(No Model.) 2 Sheets—Sheet 1.

# S. SILSBEE.

## Steam Cooking Apparatus.

No. 235,388. Patented Dec. 14, 1880.

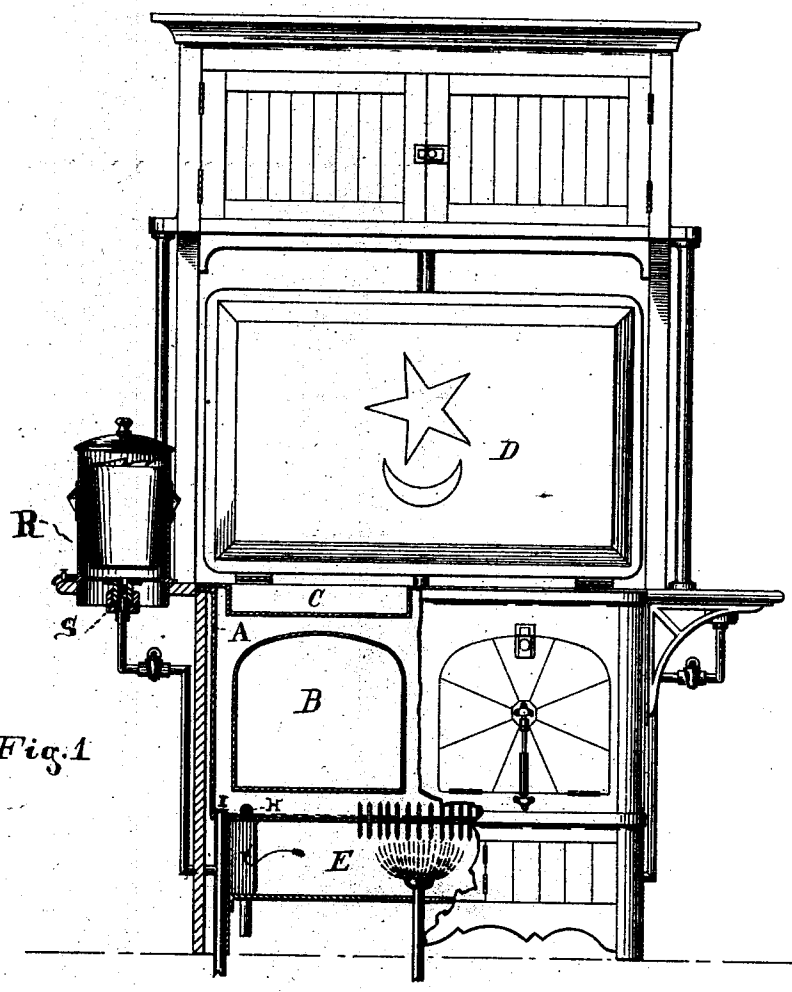



Fig. 1

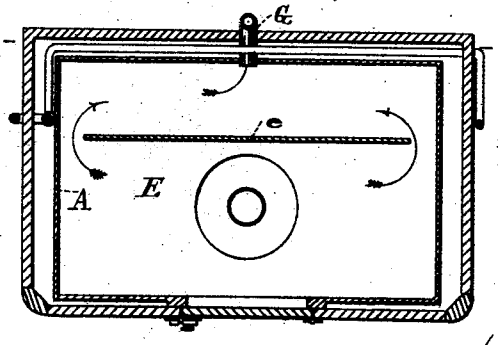



Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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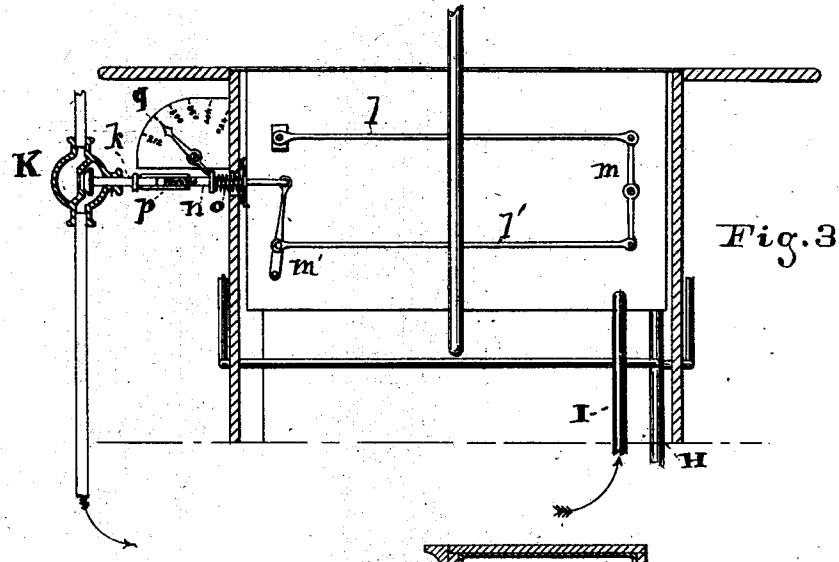



Fig. 3

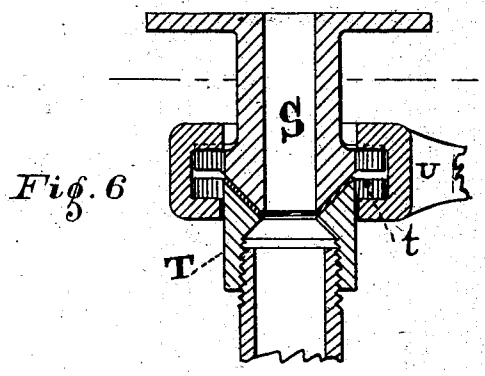



Fig. 6

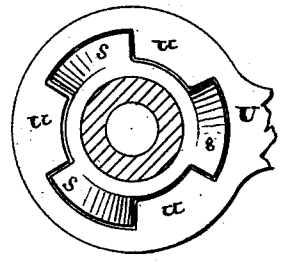



Fig. 7

Fig. 5

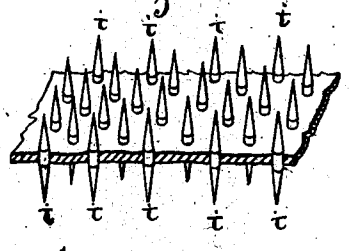
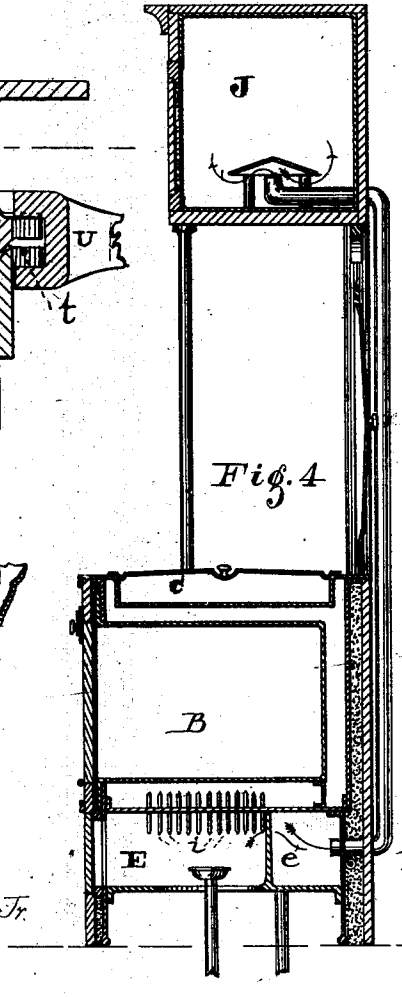



Fig. 4




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# UNITED STATES PATENT OFFICE.

SAMUEL SILSBEE, OF CINCINNATI, OHIO.

## STEAM COOKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 235,388, dated December 14, 1880.

Application filed May 3, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL SILSBEE, of the city of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Steam Cooking Apparatus, of which the following is a specification.

My invention relates to that class of stoves in which superheated steam is used for all culinary and domestic purposes requiring a high temperature.

