

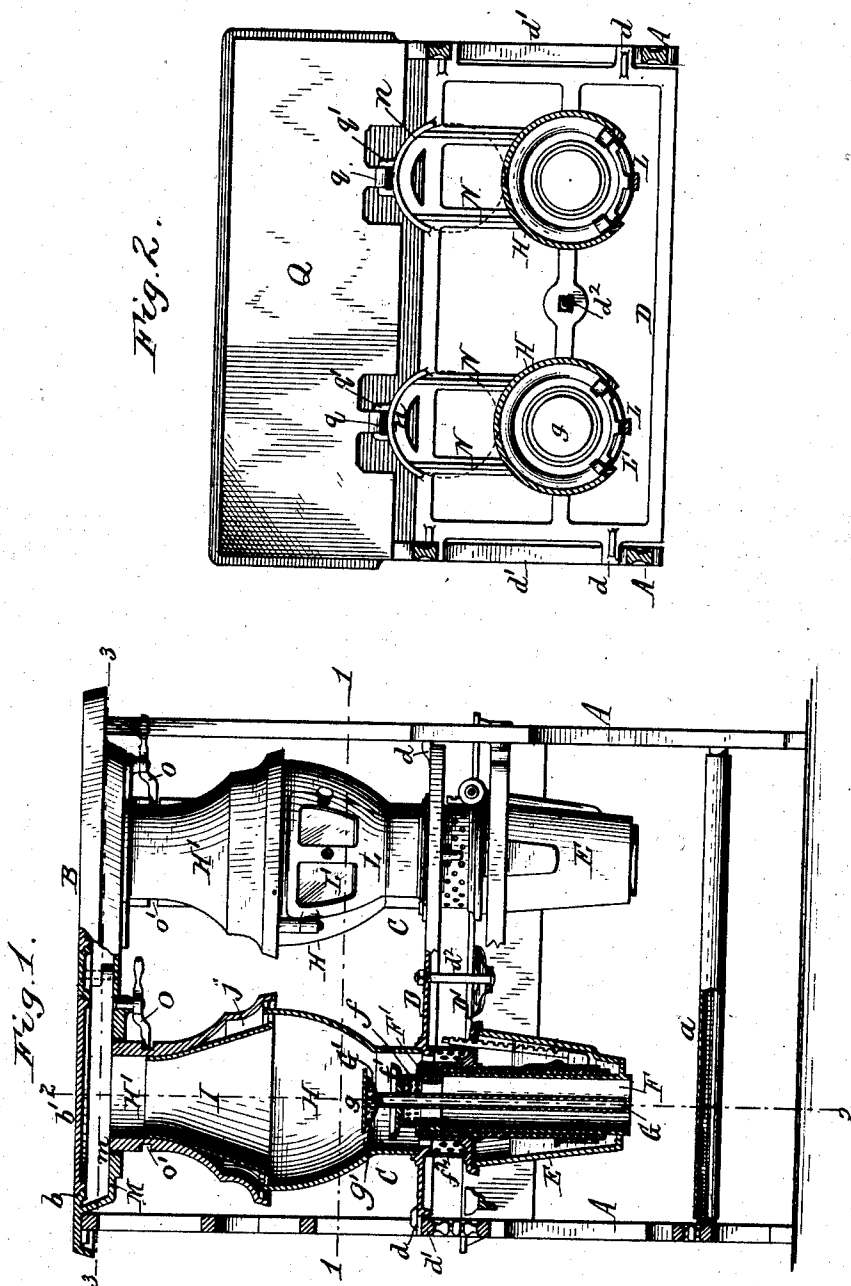
(No Model.)

3 Sheets—Sheet 1.

A. Q. ALLIS.
OIL STOVE.

No. 489,138.

Patented Jan. 3, 1893.



