

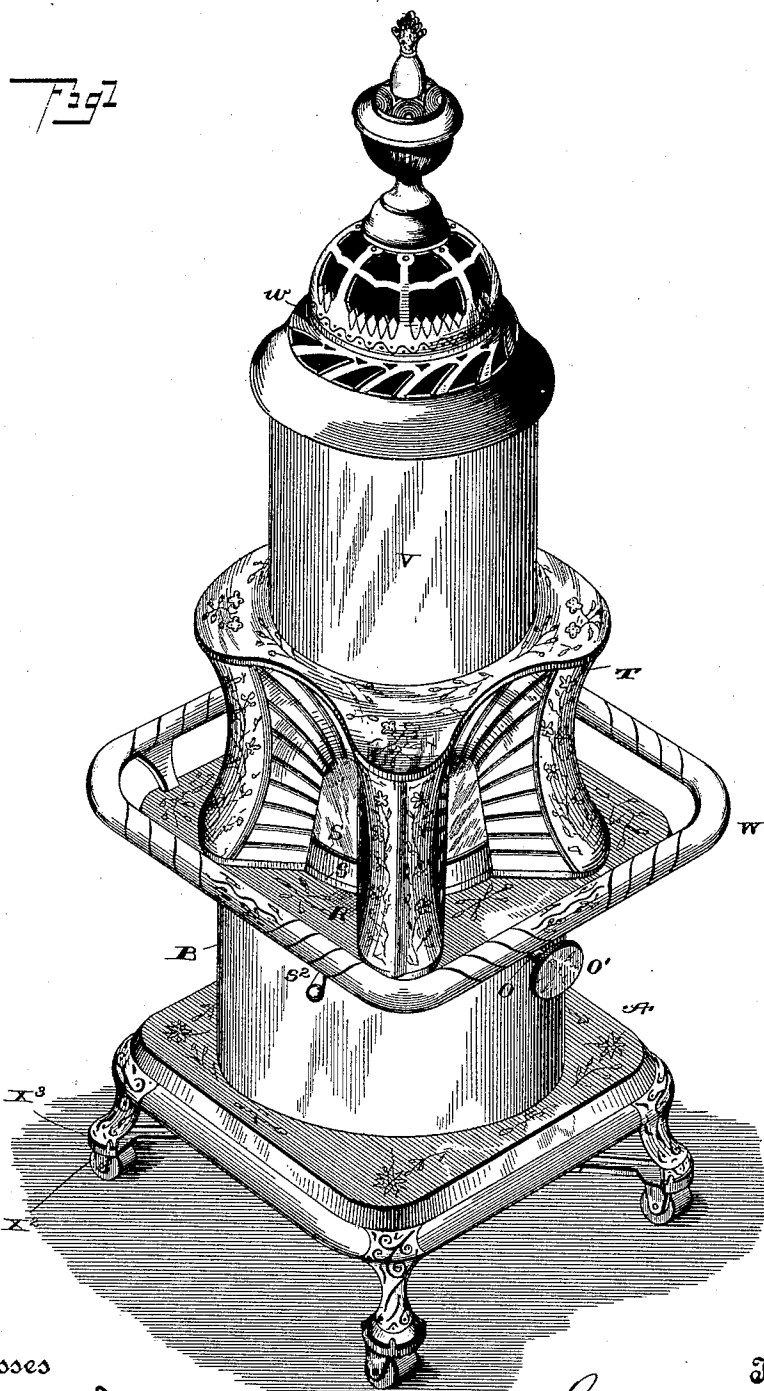
(No Model.)

4 Sheets—Sheet 1.

P. W. STRONG.
OIL STOVE.

No. 465,004.

Patented Dec. 15, 1891.



Witnesses

John Dmirie
Alvan Macauley

By his

Inventor

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Attorneys

Church & Church

(No Model.)

