

S. C. SWINDLER.
COMBINATION BOILER AND STOVE.
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2 SHEETS—SHEET 1.

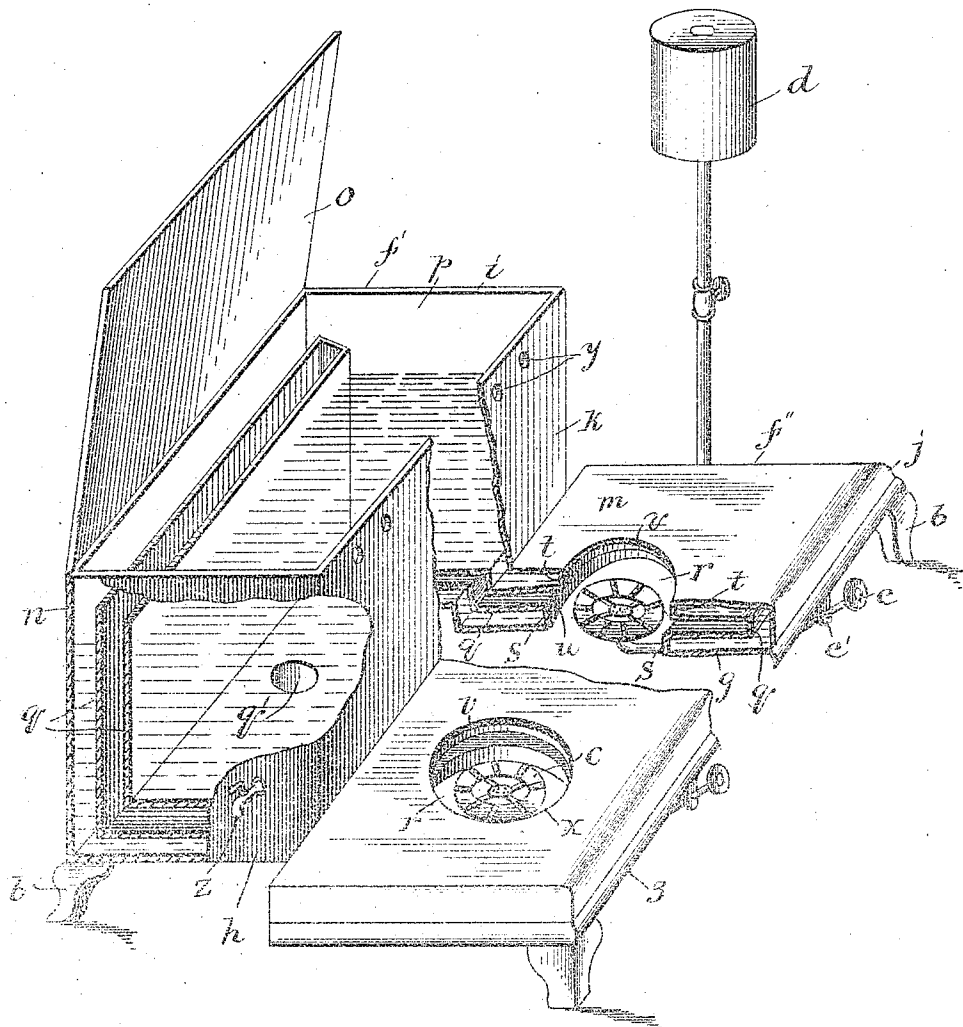


Fig. 1.

Witnesses:

