2 Sheets—Sheet 1.

J. VAN WORMER.

Heating-Stoves.

No. 206,372. **Patented July 23, 1878.**

Fig. 1

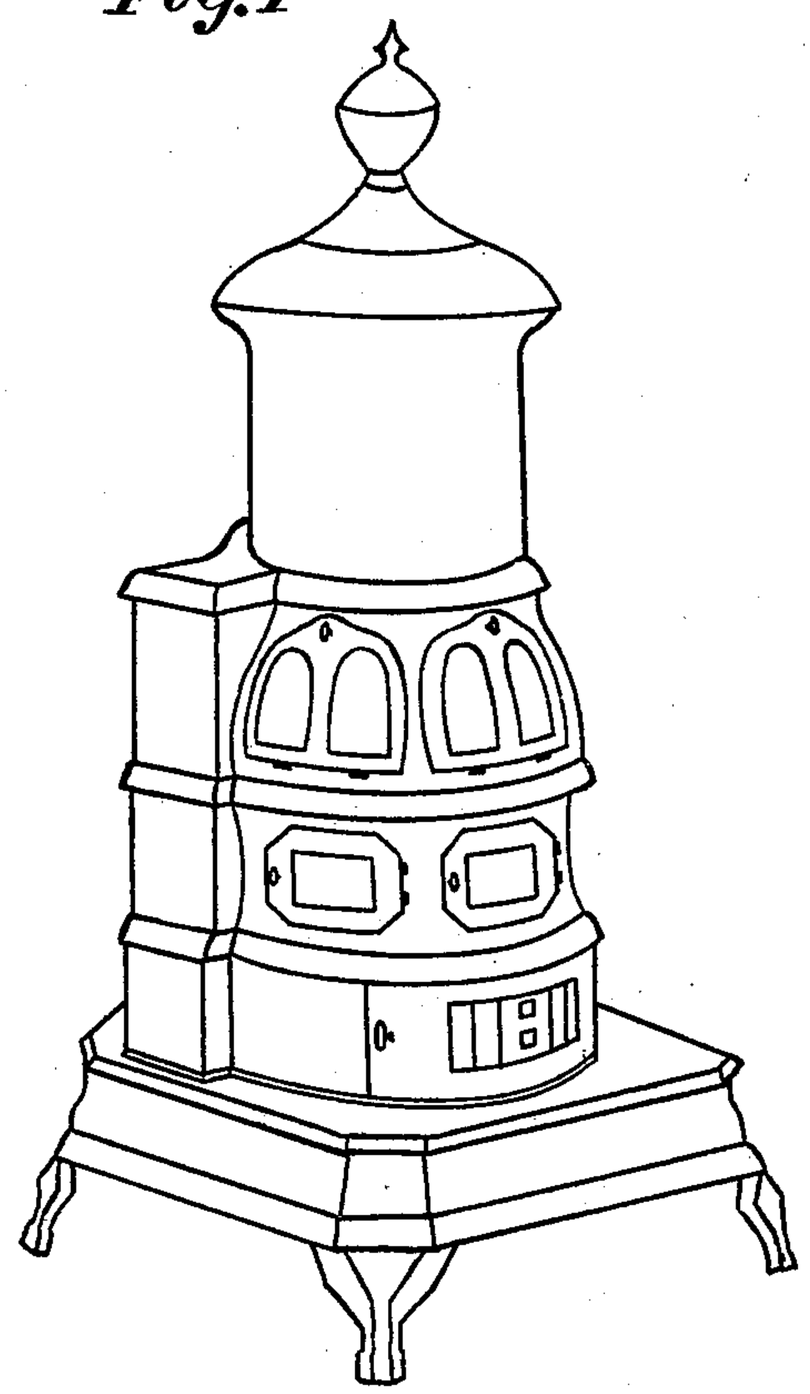
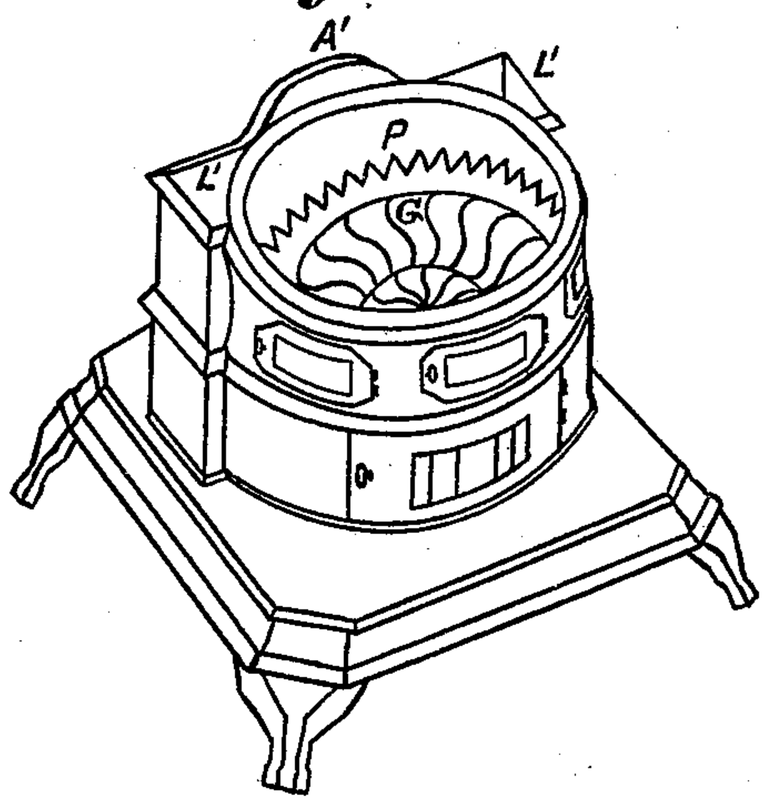