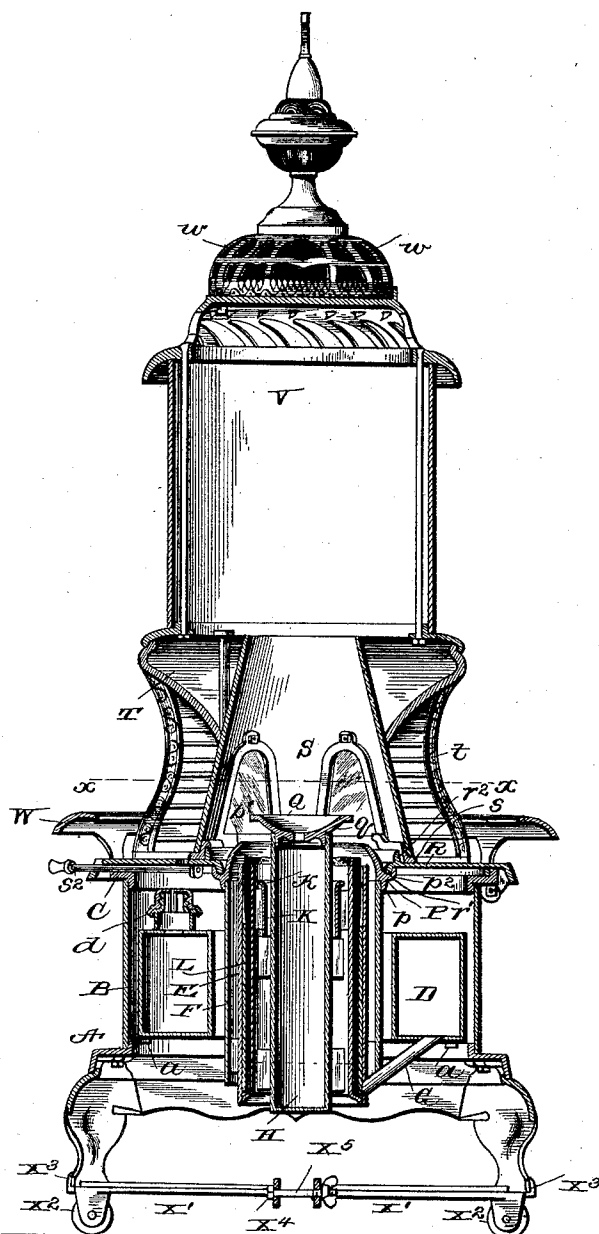
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Fig 2