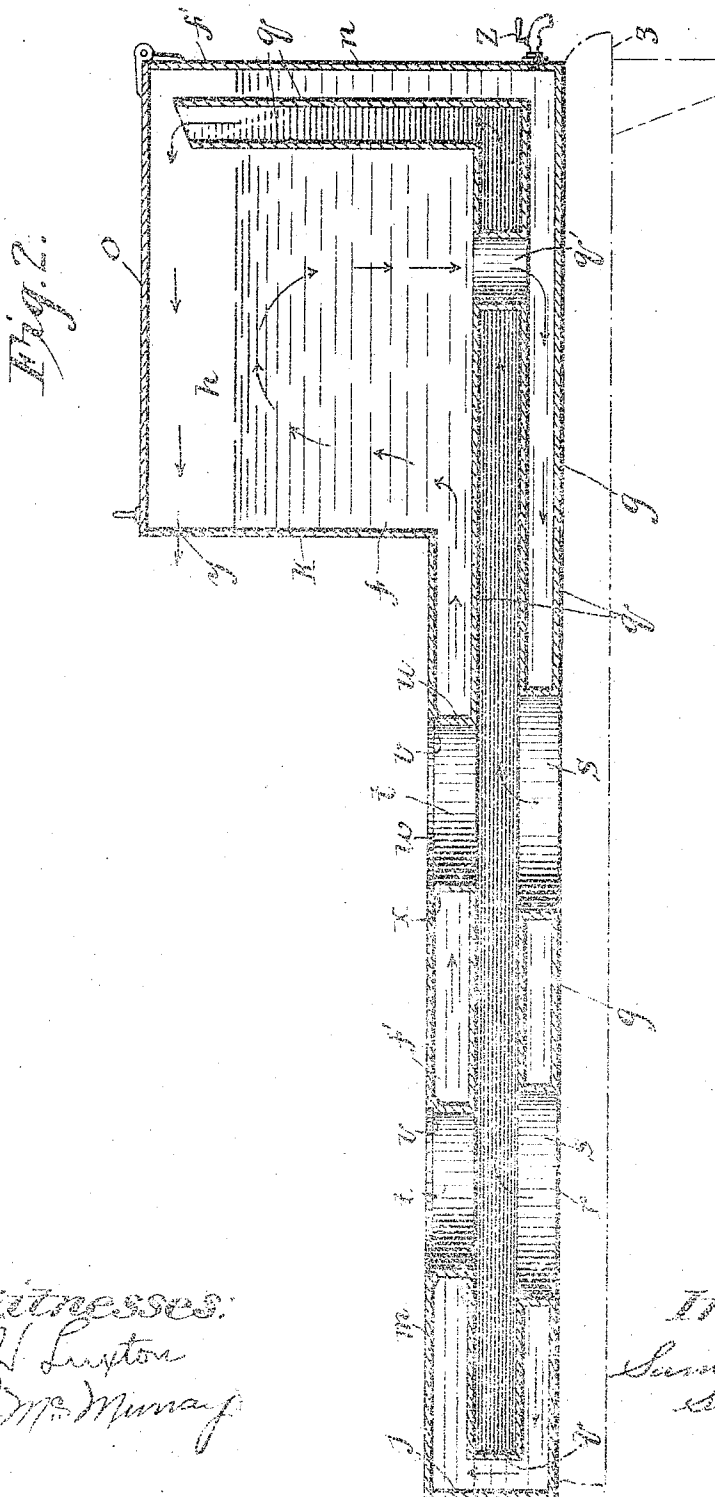
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2 SHEETS—SHEET 2.



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COMBINATION BOILER AND STOVE.

1,045,634.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL CLYDE SWINDLER, a citizen of the United States, residing at Pratt, in the county of Pratt and State of Kansas, have invented certain new and useful Improvements in Combination Boilers and Stoves, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in combination boilers and stoves and particularly to improvements in attachments by which the products of combustion from the stove are made to heat water for ordinary household or other purposes; and an object of this invention is to provide an attachment of the character just alluded to which will be simple in construction, comparatively cheap in manufacture and most efficient in operation and which will utilize a large percentage of the heat which would otherwise be wasted. While the attachment may be used with the ordinary coal stove, it is particularly well adapted for use with gas, oil and vapor stoves.

In the drawings illustrating the principle of this invention and the best mode now known to me of applying that principle, Figure 1 is a perspective view of the combination boiler (or water-heating attachment) and stove, parts being broken away and shown in section for the sake of clearness of illustration of the interior; and Fig. 2 is a vertical section of an attachment having two rows of holes for the reception of cooking utensils.

The stove *a* is provided with the usual legs *b* and burners *c* which are fed from a tank *d* containing a suitable liquid fuel, such as gasoline, the flow of the same being controlled by the valves *e*. There is nothing new in the structure of the stove and, as above stated, any other suitable type of stove may be used in place of the one herein shown and described. The water-heating attachment or boiler *f* is a substantially L-shaped receptacle having a bottom wall *g*, end walls *h*, *i*, front walls *j*, *k*, a top wall *m* and a back wall *n* to which is hinged a lid or cover *o* designed to close the opening *p* through which the boiler may be filled with water. Within the boiler *f* is arranged an L-shaped flue *q*, which is the main discharge flue and the upper end of which is open and lies above the normal water-level and below the lid *o*. In the horizontal part of the flue

