(No Model.)

2 Sheets—Sheet 1.

# J. E. HUNTER.

## HEATING STOVE.

No. 499,023. Patented June 6, 1893.

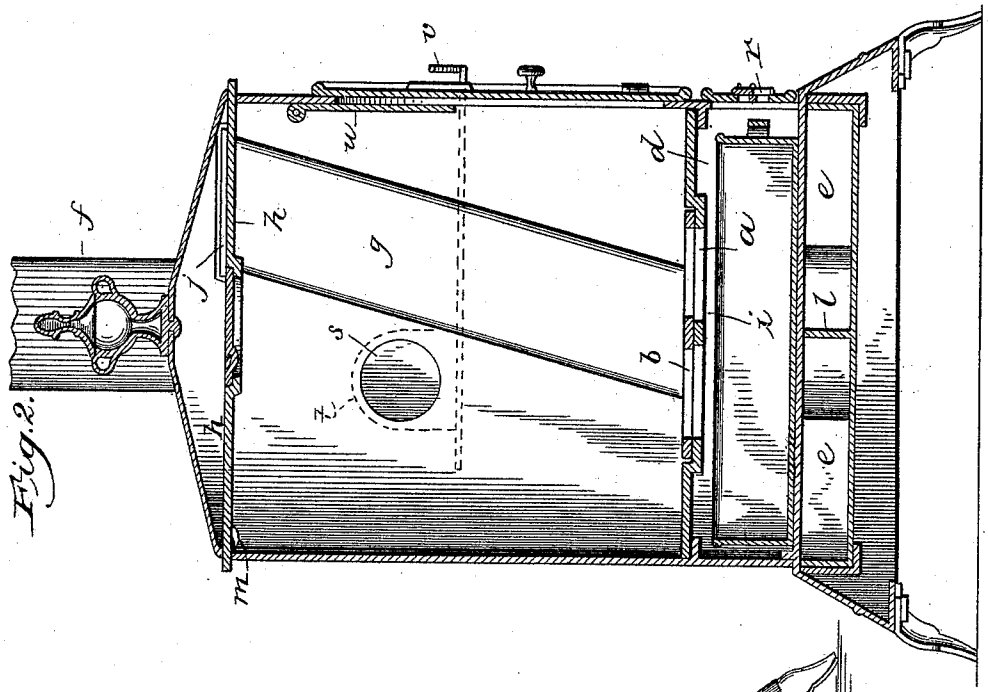

Fig. 2.