Fig. 2



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2 Sheets—Sheet 2.

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Fig. 3

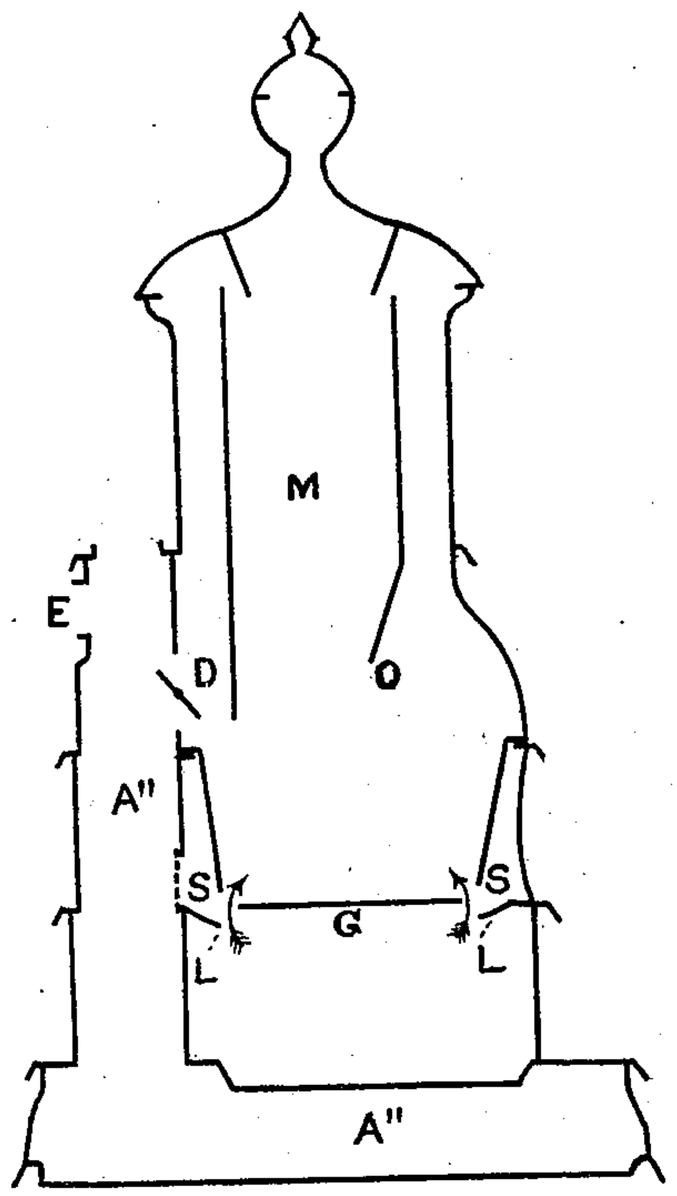
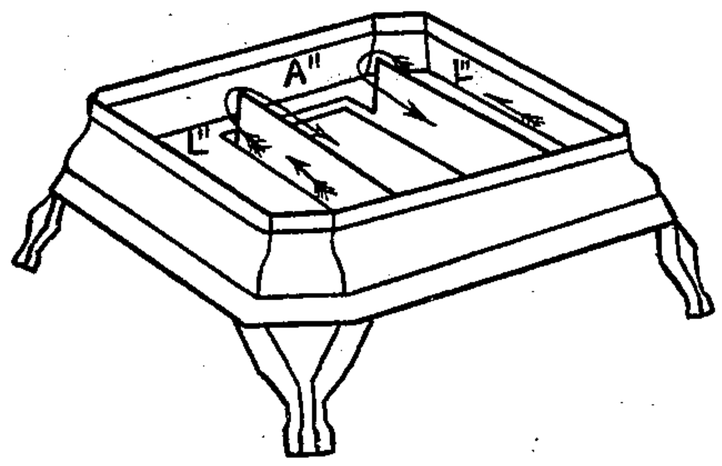


Fig. 4



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UNITED STATES PATENT OFFICE.