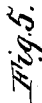
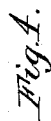
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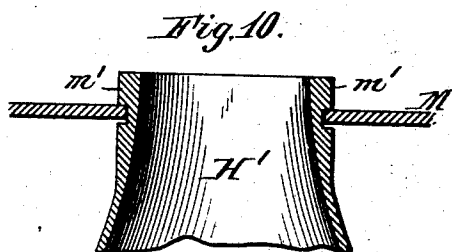
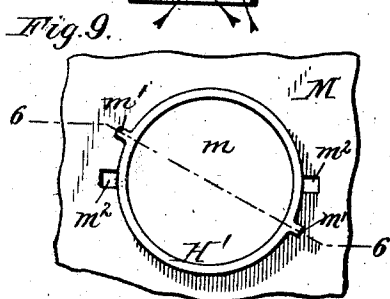
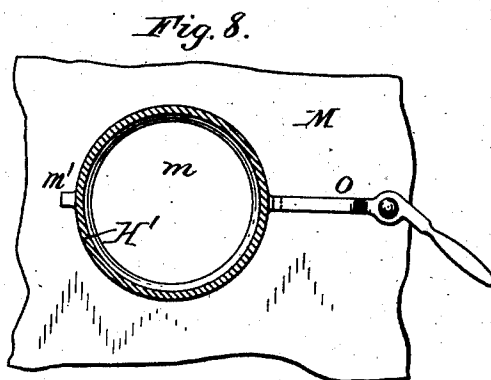
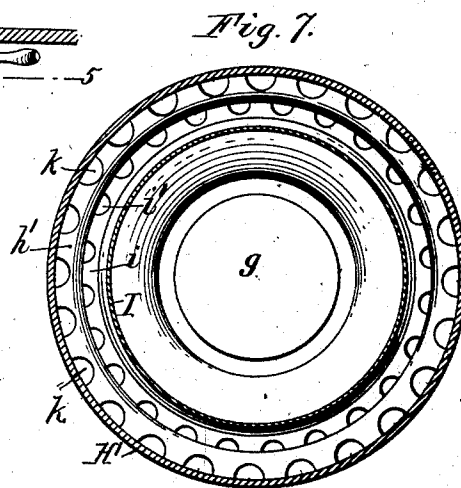
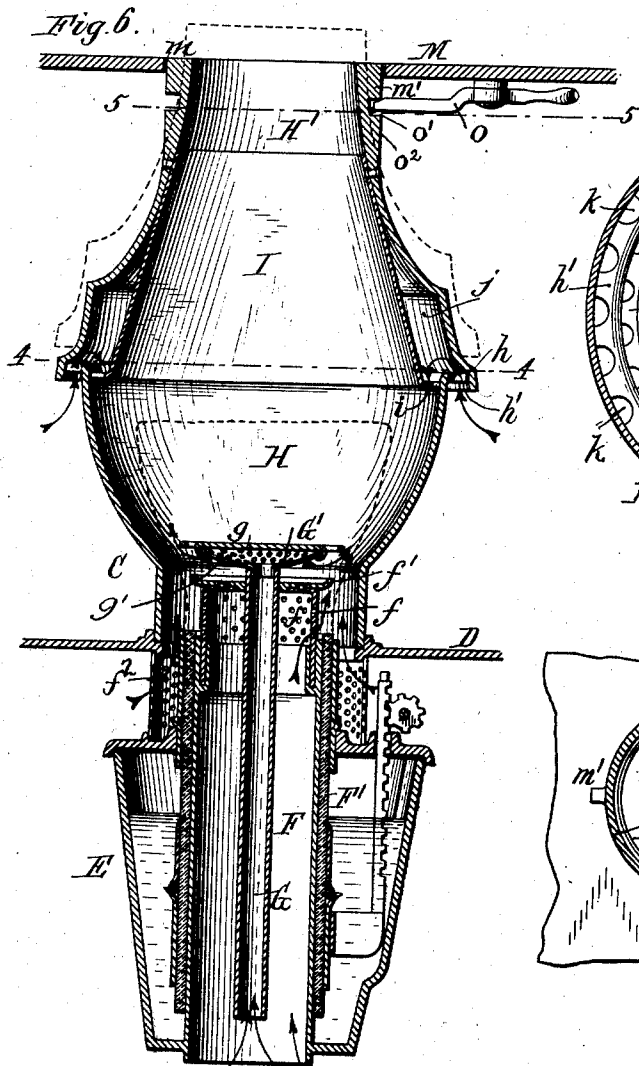
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A. Q. ALLIS.
OIL STOVE.

