(No Model.) 2 Sheets—Sheet 1.

S. B. PALMER.

COMBINED WOOD AND STRAW BURNING HEATING AND COOKING STOVE.

No. 602,998. Patented Apr. 26, 1898.

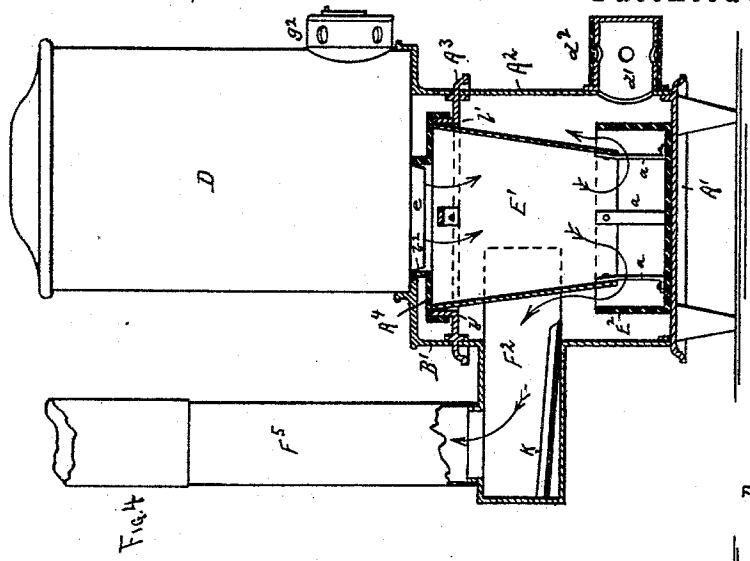


Fig. 4

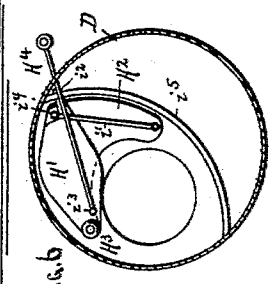


Fig. 6

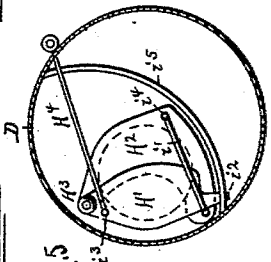


Fig. 5

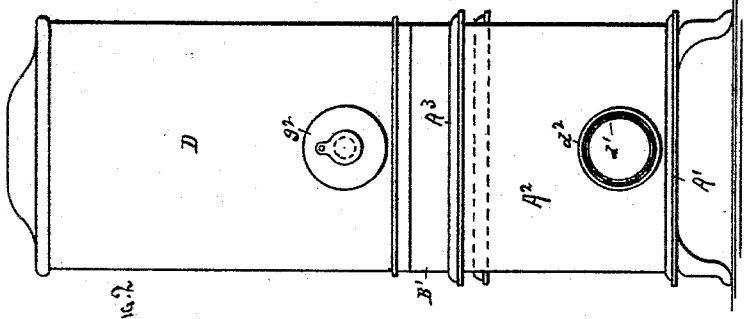


Fig. 2

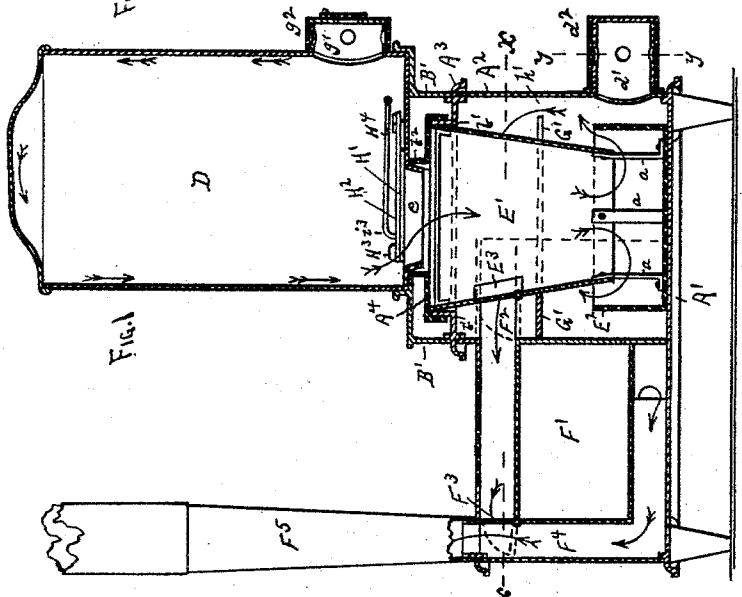


Fig. 1

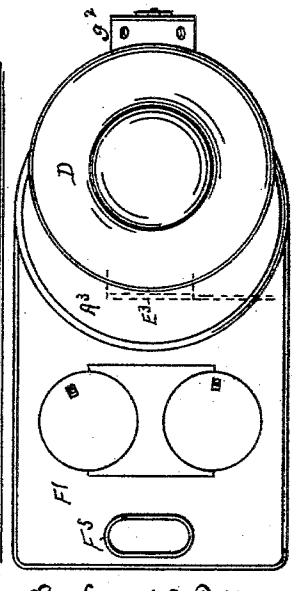


Fig. 3

Witnesses
C. A. Burnett.
John H. Fitz