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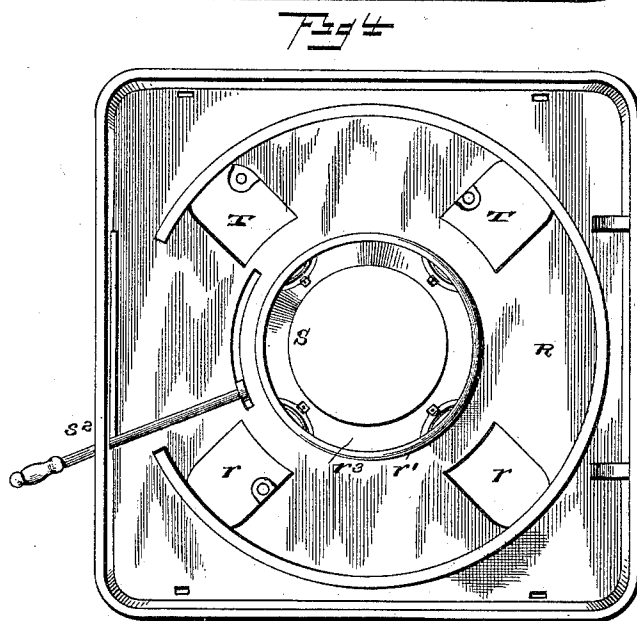
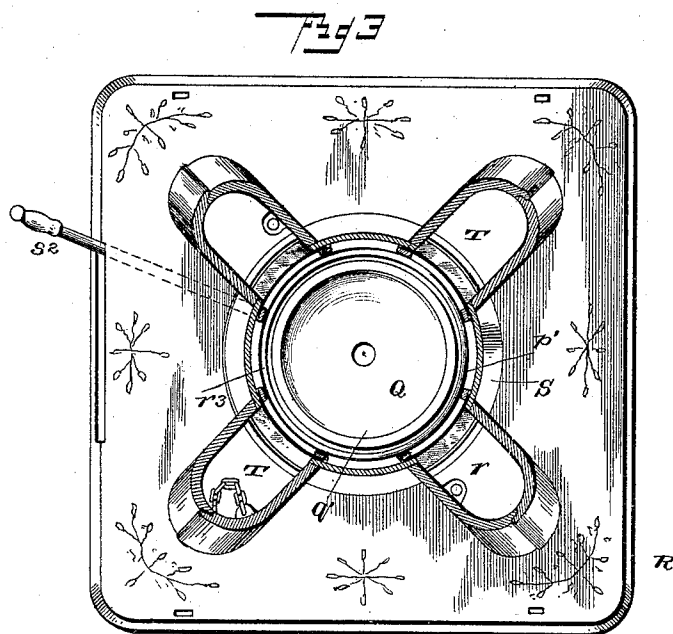
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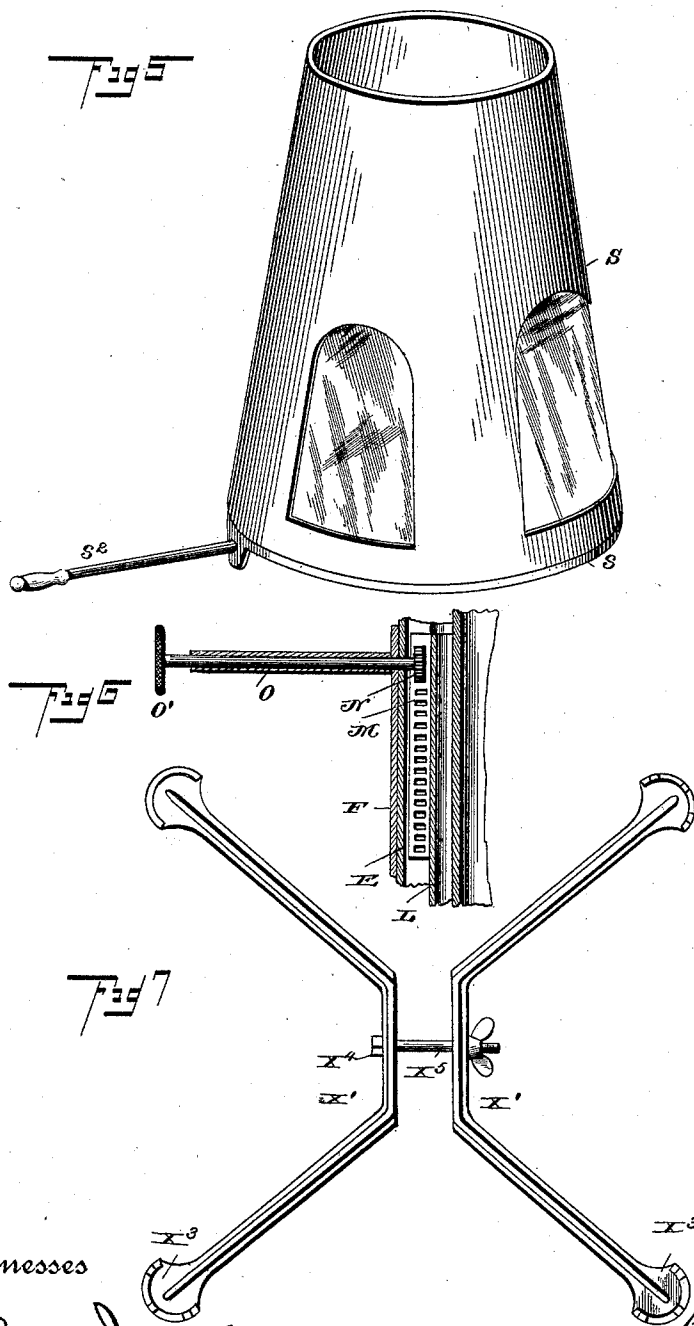
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UNITED STATES PATENT OFFICE.