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UNITED STATES PATENT OFFICE.

ABRAM Q. ALLIS, OF PRATTSBURG, NEW YORK, ASSIGNOR OF ONE-THIRD
TO HENRY T. WURTH AND THOMAS H. FLYNN, OF SAME PLACE.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 489,138, dated January 3, 1893.

Application filed February 8, 1892. Serial No. 420,649. (No model.)

To all whom it may concern:

Be it known that I, ABRAM Q. ALLIS, a citizen of Prattsburg, in the county of Steuben and State of New York, have invented a new and useful Improvement in Oil-Stoves, of which the following is a specification.

This invention relates to improvements in oil stoves.

The principal object of my invention is to increase the air supply to the burners of the stove, so as to produce a large flame and a complete combustion.

My invention has the further objects to so construct the burners that easy access may be had thereto for lighting, extinguishing or cleaning the same and for trimming the wicks; and to provide the stove with simple means for directing the escaping heat through either of the draft-holes located behind the main utensil openings.

In the accompanying drawings consisting of three sheets:—Figure 1 is a front view of my improved oil stove, showing one-half of the stove in elevation and the other half in vertical section. Fig. 2 is a horizontal section of the stove in line 1—1, Fig. 1. Fig. 3 is a cross section thereof in line 2—2, Fig. 1. Fig. 4 is a top plan view of the stove. Fig. 5 is a horizontal section of the stove-top in line 3—3, Fig. 1. Fig. 6 is an enlarged vertical section of one of the burners and its chimney. Fig. 7 is a horizontal section in line 4—4, Fig. 6, looking down. Fig. 8 is a similar view in line 5—5 Fig. 6, looking upward, showing the lever for locking the upper part of the chimney in place. Fig. 9 is a top plan view of the upper part of the chimney and the lower plate of the stove-top, showing the manner of supporting the upper part of the chimney when raised. Fig. 10 is a vertical section in line 6—6, Fig. 9.

Like letters of reference refer to like parts in the several figures.

A A represent the upright side-frames of the stand which are connected near their lower ends by tie-rods *a*.

B is hollow the stove-top supported upon the side frames A and having the usual front utensil holes *b*, closed by removable lids *b'*, and rear draft-holes *b²* which are covered by

open circular frames *b³* forming supports for cooking utensils.

C C are the burners arranged underneath the stove-top and supported by a horizontal plate D which is provided at its ends with projecting ears *d* resting loosely upon cross-bars *d'* of the side frames, as represented in Figs. 1 and 2. The supporting plate D is held in place by a fastening bolt *d²*, which connects the plate with a horizontal frame D' arranged below the plate and rigidly secured between the side frames A.

E represents the oil fount, F the circular wick tube extending centrally through the fount, and F' the tubular wick surrounding said tube. The latter opens at its lower end through the bottom of the oil fount and conducts the air upwardly which is supplied to the inner side of the flame. The upper end of the wick tube is provided with a cap or hood which is composed of a perforated cylindrical wall *f* extending above the top of the wick tube and an imperforate top plate or deflector *f'* which is secured to the top of the perforated wall and closes the upper end of the wick tube.

f² is a perforated tube which surrounds that part of the wick tube which projects above the oil fount and from which it is separated by an annular passage through which the air entering through the perforations of this tube flows to the outer side of the flame. The parts of the burners thus far described are all old and well known.

G is an air feeding tube arranged within the wick tube and extending upwardly through the imperforate top or deflector *f'*, thereof. This air tube is open at its lower end to receive air from the interior of the wick tube and is provided above the deflector *f'* with a hollow distributing head G'. The latter is composed of an imperforate top plate *g* and a perforated lower or side wall *g'* which latter is connected with the upper end of the air feeding tube. The internal air supply reaches the flame partly through the perforated wall *f* at the top of the wick tube and partly through the distributing head above the top deflector of the wick tube. The first mentioned internal supply is delivered in fine

jets against the root of the flame, and the last named supply is delivered above the deflector in a lateral and downward direction against the inner side of the flame at a higher elevation. By this means all of the air which is supplied through the wick tube is brought in intimate contact with the flame and utilized for supporting combustion and none is allowed to escape directly upwardly into the chimney where it would impair the draft and cool the products of combustion.