Samuel B. Palmer
Inventor
By Charles N. Woodward & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 7

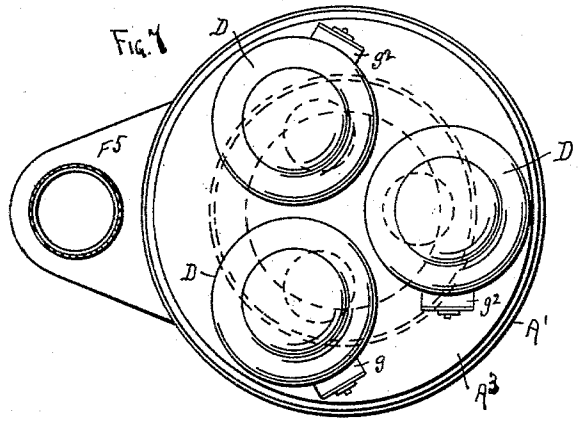


Fig. 8

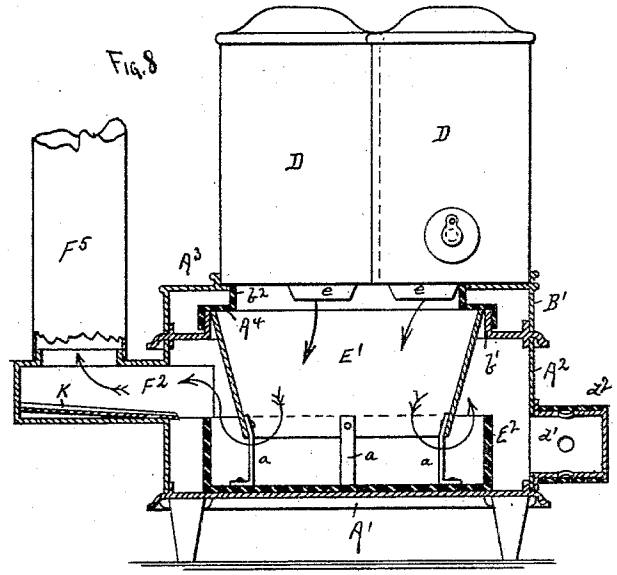
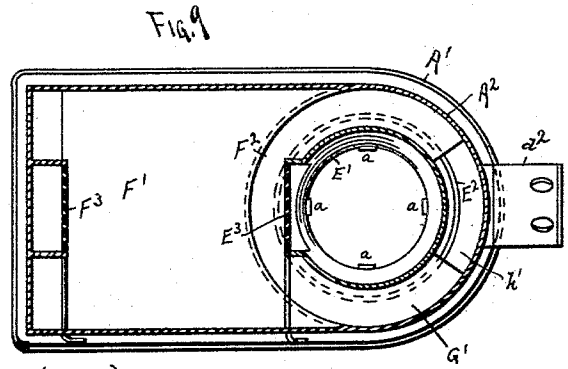


Fig. 9



Witnesses.
C. A. Burnett.
John H. Fitz

Samuel B. Palmer,
Inventor.
By Charles M. Woodward Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL B. PALMER, OF LOCKHART, MINNESOTA.

COMBINED WOOD AND STRAW BURNING HEATING AND COOKING STOVE.