JASPER VAN WORMER, OF ALBANY, NEW YORK.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **206,372**, dated July 23, 1878; application filed May 23, 1877.

To all whom it may concern:

Be it known that I, JASPER VAN WORMER, of the city and county of Albany, and State of New York, have invented a new and Improved Method of Constructing Heating-Stoves, of which the following is a specification:

My invention consists in a manner of constructing and arranging two descending flues and two lateral base-flues, and an ascending flue connected with a central lateral flue in the base below the ash-drawer section of a heating-stove.

My improved method of thus arranging the flues of a heating-stove is accomplished by placing two descending flues, one at each side of the fire-cylinder and isolated from each other, but not from the stove-wall, and an ascending flue at the back, with the two descending flues in open communication with the combustion-chamber at or near the surface of the fire, and at the bottom of the stove connecting with two lateral base-flues below the ash-drawer section, and a center lateral flue, the latter connected with an ascending exit-flue at the rear.

I am well aware that descending and ascending flues have been arranged in contiguous connection at the back of a heating-stove, and that such flues have been connected with lateral flues at the base, and I make no broad claim for such a construction and arrangement, my invention and improvement consisting in isolating the ascending and descending flues from each other, but not from the stove, so that the greatest amount of radiating-surface can be obtained and utilized by the exterior surface of separate flues.

I am also aware that clinker-cleaning openings have been formed between the top of grate and the bottom of the fire-pot; but in all such cases of older use it was made an essential feature of the construction that the grate itself, or the ring which surrounded it, should be larger in diameter than the inside of the fire-pot. I consider it my improvement to make the grate smaller than the inside diameter of the fire-pot, and so as to form a vertical draft-space between the edge of grate and the inside of the fire-cylinder, and combine the same with a fire-pot serrated at the bottom. With the older constructions named, there would be an accumulation of ashes and cinder upon the projecting edge of the grate and ring, which my improvement prevents; and, besides, I am enabled to provide a means for an entering current of air at a point in the fire-cylinder where more air is required to increase combustion, from the fact that the fire-cylinder at its outer edge is compelled to part with its heat by radiation rapidly, and thus requires a greater draft and more active combustion at that point.

In the accompanying drawing, Figure 1 represents a view of the exterior of my improved stove, in perspective. Fig. 2 is a cross-section of the same, taken through the combustion-chamber, and in perspective. Fig. 3 shows a vertical section; and Fig. 4, a sectional view taken laterally and parallel to the base, in perspective, as seen from the rear, the back being placed in front, that the location of flue-strips may be seen.

Like letters represent like parts in all the illustrations.

The descending flues are shown as projecting from the stove at L′ L′ in Fig. 2. These vertical flues descend into the base, and at their lower ends open into the side lateral flues formed in the base, as shown at L″ L″ in Fig. 4, and these lateral side flues in the base connect at the front of the stove with the middle lateral return-flue, A″, which opens into the rear ascending flue, A′. (Shown in Fig. 2.) The rear ascending flue, A′, is also isolated from each of the descending flues L′, but not from the body of the stove. This arrangement exposes three sides of the flue A′, so that the heat may be radiated therefrom, and thus an increased radiating-surface be afforded, while by joining one side of said flue to the stove sufficient heat is obtained to accelerate the draft therein enough to insure the efficient working of the heater. It will also be observed that the exterior surfaces of the flues L′ L′ are exposed, except so much thereof as is in contact with the body of the stove. This extended radiating-surface cannot be obtained when the three flues are brought into contact with each other.

The course of the flue-currents in the base are shown by direction-arrows. In Fig. 3 there is shown a damper, D, which, when closed, produces a circulation through the

base, as described, and, when opened, allows the heat from the surface of the fire to pass directly to the exit-pipe E, through the rear ascending flue, A′.

At L is shown an interiorly-projecting flange or rim, below the grate, which serves to direct the ascending currents of air to the air-passage between said grate and the fire-cylinder; and this flange or rim also serves the purpose of an ordinary dust-ring.

The magazine is shown in Fig. 3, at M, and as cut away at its base upon a bevel, at O, so that the coal will spread out in a thicker measure over the fire at the front than at the rear.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination, in a heating-stove, of the exterior vertical descending flues, L′ L′, isolated from each other and from the ascending flue, but not from the stove, and the connected lateral side base-flues, L″ L″, central lateral base-flue, A″, and connected rear ascending flue, A′, as herein shown and described.

Signed at Albany, New York, this 18th day of May, 1877.

JASPER VAN WORMER.

Witnesses:

JOSEPH C. BARNES,

WM. H. VAN WORMER.