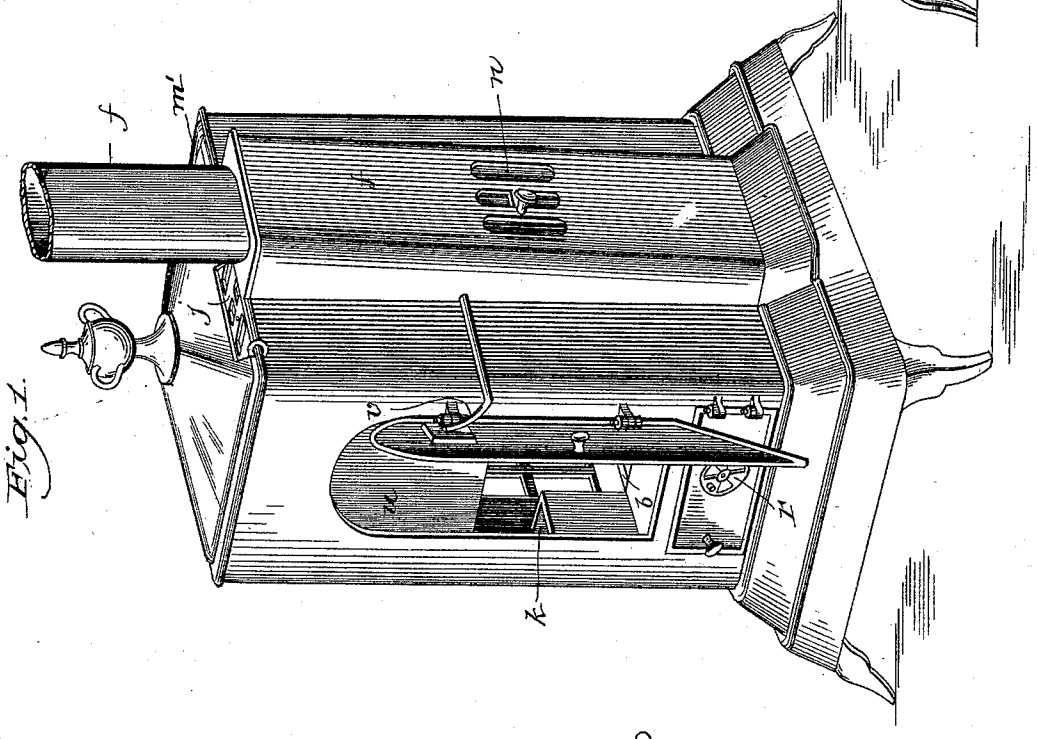

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

# J. E. HUNTER.

## HEATING STOVE.

No. 499,023. Patented June 6, 1893.

Fig. 4.

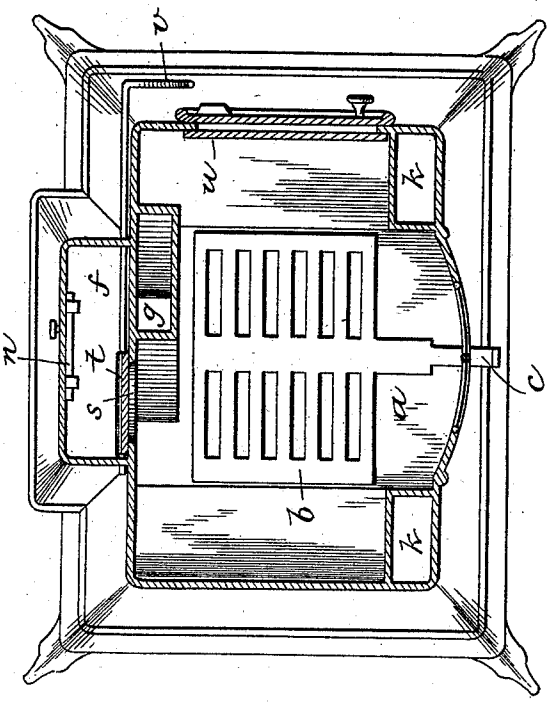
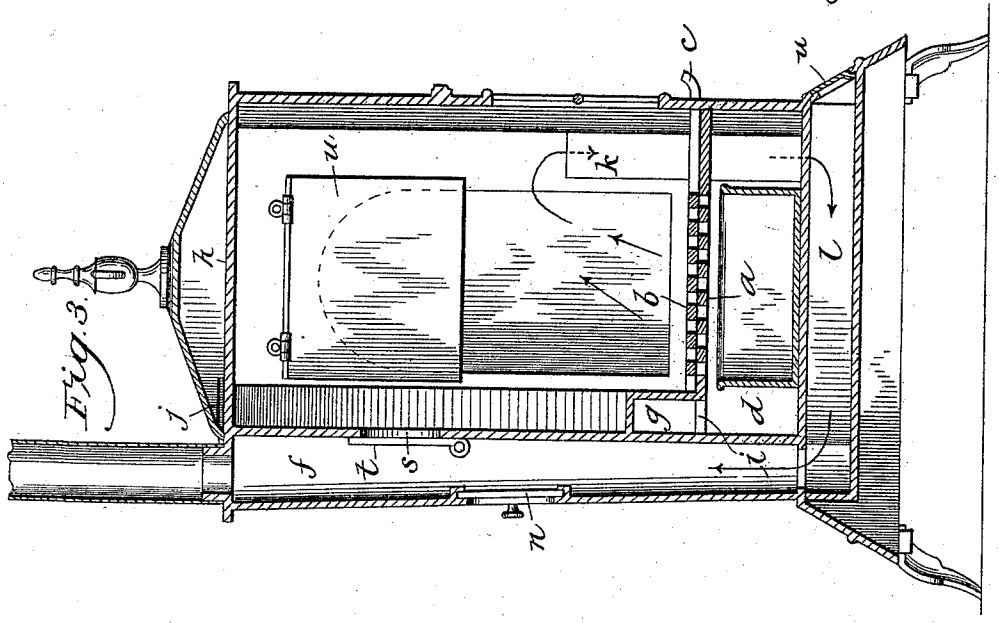



Fig. 3.




Witnesses:
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# UNITED STATES PATENT OFFICE.