The chimney of each burner is preferably constructed of cast-iron and is divided horizontally into two separable sections H H'. The lower section H rests loosely upon the supporting plate D. The upper section H' is supported upon the lower section by an annular shoulder *h* formed at its lower end and resting upon an outwardly projecting annular flange *h'* formed at the upper end of the lower section.

I is an annular deflector arranged within the upper part of the chimney and separated from the surrounding wall of the upper chimney section by an annular space or passage *j*. This deflector has the form of a truncated cone and is secured at its upper end to the adjacent wall of the upper chimney section, the deflector fitting closely against the chimney at this point to prevent the passage of air between the upper end of the deflector and the chimney. The deflector is formed at its lower end with an outwardly projecting annular flange *i* resting against the inner surface of the lower chimney section and provided with air passages or openings *i'*, whereby the space inclosed by the chimney is placed in communication with the air passage *j* between the conical deflector and the upper chimney section.

k are air openings or passages formed in the flange at the upper end of the lower chimney section and through which the surrounding air enters the annular air passage *j*. The air entering the passage *j* through the openings *k*, is directed downward by the deflector I and caused to dive through the air openings in the flange of the deflector and enter the chimney. The upper part of the flame is thus supplied with air on its outer side through the annular air passage at the junction of the chimney sections, and on its inner side by the air rising through the air feeding tube G, thus furnishing the upper part as well as the base of the flame with an ample volume of air on all sides, whereby a perfect combustion is produced and the size of the flame considerably increased. The body of air in the passage *j* surrounding the deflector I acts as a non-conductor which checks radiation of the heat through the chimney. The passage *j* also forms a chamber in which the air is heated before it enters the chimney, whereby the fresh air is supplied to the flame in the most advantageous condition for producing a smokeless combustion.

The lower chimney section is provided with

a door L having openings L' closed by panes—of mica through which the condition of the flame may be observed. The upper chimney-section is arranged with its upper end in an opening *m* formed in the bottom plate M of the stove-top and is provided on opposite sides with lugs or projections *m'* which fit in notches *m²* formed in opposite sides of the opening *m*, when the upper chimney-section rests upon the lower section, as shown in Figs. 1, 3, 5 and 6. Upon raising the upper section of the chimney sufficiently to bring its lugs *m'* above the bottom plate M of the stove-top and giving the section a partial turn to break the coincidence between its lugs and the notches *m²*, as shown in Figs. 9 and 10, the lugs by resting upon said top-plate, will support the upper chimney section in the position shown by dotted lines in Fig. 6, in which position the lower end of said section clears the upper end of the lower chimney-section. The latter rests upon rearwardly extending ribs or guide-ways N arranged on the supporting plate D. At the rear end of each of these guide-ways is arranged a raised flange or stop *n*. After raising the upper chimney section and suspending it from the stove-top, as just described, and opening the door of the lower section the latter may be slid backwardly on its ways into the position shown by dotted lines in Fig. 2, the backward movement of the chimney-section being limited by the stop *n*. In this position of the parts, the space above the burner is unobstructed, so that ready access is had to the burner for lighting, extinguishing, or cleaning it or for trimming or renewing the wick. After raising the upper chimney-section and removing the nut of the fastening bolt *d²*, the supporting plate D may be swung upward on its rear supporting lugs *d*, to gain access to the parts of the burner under the same. The parts are again returned to their normal position by moving the lower chimney-section forwardly over the burner and lowering the upper section by turning it so as to bring its lugs into register with the notches in the lower plate of the stove-top. The upper chimney-section is preferably locked in this position by a catch or lever O pivoted to the underside of the stove-top and engaging with its inner end in a notch or recess *o'* formed in the chimney section between its lugs *m'* and a shoulder *o²* arranged on the section below said lug, as shown in Figs. 6 and 8. Upon swinging this lever out of the notch of the upper chimney-section, the latter is released.

