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J. Atwater.

Heating Stove.

No.

Patented Jun. 30, 1836.

Fig. 1.

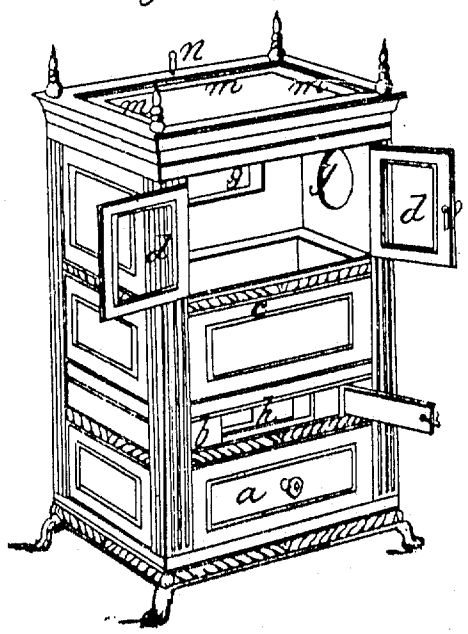
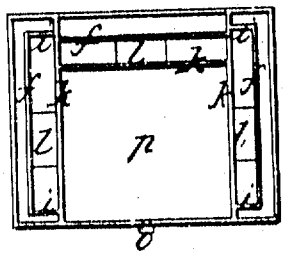


Fig. 2.



H. PLATT, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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June 30. 1836

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James Olwater.

Letters Patent

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said James Olwater himself of his improvement in stoves for burning Anthracite Coal.

To all people to whom these presents shall come. Know ye that I James Olwater of the town of New Haven in the County of New-Haven and State of Connecticut. a citizen of said State and of the United States. have invented a new and useful improvement in Stoves used for burning hard or Anthracite coal and that the following is a description of the construction and operation of my improved Stove and of my invention. This stove is in the form of a rectangular Prism, and may be about fifteen inches wide and thirteen inches deep and twenty eight inches high or in any other suitable proportion. To ornament it may have projecting at the top and bottom. forming mouldings and giving the appearance of a base and capital. It is supported in the usual way by four feet at the four corners. The front plate has three openings one near the base for an ash draw one a little higher. for a small door below the fuel to admit air and to aid the draft and for other purposes and one near the top for a large or double door above the fuel through which the stove is fed. Each door has isinglass in it to show the fire and the action of the stove. The rear plate has one opening near the top to which a pipe may be attached to conduct off the smoke gases from the fire. The opposite side plates are without openings. The top and bottom plates with their openings hereafter described and with their mouldings or projections complete the outside of the stove and at last the appearance of an ornamental rectangular cast iron stove. We proceed to the construction of the interior arrangements which are as follows. Within the side and rear plates already described are three middle plates (B B) one on each side and one in the rear and these plates are placed about five eighths of an inch from the outside plates and about one inch and one quarter

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ter of an inch from the outer rear plate. Each of these middle plates has an opening near the top through which ducts or flues are to be made to pass and the middle rear plate has an opening below the grate or fire for the same purpose. Each of these middle plates at the sides has projections or flanges perpendicular to their outer surface on the whole length of the sides and extending from the sides about one third of the way across the bottom and that portion of the plate between the two points where the flanges terminate on the bottom is extended downward about four inches which extension has the same flange on each side to its termination which the whole plate has already described. Both of these middle side plates are alike. The middle rear plate has flanges across the bottom, and it is formed at the bottom with an extension in the middle and flanges in the same manner as the middle side plates are formed. The flanges project about two inches. Within the plates last described are three additional and innermost plates of the same length as the last three and placed so as to come in close contact with all the flanges on the middle plates. The two innermost side plates extend from the front to the rear plate and all three of the innermost plates have the same projecting part from the middle of the bottom downwards which the middle plates have so that when the two sets of plates (viz) the middle and innermost plates are carefully placed together they form three rectangular tubes at the bottom of each four about four inches in length. Each of the innermost plates has the same openings that the middle plates have. The bottom plate has three openings of a size and shape and position to correspond with the three rectangular tubes already described and these openings must be carefully fitted to receive the tubes. The top plate has open work over the space or chamber between the two sets of intermediate plates. Each of the openings in the two sets of intermediate plates are connected by a tube or flue making in communication and communication from the inner chamber through the middle chamber to the outer chamber and through these flues the several draughts of the stove are formed. There are small projections cast at the bottom and on the inside of the three innermost plates, on which a moveable plate rests and forms a chamber between this and the bottom plate. On the inside of the innermost rear plate below the grate or fire a slide or damper is placed in the usual way which opens