The objects of my improvements are, first, to utilize the heat obtained from the superheating-burner and protect the bottom of the stove from cold currents of air; second, to provide means to absorb the heat from the burner and conduct it to the steam-chamber for the purpose of increasing the temperature of the confined volume of steam; third, to provide convenient means to support, attach, and detach the cooking-vessels. These objects are attained by the means illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved stove, having the top thrown up and one side shown in section. Fig. 2 is a horizontal section through the fire-box. Fig. 3 is a back view of the stove, showing the thermostat for regulating the supply of gas to the burner. Fig. 4 is a transverse vertical section of Fig. 1. Fig. 5 is a broken section of the superheater in perspective and greatly enlarged. Fig. 6 is a vertical section, and Fig. 7 a plan view of the union and key for locking the cooking-vessels to the steam-pipes, drawn nearly to the full size.

The same letters of reference indicate identical parts in the various views.

The body of the stove A is a metal box, made steam-tight. Within this box are ovens B, so arranged as to allow a free circulation of steam around them. The top of the stove is divided into depressed compartments C, covered with lids lined or filled with some non-conducting material to prevent radiation. These compartments or permanent pans are to be used for frying, broiling, and for all cooking that is now usually done upon the top of stoves and ranges.

D is a cover for the top of the stove. It is hinged at the back, so as to be thrown up, as shown in Figs. 1 and 4, when the top of the stove is used for cooking, and closed down to retain the heat, (being also lined with a non-conducting material,) and to present a neat appearance when the top is not in use.

The fire-box E is secured to the bottom of the stove, and is closed upon all sides, except an opening in the center of the bottom to admit the burner and air to promote combustion.

The fire-box is divided by a partition, *e*, which is placed back of the superheater, and extends transversely across the box to within a short distance of the ends of the box, so that the heated air is forced to travel in the direction of the arrows, and is thus distributed over the bottom of the stove before entering the uptake G. By thus inclosing the bottom of the fire-box the air admitted first passes the burner and superheater, and the heat is more evenly distributed over the bottom of the stove, which is therefore not liable to be injured by unequal expansion and contraction, as it would be were the heat applied to the bottom of the stove without the fire-box.

The superheater consists of a number of pins, *i*, preferably of copper or brass, screwed through the bottom of the stove. These project up into the steam-space and downward in proximity to the burner. The heat is absorbed by these points and conducted to the steam-space within the box, thus greatly facilitating the heating of the inclosed volume of steam.

I is a supply-pipe leading from a steam-generator into the steam-space within the stove, and H a waste-pipe suitably trapped to carry off the water of condensation.

Supported above the stove upon suitable brackets and columns is a hot-closet, J, to which the waste heat from the fire-box is conducted by pipe G. The hot-closet is made of sheet metal, either with or without chambered walls. In the form shown the heated air enters the closet below a deflector. This distributes the heated air, which will rise to the top, and after being cooled will pass off through openings in the bottom, near the corners. In this form of closet the viands will be placed in covered dishes; but it is obvious that the heated air may be made to circulate around the cham-

bered walls without entering the warming-chamber.

The thermostat for regulating the temperature of the ovens by governing the supply of gas to the burner is preferably applied to the back of the stove underneath the non-conducting packing, as is represented in Fig. 3, and will now be described.

K is the gas-supply-valve case, and *k* the valve-rod. *l* and *l'* are metal rods, preferably of brass, or some similar expansible metal; and *m* and *m'* are two levers.

*m* is pivoted near its middle to the case of the stove, and *m'* is pivoted to the case near its lower end. The upper end of *m'* is linked to a rod, *n*, which extends through a lug at the corner of the stove. Between this lug and a collar on rod *n* is compressed a spiral spring, *o*. On the end of rod *n* is screwed a tube, *p*, to receive the end of valve-rod *k*, which rod has a shoulder upon it, that rests against the end of tube *p*. The rod *l* is secured at one end to the back of the stove, and its opposite end is linked to the upper end of lever *m*, while the rod *l'* has its opposite ends linked to the opposite levers *m* and *m'*.