there is formed a vertical channel *q'* which connects the water-space above the flue with the water-space below the same, the flue being separated by suitable water-spaces from the back wall *n*, bottom wall *g*, front walls *j*, *k*, top wall *m* and end walls *h*, *i*. The bottom wall *g* of the boiler *f* is formed with openings *r* from which extend the vertical flues *s* the upper ends of which communicate with the horizontal part of the L-shaped flue *q*; and from the latter leads a pair of vertical flues *t* which are co-axial with the vertical flues *s* but are smaller in diameter than the same, whereby an overhang *u* is formed. The upper ends of the flues *t* are formed with seats *v* for the lids *w* which close the openings *x* in the top wall *m*. In the top of the front wall *k* and above the normal level of the water in the reservoir *f* there are formed holes *y* for the escape of the gas which pours out of the open upper end of the L-shaped flue *q*. In the end wall *h* is fitted a spigot or faucet *z* by means of which water may be drawn from the reservoir *f* at will. The bottom *g* of the latter may, as shown in the drawings, constitute the bottom of the stove; and around the front and ends of the bottom wall *g* a curved flange *3* extends and serves as a support for the lugs *e'* in which the stems of the valves *e* are mounted.

The operation of my new combined stove and boiler will be readily understood from the foregoing description taken in connection with the drawings and, briefly explained, is as follows: When it is desired to cook and to heat the water at the same time, the lid *w* is removed from each hole *x* that is to be used for cooking; and the cooking utensil is placed therein or thereover, after which the burner *c* and the utensil or vessel is lighted. If desired, the other burner or burners may also be lighted, the lids *w* above them being left in place. The products of combustion flow up through the flues *s* and a part of them strikes the overhanging parts *u* of the top of the main flue *q* and flow along the latter into the top of the tank *f'* constituting the main or body part of the boiler *f* and escape therefrom through the vents *y*. The rest of the products of combustion flows on upwardly through the flues *t* and, striking against the bottom of the cooking vessel and against such of the lids *w* as may not have been removed, is reflected back and passes out

through the main flue q and the discharge orifices y . The top of the horizontal part f'' of the boiler f serves as a stove-top upon which the ordinary operations of cooking or culinary processes may be carried out or performed; and this part f'' is, as clearly shown in the drawings, shallow as compared with the tank part f' and serves as a water-jacket for the burners c , the walls of the flues s , t transmitting heat from the hot gases to the water in the water-spaces surrounding them. The channel q aids in maintaining the circulation of the water from the tank f' to the water-space in the chambered hot-plate f'' . The water-supply in the tank f' may be replenished by raising the cover o and pouring in the water by the pailful, for example; during the ordinary operation of the apparatus, however, the top of the tank f' is kept closed. The holes y will allow the steam formed in the tank to escape with the waste gases.

I claim:

1. A structure of the character described, comprising a tank for holding water; a chambered hot-plate which projects laterally from the tank and which is formed with a water-space that communicates with the water-space in the tank, said hot-plate having an opening in its top and an aperture in its bottom below said opening for the ingress of the products of combustion; a substantially upright flue which is arranged within the water-space of the hot-plate and the bottom of which overlies said aperture and the top of which lies closely adjacent to the wall of said opening and is adapted to receive the bottom of a cooking utensil; and a main discharge flue which is provided with a water-circulation channel and is arranged in the water-spaces of the hot-plate and of the tank and is bathed by the water in said water-spaces and which communicates with said upright flue and leads laterally therefrom into the tank.

2. A structure of the character described, comprising a tank for holding water; a chambered hot-plate which projects laterally from the tank and which is formed with a water-space that communicates with the

water-space in the tank, said hot-plate having an opening in its top and an aperture in its bottom below said opening for the ingress of the products of combustion; a flue the lower end of which lies closely adjacent to the wall of said aperture and which is arranged within the water-space of the hot-plate; a second flue the upper end of which lies closely adjacent to the wall of said opening and is adapted to receive the bottom of a cooking utensil and the lower end of which is opposed to the upper end of the other flue and which is arranged within the water-space of the hot-plate; and a main discharge flue which is provided with a water-circulation channel and is arranged in the water-spaces of the hot-plate and of the tank and is bathed by the water in said water-spaces and which communicates with both said flues and leads laterally therefrom into the tank; one of the last-named flues being wider than the other.

3. A structure of the character described, comprising a normally-closed tank which is adapted to hold water and is formed with an air space above the normal water-level in the tank and with vents from said air space; a chambered hot-plate which projects laterally from the tank and which is formed with a water-space that communicates with the water-space in the tank, said hot-plate having an opening in its top and an aperture in its bottom below said opening for the ingress of the products of combustion; a substantially upright flue which is arranged within the water-space of the hot-plate and the bottom of which lies closely adjacent to the wall of the said opening and is adapted to receive the bottom of a cooking utensil; and a main discharge flue which communicates with said upright flue and leads laterally therefrom into the tank and the open upper end of which is arranged to discharge products of combustion into the air-space above the normal water-level in the tank.

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Witnesses:

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