SPECIFICATION forming part of Letters Patent No. 602,998, dated April 26, 1898.

Application filed May 25, 1897. Serial No. 638,153. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. PALMER, a citizen of the United States, residing at Lockhart, in the county of Norman and State of Minnesota, have made certain new and useful Improvements in a Combined Wood and Straw Burning Heating and Cooking Stove, of which the following is a specification.

This invention relates to that class of stoves in which straw, hay, or similar material is adapted to be employed as fuel and in which wood or coal may also be employed; and the invention consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a longitudinal sectional elevation. Fig. 2 is a front elevation with the draft-valve in cross-section on the line *y y* of Fig. 1. Fig. 3 is a plan view of the stove complete, with the baking-oven and cooking-top attached. Fig. 4 is a view similar to Fig. 1, illustrating the modification necessary to be made when the stove is employed as a heater only. Fig. 5 is a cross-section of the fuel-drum, showing the litter-retaining valves closed; and Fig. 6 is a similar view showing the litter-retaining valves open. Fig. 7 is a plan view, and Fig. 8 is a longitudinal sectional elevation, illustrating the modifications necessary to be made when two or more of the fuel-chambers are employed in connection with one combustion-chamber. Fig. 9 is longitudinal section on the line *x x* of Fig. 1.

A′ is the base, which may be of any suitable construction and on which a chamber or casing A^2, preferably cylindrical, is supported, and with an annular top A^3, the latter having an upwardly-projecting rim or flange *b′*, as shown, around the opening in its top. Resting upon this rim *b′* is another annular rim or plate A^4, also with an upwardly-projecting rim or flange b^2.

B′ is an annular frame resting upon the top A^3 and adapted to support the fuel-magazine D, the latter having an opening with a depending conical flange *e*, fitting closely into the opening formed by the flange b^2, as shown in Figs. 1 and 4.

E′ is a conical chamber within the chamber A^2 and fitting by its upper edge within the flange *b′* and with an ash-pan E^2 connected to its lower edge by bars *a*, so that a space is left all around the lower edge of the conical chamber and between it and the ash-pan, as indicated by the arrows in Figs. 1, 4, and 8.

When the annular frame A^4 and the fuel-magazine D are removed, the conical combustion-chamber E′ and its connected ash-pan E^2 can be lifted out, which will be done when the ashes are to be removed. The plate A^4 thus acts as a "reducing-collar" to enable the smaller opening in the fuel-magazine to be adapted to the combustion-chamber.

d′ represents the draft-inlet in the form of a closed sleeve and connected into the front of the chamber A^2 and provided with a ring d^2, having perforations adapted to register with similar perforations in the sleeve *d′*, so as to regulate the amount of air admitted to the chamber. A similar perforated draft-sleeve *g′* and perforated collar g^2 are shown connected into the fuel-magazine D, through which the fire will be first applied to the fuel and the draft afterward regulated thereby.

F′ is the oven, connected to the chamber A^2 by the passage F^2 and with the usual damper F^3 and flue-passages F^4 and smoke-exit F^5.

Opposite the passage F^2 a damper E^3 is arranged in the conical chamber E′ to provide for a direct draft into the passage F^2 when required, as hereinafter explained.

Surrounding the conical chamber E′ and filling the space between the inner chamber E′ and the outer chamber A^2 is a deflecting-ring G′, having its front wanting at *h′*, as shown in Figs. 1 and 9, to cause all the products of the combustion to travel around to the front of the chamber A^2 before escaping by the passage F^2 to retard the smoke and flame and increase the radiation. I have shown this deflecting-plate only in Figs. 1 and 9, as it may be employed or not, as required.

In Fig. 4 I have shown the passage F^2 leading directly to the smoke-exit flue F^5 and without the direct-draft damper E^3 and the deflecting-plate G′, as these may be dispensed with under certain conditions.

In Figs. 4 and 8 I have also shown a drip-plate K for creosote, which may be required under certain conditions and by which means any creosote which may gather will run back into the chamber A^2 and not accumulate in the smoke-flues or other parts.

In using the device the magazine D is removed and filled with the straw or hay at the pile or stack and then placed in position upon the combustion-chamber, and in doing this means must be provided for temporarily closing the opening in the bottom of the fuel-magazine, so as to prevent the escape of litter or ashes.