PRESTON WILLIS STRONG, OF CHELSEA, MICHIGAN, ASSIGNOR OF ONE-HALF TO FRANK P. GLAZIER, OF SAME PLACE.

OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 465,004, dated December 15, 1891.

Application filed August 29, 1891. Serial No. 404,128. (No model.)

To all whom it may concern:

Be it known that I, PRESTON WILLIS STRONG, of Chelsea, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Oil-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

My invention relates to that general class of oil-stoves used for heating purposes in which the oil-reservoir and the burner are located in the lower or stationary part of the stove while the lamp-chimney and heating-drum are in the upper or hinged part. In addressing myself to the problem of improving the construction of stoves of this class I have sought to provide an improved construction to carry out the idea of having the hot air that ascends from the burner into the heating-drum commingle in said drum with a large body of fresh air conducted to said drum through the base and body of the stove without contact with the burner, the design being to resupply to the air carried from the burner the elements that have been abstracted by the combustion, thereby preventing that disagreeable odor that is perceived from most oil-stoves, and at the same time by increasing the body of air supplied to the heating-drum, and consequently the body of air discharged therefrom, greatly augmenting the heating capacity of the stove. The fresh air supplied to the heating-drum is taken in at the base of the stove, passes up both the inner and outsides of the annular oil-reservoir, (keeping the latter cool,) and, being kept separated from the air supplied to the burner by close joints formed between the burner and its chimney, passes up into what I term a "fresh-air" chamber, forming part of the upper or hinged portion of the stove and passes thence into the heating-drum above. The fresh-air chamber may extend from bottom to top of the lamp-chimney and entirely surround the same, so as to afford an uninterrupted space for the upward passage of fresh air to the heating-drum; but for the purpose of exhibiting or cutting off at pleasure the light of the

burner I preferably divide said chamber, except at its upper end, into four parts, one at each corner of the stove, leaving the space between said four parts to be filled by exposed portions of the chimney. I would here state that the chimney is composed of alternate metal and mica sections, and is so mounted upon the plate that makes connection with the burner that it can by a suitable projecting handle be conveniently turned to expose either the opaque or translucent portions at the said four spaces or openings, as desired, thereby enabling the light from the burner-flame to be turned off or on at will without in any way disturbing the functions of the stove as a heater. I preferably make the outer shell of the fresh-air chamber of cast metal, and by reason of the fact that the volume of fresh air flowing through said chamber to the heating-drum keeps down the temperature of said outer shell I am enabled to elaborately ornament and nickel-plate the said shell, and there is no liability of the plating thereon becoming discolored by excessive heat. To the plate upon which the fresh-air chamber sits I apply an ornamental hand-rail, which not only adds to the appearance of the stove, but serves as a convenient means of tilting the upper portion of the stove when for any purpose this is desired to be done.

There are other details of construction which will be hereinafter described, and pointed out specifically in the claims at the close of this specification.

In the accompanying drawings, Figure 1 represents a perspective view of a stove embodying my improvements; Fig. 2, a longitudinal vertical section of the same; Fig. 3, a cross-sectional view taken on the line $x x$, Fig. 2; Fig. 4, a bottom plan view of the plate which supports the burner-chimney. Fig. 5 is a perspective view of the chimney; Fig. 6, a detail view of the wick-raising appliance; Fig. 7, a plan view of the truck upon which the stove is mounted.

Similar letters of reference in the several figures indicate the same parts.

The lower portion of the stove is shown to consist of a base A, having suitable legs, a cylinder or casing B, and a flanged ring C at the top of said cylinder, the said parts being

united by bolts or otherwise as usual in structures of this class. Upon lugs or projections *a*, formed on the base A, rests the oil-reservoir D, which is of annular form and provided with a filling-orifice covered by a ventilated screw-cap *d*, as shown.