The operation of the thermostat is as follows: After the supply of steam from the generator has been turned off, the screw-tube *p* is run back to throw the valve open and the burner is lighted, the gas remaining under full pressure to the burner until a thermometer placed in the ovens will indicate 420° Fahrenheit, which is the highest temperature required for culinary purposes. When this temperature is reached the tube *p* is turned forward until the light under the superheater is turned down low. Now, as the temperature of the stove decreases, the rods *l l'* will contract, draw the valve away from its seat, and increase the supply of gas to the burner, and as the temperature of the stove is raised the rods will expand and permit the spring *o* to force the valve nearer to its seat, and partially cut off the supply of gas. A dial, *q*, is placed in a convenient position to be seen by the cook. This is marked to indicate the degrees of heat from 212° to 450°. The indicator of the dial is operated by rod *n*. The temperature of the stove is thus automatically regulated, and all danger of overheating or underheating obviated.

My thermostat may also be adapted to regulate the supply of steam to the stove and to the registers used with the Holly or other system of heating cities by steam, (with which my stove is particularly intended for use,) so as to regulate the temperature of the rooms; but to regulate the temperature within ten degrees of heat will be necessary to multiply the number of rods or wires, increase the force of the spring, or gather up the slack of the expanding wires by a weight so arranged as to open and close a valve or diaphragm to admit or cut off the supply of steam. My peculiar arrangement for this purpose is not described or illustrated here, as I intend to make it the subject of an independent application.

Upon each side of the stove, as seen in Fig. 1, is a shelf or table with openings to receive jacketed cooking-vessels R. These vessels have flanges upon the bottom, which extend down below the union by which the vessels are connected to their steam-supply pipes, so that the vessels may be set down on these flanges without injuring the union or liability of overturning the vessel.

The means of locking the vessels to their supply-pipes is represented in Figs. 6 and 7. S is the member of the union which is attached to the bottom of the steam-vessel R. The lower end of this is ground conical or globular to fit the seat-piece T on the end of the supply-pipe. The union-pieces have similar lugs, *s* and *t*, projecting from their adjacent ends. The upper faces of lugs *s* and the lower faces of lugs *t* are inclined in opposite directions.

U is a key slotted to receive the union-pieces S and T, notched and perforated to pass over the supply-pipe and lugs *s* and *t*. The inwardly-projecting lugs *u* of the key have their adjacent faces inclined in opposite directions, so that when the key is brought up to the position shown in Figs. 6 and 7 and turned partially around by the handle (shown broken away) the valve S and its seat T will be drawn together, making a steam-tight joint, and the vessel be locked securely to its place.

Other forms of coupling devices may also be used to lock the vessels to the steam-supply pipe; but the form I have shown is simple in its construction and not liable to get out of order.

In order to provide against any accident likely to arise from the presence of moist steam or water in the shell at the time of applying heat to the superheater, the waste-pipe is left open, and a safety-valve is also applied to some convenient part of the stove, weighted to allow pressure from six to ten pounds.

The stove, when completed, is enveloped, except the bottom, in a non-conducting material, and outside of this is a wood finish, which gives it the neat appearance of a piece of cabinet furniture.

I claim—

1. The combination, substantially as before set forth, of the body of a steam-stove, a box underneath its bottom, a burner extending into the box through a hole which also admits air, a superheater attached to or forming part of the bottom of the body of the stove, and a partition or baffle-plate in the box to equally distribute the heat not absorbed by the superheater.

2. The combination, substantially as before set forth, of the body of the stove adapted to confine a volume of steam, a superheater consisting of a number of points extending from

the outside into the inclosed steam-space, and a burner arranged in close proximity to the superheater.

3. The combination, substantially as described, of vessel R, having union-piece S, with lugs *s*, the steam-supply pipe having opposite union-piece T, with lugs *t*, and the key U, with lugs *u*, for locking said vessel to the supply-pipe, in the manner set forth.

SAML. SILSBEE.

Witnesses:
GEO. J. MURRAY,
ED. DEWALD.