In Figs. 1, 5, and 6 I have shown the manner of constructing the closing-valves for this purpose, which consists of two leaves H' H^2, pivoted at H^3 and adapted to slide one over the other back out of the way when the opening is to be uncovered, as in Fig. 6, and completely cover the opening when turned the other way, as in Fig. 5. The leaf H^2 is formed with a rod or strap i', underneath which the outer end i^2 of the leaf H' moves, so that when the operating-rod H^4 (which is pivoted by its inner end at i^3 to the leaf H' and passes out through the side of the magazine D) is drawn outward the leaf H' will be moved backward until the projection i^2 reaches the end i^4 of the strap i', when the second section H^2 will be picked up and carried along with the section H' and the opening uncovered, as in Fig. 6. Then at the return movement the reverse action takes place. By this simple means a large opening may be employed in a comparitively small fuel-magazine, as by using the two leaves H' H^2 they can be folded back into a small space. By this simple arrangement when the magazine is to be removed the leaves H' H^2 will be closed, so as to prevent the escape of any ashes or cinders, and then after being filled at the stack or straw-pile the leaves will be again closed until after the magazine is in position on the combustion-chamber. By this means no litter will escape upon the floor of the house. A guide-strap i^5 serves to keep the two leaves in proper position when the magazine is overturned in filling. After the fuel-magazine is in position and the fire applied through the draft-sleeve g' the latter will be closed and the draft admitted thereafter entirely through the draft-sleeve d'. The fire first runs up around the outer edge of the mass of the fuel, next to the shell D, as indicated by the arrows in Fig. 1, and thence down through the opening into the conical chamber E', and thence around the bottom of the conical chamber, and thence out through the smoke-outlet F^5. As the ashes accumulate in the pan E^2 and fill the mouth of the conical chamber, the products of the combustion thereafter must pass down through the mass of glowing cinders and ashes, which thereby thoroughly consumes all the smoke and allows nothing but incombustible gases to pass to the smoke-flue. By this means a perfect combustion is secured and the economy thereby greatly increased.

In Figs. 7 and 8 I have shown three of the fuel-magazines D upon one combustion-chamber, which may be employed, if reqiured.

The stove may be formed of any required material, but will preferably be of sheet metal.

When the accumulation of ashes requires removal, the conical chamber E', with the ash-pan E^2 attached, can be lifted out bodily through the top A^3, as will be readily understood by reference to the drawings and as before stated.

When the conical chamber and ash-pan are removed and a cover placed over the top A^3, the stove can be employed in the ordinary manner with wood or coal as a fuel.

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

1. In a stove, a casing from which the smoke-flue leads, and with an opening in its top, a fuel-magazine supported upon said casing and with an opening in its bottom registering with the opening in said casing, and a conical combustion-chamber supported in said casing and down through and around which the products of combustion pass, substantially as and for the purpose set forth.

2. In a stove, a casing from which the smoke-flue leads and with an opening in its top, a fuel-magazine supported upon said casing and with an opening in its bottom registering with the opening in said casing, a conical combustion-chamber supported in said casing and down through and around which the products of combustion pass, and a deflecting-plate between said casing and combustion-chamber, to retard the products of combustion, and increase the radiating-surface, substantially as set forth.

3. In a stove, a casing having an opening in the top surrounded by an upwardly-projecting rim b', an annular plate A^4 surmounting said opening and with a flange on its lower side embracing said rim b', said annular plate having an upwardly-projecting rim b^2, a frame B' supported upon said casing, and a fuel-magazine supported upon said frame B', and with a bottom opening registering with said rim b^2, substantially as and for the purpose set forth.

4. In a straw-burning stove the fuel-magazine having an opening in the bottom, a wing-valve section H' pivoted to be moved to partially project across said opening, a wing-valve section H^2, pivoted to be moved to partially project across said opening, and means for coupling said wing-valve sections, whereby when one section has reached a certain predetermined point in its movement it will engage the other section and move it forward until the said opening is fully covered, substantially as and for the purpose set forth.

5. In a straw-burning stove, a casing, a fuel-

magazine communicating therewith, a conical combustion-chamber supported removably in said casing, and an ash-pan suspended from and adapted to be removed with said conical combustion-chamber, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SAMUEL B. PALMER.

In presence of—
ELLA C. PALMER,
INEZ F. PALMER.