JOHN E. HUNTER, OF PEORIA, ILLINOIS, ASSIGNOR TO THE CULTER & PROCTOR STOVE COMPANY, OF SAME PLACE.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 499,023, dated June 6, 1893.

Application filed January 17, 1893. Serial No. 458,666. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. HUNTER, a citizen of the United States, and a resident of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

I have improved the heating stove in particulars which provide a draft at the top and deliver it beneath a grated bottom adapted to be opened to permit the draft to pass through it into the fire, or to be closed to cause the draft to pass from the fire chamber above the grate direct into the smoke pipe. By using a grate adapted to be opened and closed it assists in controlling the draft and clears the bed plate of ashes. The top plate has preferably one or more openings to receive vessels for heating water or other purposes. This top plate has a register for controlling the top draft. A swing cover is preferably provided for the top plate and this cover has an opening coincident with said register slide to afford access to the latter and to allow free entrance for the air to the diving-flue. This swing cover provides a hot air chamber at the top and from it the hot air passes into said draft flue.

In the claims concluding this specification I have particularly pointed out the improvements which constitute my invention; and referring to the drawings which illustrate the same—

Figure 1 shows in perspective the stove looking at the rear side, and with the fire chamber door open to expose the grated bottom, the automatic smoke guard and the opening in the swing cover at the top draft-flue. Fig. 2 is a vertical section of the same. Fig. 3 is a vertical cross-section of the same; and Fig. 4 is a horizontal section taken above the fixed grated bottom.

The stove is preferably constructed with a vertical body having a fixed grated bottom *a* to which is fitted a sliding register plate *b*, for opening and for closing the grate and for shaking out the ashes. The grate register-plate has an operating handle *c* at the front and the said register plate may be placed either at the top or at the under side of the grated bottom, but I prefer to place it at the upper side as shown, and it is fitted in suitable guides on the surface of the fire-chamber floor. Beneath this register grate is the ash-pan chamber *d* and beneath the latter are bottom flues *e e* leading to the smoke pipe *f* at the back of the stove, and which bottom flues also open into the fire-chamber above the grated bottom at the front. On the inner wall of the back plate a flue *g* passes through the fire-chamber, opens at the top plate *h* to the outer air, and also under the grated bottom at *i* into the ash-chamber, so as to deliver the air-draft beneath the grate. At the top plate this flue is provided with a register slide *j* and the pipe may be branched at its upper end to provide two such openings if desired. At each of the front corners of the inner wall there is a vertical flue *k* which opens into the fire-chamber a short distance above the grate and which flues also open into the bottom draft-flues, which are formed by a vertical division plate *l* which may extend up into the smoke-pipe. The opening in the swing cover I prefer to make by cutting away the edge of the cover so as to uncover the register and it will be understood that the cover has a hook *m* at its corner *m'* on which it can be swung to open and to close it over the top plate *h*. Cover plates may be used in the top plate openings when the vessels are not used, and these openings may be dispensed with entirely and the cover fixed.

In the rear wall of the smoke-pipe I place a register-damper *n*, and in the door of the ash pan I place a whirl-damper *r*, both of which are used as may be required to increase or to decrease the draft through the stove. In the rear wall above the grated-bottom is a direct opening *s* communicating with the smoke-flue and which is controlled by a swing damper *t* within said flue to change the direction of the draft into and from the fire-chamber.

For convenience in burning wood, I make the fire-door somewhat large, and as a means for preventing the smoke from coming out when the door is opened I provide an automatic smoke-guard *u* which consists of a plate

hung at the top of the opening so as to swing inward, to contract the opening within which it depends and to allow big pieces of wood to be put into the fire-chamber.

As the direct draft-damper in the rear wall of the fire-chamber is usually closed the smoke would tend to come out into the room when the door is opened, and this whether the grate register be opened or closed. To prevent this I make this damper to be opened by the opening of the fire-door, so as to give a direct draft from the fire-chamber. This I do by making the handle *v* of this direct draft-damper so as stand like a crank-arm in position to be struck by the door when being opened and turned so as to open the damper and hold it open, as seen in Fig. 1. The door may have a projection so as to strike the arm of the damper.

When the stove is designed for use as a wood burner, the fixed grated bottom is flat as shown, but for burning coal the construction of the fire chamber would be such as to hold the fuel on the grated surface in a more compact form.