and cross the flue which passes through the middle chamber into the rear chamber below the grate or fire. This forms the lower or downward draught. On the outside of the opening at the top of the middle rear plate is placed a slide or stopper with a handle projecting upward through the top plate by which the flue above the fire which passes through the middle chamber into the rear chamber is opened and shut. This forms the upper direct draught. Inside of the ornamental plate is a lining of fire brick or other suitable substance in the usual manner and a grate on which the fuel is placed. One of the bars of the grate near the middle of the same, has a hollow groove on the under side which rests on a rod which draws out in front and then the grooved bar and one or two others with which it is connected turn on a hinge or pivot and drop down and empty the contents of the stove which rest on the grate into the ash pan below. The moveable part of the grate is then brought back and made to rest on the rod which is replaced as before. The top plate has a rectangular opening of the size of the front of the stove which contains the fuel and over this opening is placed a moveable plate which can be removed at pleasure. That this description may be more readily understood I add a drawing containing two figures. Figure I. shows a perspective view of an improved stove. a. shows the ash drawer in the opening made therefor. b. shows the opening for the small door below the grate. The large opening for the double door d. d. is seen immediately above it. Figure II. shows a longitudinal section of the stove above & below the fire brick and the observer is supposed to look downward upon the same. f. f. f. show the middle plates on the sides and rear. Figure I. g. g. shows one of the openings extending through one of the side plates and the opening through the rear plate through which openings the upper draught of the stove are formed. Figure II. i. i. i. i. shows side flanges on the middle plates at the sides. h. h. h. show the ornamental side and rear plates. The openings through the hollow plates are drawn at C. C. C. Figure I. m. m. m. shows the openings in the top plate. The handle of the stopper which divides the opening through the upper part of the middle rear plate is seen at m. Figure II a. shows a small projection attached to moveable plate which lies immediately under

under the ash draw and with the bottom plate forms the chamber already described. fo. shows the chamber of combustion. The spaces above the bottom plate and between the plates b.b.b. and the plates f.f.f. of a lighter shade shew the pure atmospheric air chambers. The spaces between the plates f.f.f. and the outside plates of a darker shade shew the burned air and gas chambers. When the stove is filled and ready to be ignited and the stopper attached to w. Figure 1 is removed the stove has the direct draught of a common furnace stove. When this stopper is closed and prevents the draught from passing through this stopper and rear flue directly, then the draught passes indirectly through the side flues one of which is seen at g. figure 1. thence down the outer side chambers called above the burned air and gas chambers thence through the chamber between the movable plate beneath the ash draw and the bottom plate. thence up the outer back side chamber for burned air &c as above described thence off in the usual way through the opening in the rear plate. The pure air in the atmospheric air chambers &c. in the same time warmed by radiation from the adjoining plates and is thus made to circulate through the chamber coming in at the bottom through the openings in the bottom plate and passing off through the openings in the top plate. When the draught is closed the ash draw in its place, the lower door shut, the stopper door open and the stopper removed which regulates the opening in the movement iron plate below the fire then the draught is down the movement iron plate below the fire then the draught is down and round through the fuel, then through the lower opening of the grate and then into the back chamber for burnt air &c and then off as before. (This flue should be open when ever the stove is cleaned of ashes so as to prevent dust from escaping into the room.) The principle object sought to be accomplished by this stove is to secure within a common sized space a large surface of radiating surface so arranged as to disperse the heat in a rapid and effectual manner while all the benefits of a quick and powerful draught when needed are retained and also the advantage of a downward draught to prevent dust flying about when the stove is cleaned &c. Claims therefore as my invention the foregoing combination of the above described atmospheric air chambers &c.

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but with the indirect draught and over both of the other draughts which combination is so modified as to cause the heat when the indirect or circuitous draught is used to come in contact with all the outer plates of the stove, and also at the same time with all the middle plates and flanges which form part of the said annular chambers whole the innermost plates which complete the same annular chambers are heated by the direct action of the fire in the ordinary manner. And I do not claim the whole stove as new nor any of the several separate parts thereof nor any other combination than that above described nor the construction of the whole nor any part thereof except so far as may be required to accomplish the modified combination claimed as aforesaid.

In testimony that the foregoing is a true specification of my said improvement I have hereunto set my hand at Troy Rensselaer this sixth day of May (A.D.) one thousand eight hundred and thirty six

Witness
Samuel S. Christiancy
Stanley N. Sanford

Samuel D. Leavitt

Ex
Chf

D. D. Jewett

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