P represents the oil reservoir supported upon the side frames of the stove behind the burners and above their oil founts. The latter are connected with the reservoir by pipes *p*. Q is a warming shelf arranged above the oil reservoir P and hinged at its front edge to the rear edge of the supporting plate D, the shelf being provided with hooks or knuckles *q* which engage with loops *q'* formed on the

supporting plate, as shown in Fig. 2. The rear portion of the warming shelf is supported in a horizontal position by feet q^2 formed on the under side thereof and resting on the oil reservoir. By hinging the shelf to the supporting plate D, the shelf can be swung upward out of the way to fill the oil reservoir, and the supporting plate can, at the same time, be tilted in the manner hereinbefore described.

R R' are horizontally swinging dampers arranged in the flue R² of the stove-top, which leads to the rear draft-holes b^2 and whereby the escaping heat may be directed through or concentrated upon either of said openings, if desired. These dampers consist of vertical plates pivoted at their front ends upon an upright pin or bolt r connecting the upper and lower plates of the stove-top, so that the plates may be swung into either of the positions shown in Figs. 4 and 5. When it is desired to direct the heat through the right hand hole b^2 , the damper R' is placed centrally between the two draft-holes and the damper R is placed in front of the left-hand hole, as shown by full lines in Fig. 5. Upon swinging the damper R' in front of the right-hand hole, as shown by dotted lines in Fig. 5, and the other damper between the two holes, the heat is cut off from the right-hand hole and concentrated upon the left-hand hole. When it is desired to direct the heat through both draft-holes, the dampers are both placed between the two holes, as shown by dotted lines in Fig. 4. The dampers are manipulated by means of pins r' arranged on the dampers and projecting upwardly through a curved slot r^2 formed in the upper plate of the stove-top.

I claim as my invention:—

1. The combination with the burner and the stove top, of a chimney containing a lower part having an outwardly turned top flange provided with air inlet openings and a top part resting with its lower end upon said flange outside of said air inlet openings, substantially as set forth.

2. In an oil stove, the combination with the burner and the stove top, of a chimney composed of a lower part, an upper part having its lower end arranged outside of the top of the lower part and separated therefrom by an air inlet passage, and an internal deflector arranged within the upper part and having its lower end arranged inside of the top of the lower part and separated therefrom by an air inlet passage, substantially as set forth.

3. In an oil stove, the combination with the stove-top and a burner arranged underneath the same, of a chimney for the burner com-

posed of a lower part provided at its upper end with a flange having air openings, an upper part communicating with the stove-top and resting on the lower part, and a deflector arranged in the chimney; whereby the air entering the chimney through the openings in the flange of the lower part is directed downward, substantially as set forth.

4. In an oil stove, the combination with the stove-top and a burner arranged underneath the same, of a chimney for the burner composed of a lower part provided at its upper end with a flange having air-openings, an upper part communicating with the stove-top and supported on the lower part, and an annular deflector arranged in the chimney and provided with a flange arranged below the flange of the lower chimney-section and provided with air openings, substantially as set forth.

5. The combination with the burner and the stove top, of a supporting plate provided with ways in rear of the burner, a lower chimney section capable of being moved rearwardly on said ways and provided with a door which, when open, allows the lower section to be moved past the burner, and an upper chimney section suspended in the stove top and capable of being lifted from the lower section, substantially as set forth.

6. The combination with the oil fount and chimney, of a burner having a circular wick tube, an air supply passage inside of the wick tube and provided above the latter with an imperforate deflector and below the deflector with openings through which the air issues outwardly against the root of the flame; and an internal air supply tube extending upwardly through said imperforate deflector and provided above the same with a distributing head having a closed top and below said top openings through which the air issues outwardly against the inner side of the flame above said imperforate deflector, substantially as set forth.

7. In an oil stove, the combination with the hollow stove top provided with front and rear utensil holes, of horizontally swinging dampers arranged in the stove top and attached at their inner ends to a vertical pivot arranged between the two sets of utensil holes, substantially as set forth.

Witness my hand this 4th day of February, 1892.

ABRAM Q. ALLIS.

Witnesses:

FRED. L. GEER,
JAS. H. GREEN.