E is the wick-tube, which is connected by suitable braces or spacing-strips to an outer cylinder F, that is in turn connected in a similar manner to the inner side of the oil-reservoir. Oil is supplied to the wick-tube from the reservoir through a tube G. Within the wick-tube and connected to it by braces or strips, such as above described, is the water-receptacle H, hereinbefore alluded to, and between this water-receptacle and the wick-tube is slipped a short cylinder K, whose upper end is flared outwardly for a purpose to be presently described. Inside the wick-tube is the cylinder L, which carries the wick, said cylinder being provided with a rack M, with which meshes a pinion N on an operating-shaft O, provided with a hand-wheel O', as shown. By turning the hand-wheel the wick can be raised or lowered, as desired.

Fitting snugly upon the outer cylinder F is a collar P, which, in addition to the depending flange *p*, which engages the said cylinder, is provided with an upwardly and inwardly curved flange *p'* and with an outer laterally-projecting trough-shaped flange *p²*, as shown in Fig. 2.

Upon the top of the water-receptacle I place a cover Q, which is perforated for the escape of the vapor and has a curved projecting flange *q* for deflecting outward the flame of the burner.

When the burner is lighted, the heat generated thereby will cause the air to be drawn up on both sides of the wick-tube, that which comes up on the inner side being deflected by the flange *k* of the cylinder K and by the flange *q* of the cover Q outwardly, and that which rises on the outside of the wick-tube being directed by the curved flange *p'* of the collar P inwardly, the result being to produce a flame of great intensity.

Resting upon the ring C, forming the top of the lower portion of the stove, is a plate R, which carries the lamp-chimney S and also what I term the "fresh-air" chamber T. This plate R is provided with openings *r*, leading into the four portions of the fresh-air chamber, a central opening *r³*, leading to the chimney, and with a depending flange *r'*, which is adapted to rest in and closely fit the trough-shaped flange *p²* of the collar P of the burner, so as to prevent the escape of air laterally from the burner into the fresh-air supply coming up through the base of the stove around the oil-reservoir on its way to the fresh-air chamber. Upon the upper side of the plate R there is formed an upwardly-extending flange *r²*, over which fits a ring *s*, which constitutes the base of the lamp-chimney S.

The lamp-chimney proper consists, prefer-

ably, of sheet metal in the form of the frustum of a cone, having four openings in its lower portion covered with mica corresponding to the four spaces, one on each side of the stove, left between the four lower extensions of the fresh-air chamber shown in Fig. 1. A lug depending from the ring *s* has connected to it a handle *s²*, by means of which the chimney can be rotated back and forth through a quarter of a revolution, so as to expose either the metal or the mica portions, accordingly as it is desired to exclude or allow the passage of the light from the burner.

By reference to Fig. 1 the general outward appearance of the fresh-air chamber T will be seen, and by reference to Figs. 2, 3, and 4 the details of its construction will be disclosed. It will be noted that the upper portion of the chamber entirely surrounds the upper portion of the chimney, Fig. 2, and that the four lower extensions of the chamber *t* extend down to the plate R and cover the openings *r* therein, Figs. 2 and 3, while between the said lower extensions of the chamber project the portions of the chimney, as shown clearly in the cross-sectional view, Fig. 2.

Of course it is not essential that the chamber have four extensions, nor that the chimney be exposed at four points, as the number of these may be varied to suit the taste of the constructor; but in practice I have found the construction shown satisfactory.

In the operation of my stove the hot air from the burner, carrying such moisture as is evaporated from the water-receptacle, passes up through the central opening in the plate R and into the chimney, and is discharged in an intensely-heated state into the heating-drum V, and there becoming commingled with the large quantity of air drawn in from the fresh-air chamber and being freshened and revived thereby, the whole is discharged in great volumes from the heating-drum through the openings *w* in the top thereof into the apartment. The flow of fresh air up around the oil-reservoir is sufficient to keep the latter at all times cool, and the commingling of the air in the heating-drum is so thorough and perfect as to obviate all unpleasant odors.

