off the waste water.

*t* and *t'* represent two junction-pipes, connected with the upper end of pipe L, pipe *t* being designed to carry off the water from condenser F, and pipe *t'* from condenser G, which is made funnel-shape at bottom, to facilitate the discharge.

The conduit *m* and pipe N are furnished with stop-cocks *v* and *v'*, intended to regulate the quantity of water, so that the supply received through conduit *m* may not be greater than the quantity discharged through water-pipe L.

The object of multiplying water-pipes in the condensers F and G is to condense more thoroughly the vapor arising from the boiling tallow in kettle C, and then separate the minute particles from said vapor, and return them again into the kettle, while the water in reservoir F, being below the mouth of the goose-neck E, cannot escape in the same direction, but finds a vent through tube *t*.

The advantage of the air-tube *g* is, that it assists in condensing the vapor in condenser F, and, by its current, carries the uncondensed vapor up the chimney B. Should the vapor be partially condensed by the cool sides of the cap, D, the water will fall into the trough *e*, and be discharged through pipe *f*.

I do not claim the employment of an air-pipe, through which air is forced by a pair of bellows or other equivalent means into the fire; but

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

1. The employment of the air-tube *g*, through which air is forced by a bellows, or other equivalent means, into the cap, *D*, above the fire, in combination with the goose-neck *E*, condensers *F* and *G*, and pipe *S*, leading into the chimney, whereby a part of the vapor is condensed, and the uncondensed vapor is carried up the chimney, substantially as set forth.

2. The arrangement of the kettle *C*, cap, *D*, air-tube *g*, condensers *F* and *G*, pipes *I J N k*, conduit-pipe *m*, discharge-pipes *t t'* *L*, and pipe *S*, all constructed and operated in the manner and for the purpose set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

WILLIAM M. BARTRAM.

Witnesses:

JOHN CRAIG,

JAMES A. RODGERS.