I prefer to incline the top draft flue so that it will stand to one side of the smoke pipe collar at the top and allow the direct draft opening in the rear wall to be placed in the smoke pipe as shown in Fig. 2. The draft enters at the top register and passes down the hot flue into the ash-chamber and up through the grated bottom when its register slide is open, directly into the fire. The direct draft-damper in the rear wall of the fire-chamber being closed, the draft therefrom will be down the corner flues into the bottom flues and up through the smoke pipe, thus producing a complete circuit of the heated air through the grated bottom and the fire thereon, and by opening and closing the top register and the grated bottom the fire can be controlled as desired. The grate can be closed and the damper in the rear wall of the fire chamber opened which will cause the draft to pass out through the rear wall opening into the smoke pipe. Under this course of the draft the combustion will be less rapid than when the grated bottom is open. When the fire is slow in starting, the whirl-register in the ash-chamber door, the grated bottom, and the damper in the rear wall of the fire-chamber, may be opened and thus give a direct bottom-draft through the ash-chamber the top register being then closed.

An important feature of my invention is the provision whereby the air for the supply of combustion is taken in at the top of the stove and delivered to the fire beneath and up through the grate; and the provision for holding the fire in active condition for keeping the stove under proper heat and controlling the heat. Especially is this control of the fire rendered satisfactory by the combination of a top draft-flue with a grated bottom beneath which the air for combustion is delivered in a heated state. For it will be seen that this top draft-flue is placed on the heated wall of the fire-chamber and joins the wall of the flue through which the products of combustion escape, so that this air inlet flue is kept very hot.

The top cover can be removed when it is desired to use a kettle in the top opening; or the cover can be closed over the kettle, or other article which it may be desired to heat. In stoves where the cover forms the fixed top, the register slide may be in said cover.

I have stated that the grated bottom is fixed and I mean by this that it has no shaking movement and that it is so placed and set that it may be removed and renewed when burned out.

The inner register flue may be made in two or more pieces so as to be replaced when burned out.

At the front is a door *w* for cleaning the bottom flues.

I claim as my improvements—

1. In a stove, the combination of a fire-chamber within the body thereof having suitable outlet flues in its walls, a grated-floor *a* and a register slide *b* therefor, with an air inlet-flue *g* on the inner rear wall of said chamber opening beneath said grated-floor at *i*, and having a register-slide *j* at the top of the stove, substantially as described.

2. The combination, in a stove, of a fire-chamber formed therein, diving flues *k k* in its front wall, a grated-floor *a* and a register-slide *b* therefor, with an air-inlet flue *g* on the inner side of the rear wall of said chamber, opening beneath said grated-floor, a register-slide *j* at the top of said air-inlet flue, and an exit-flue *s* at the back of and joining the wall of said air-flue and communicating with said diving-flues, substantially as described.

3. The combination in a stove, of a fire-chamber within the body of the stove having diving-flues *k*, *k*, in its front wall, a grated-floor *a* and a register-plate *b* therefor, with an air inlet-flue *g* on the inner side of the rear wall of said chamber opening beneath said grated floor, a register slide *j* at the top of said air-flue, an exit-flue *s* at the back of and joining said air-flue, base flues *e*, *e*, communicating with said diving and exit-flues, and a chamber *d* between said base-flues and grated-bottom having a register dampered door *r*, substantially as described.

4. In a stove, the grated-bottom floor of the fire-chamber therein, the diving-flues, *k*, *k*, in the front wall, and the dampered exit-flue *s* in the rear wall of said fire chamber above the grated-floor, and a chamber *d* below the latter, in combination with a register-slide *b* for said grated-floor, an air-inlet flue *g* on the inner rear wall of the fire-chamber opening into said bottom-chamber *d* and having a register *j* at its top, and an exit-flue *s* on the outer side of the rear fire-chamber wall opposite said air inlet-flue, as shown and described.

5. In a stove, the combination with the fire-chamber therein having a grated-floor, suitable exit-flues above the latter, and a chamber *d* below said grated-floor, with a register-slide for the latter, an air-inlet-flue *g* opening into said chamber and having a top register-slide, as shown and described.

In testimony whereof I have hereunto signed this specification in the presence of witnesses.

JOHN E. HUNTER.

Witnesses:
HORACE G. CULTER,
HENRY C. MORSE.