By manipulating the operating-handle so as to turn the chimney, the light from the burner may be cut off wholly or partially from the apartment without interfering in the slightest with the heating function of the stove. This is a feature of much importance. An ornamental hand-rail W is preferably applied to the plate R, and is useful in tipping the upper portion of the stove when for any purpose access to the interior is desired. To prevent the upper portion from tipping too far, I preferably employ a limiting-chain, as will be readily understood.

In order to shift the stove readily from place to place, I mount it upon a platform or truck such as shown in Fig. 7, the same consisting of two frames X', provided with rollers X² at

their extremities, with flanged sockets X^3 for receiving the feet of the stove, and with an adjusting screw and nut X^4 X^5 for adjusting them firmly in place, all as shown in Fig. 7.

5 Having thus described my invention, what I claim as new is—

1. In an oil-stove, the combination of the burner, its chimney, the heating-drum, and the fresh-air chamber surrounding the upper
10 portion of the chimney and having the downward extension for receiving an air-supply and between which extensions the chimney is exposed, substantially as described.

2. In an oil-stove, the combination of a
15 burner, a heating-drum, and a rotatable chimney provided with opaque and translucent portions and stationary portions behind which the translucent portions turn, substantially as described, and for the purpose specified.
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3. In an oil-stove, the combination of a burner, a rotatable chimney having alternate opaque and translucent portions and a casing about said chimney having openings
25 through which the different portions of the chimney may be exposed, substantially as described.

4. In an oil-stove, the combination, with a burner and a heating-chamber, of a rotatable
30 chimney having opaque and translucent portions and a casing for said chimney having openings through which either the opaque or translucent portions of said chimney are exposed, substantially as described.

5. In an oil-stove, the combination, with the burner and the rotatable chimney having the opaque and translucent portions, of the fresh-air chamber having the extensions between which the chimney is exposed to view, substantially as described.
40

6. In an oil-stove, the combination, with the burner, of the rotatable chimney having the opaque and translucent portions, the heating-drum, the fresh-air chamber having the extensions between which the opaque and translucent portions of the chimney may be alternately exposed, substantially as described.
45

7. In an oil-stove, the combination, with the burner, of the extended substantially flat
50 plate upon which the upper portion of the stove is mounted, located above the same, having the central opening for the passage of the heated air, and the rotatable chimney mounted upon said plate and surrounding the opening therein, substantially as described.
55

8. In an oil-stove, the combination, with the burner, of the plate above the same, having the central opening leading to the chimney and the openings leading to the fresh-air chamber, in combination with the chimney
60 and the fresh-air chamber having the extensions, as described.

9. In an oil-stove, the combination, with the burner, of the plate above the same, having the flange on its upper side around the central opening, and the rotatable chimney having the ring at its bottom which co-operates with said flange, substantially as described.
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10. In an oil-stove, the combination, with the burner, of the plate above the same provided with the central opening, the rotatable chimney having the opaque and translucent portions, the handle for operating it, and the stationary portions behind which the translucent portions turn, substantially as described.
70 75

11. In an oil-stove, the wick-tube, the cylinder surrounding the same, and the collar secured to said cylinder, provided with outer trough-shaped flange, in combination with the
80 plate constituting the bottom of the upper portion of the stove, provided with the depending flange fitting in said trough-shaped flange, whereby separate air-passages are formed, substantially as described.
85

12. In an oil-stove, the combination, with the wick-tube, of the cylinder surrounding the same, the collar secured to said cylinder, having the depending flange fitting around the cylinder, and the upwardly and inwardly curved flange, substantially as described, and for the purpose specified.
90

13. In an oil-stove, the combination, with the wick-tube, of the cylinder surrounding the same, the collar mounted on said cylinder and having the depending flange co-operating therewith, the laterally-extending trough-shaped flange, and the upwardly and inwardly curved flange, of the substantially flat hinged plate upon which the upper part
95 100 of the stove is mounted, having the central opening for the chimney, and the depending flange surrounding said opening and fitting into the trough-shaped flange on the collar, substantially as described.

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