(No Model.)

A. G. GRAY.

HEATING STOVE.

No. 561,662. Patented June 9, 1896.

Fig. 1.

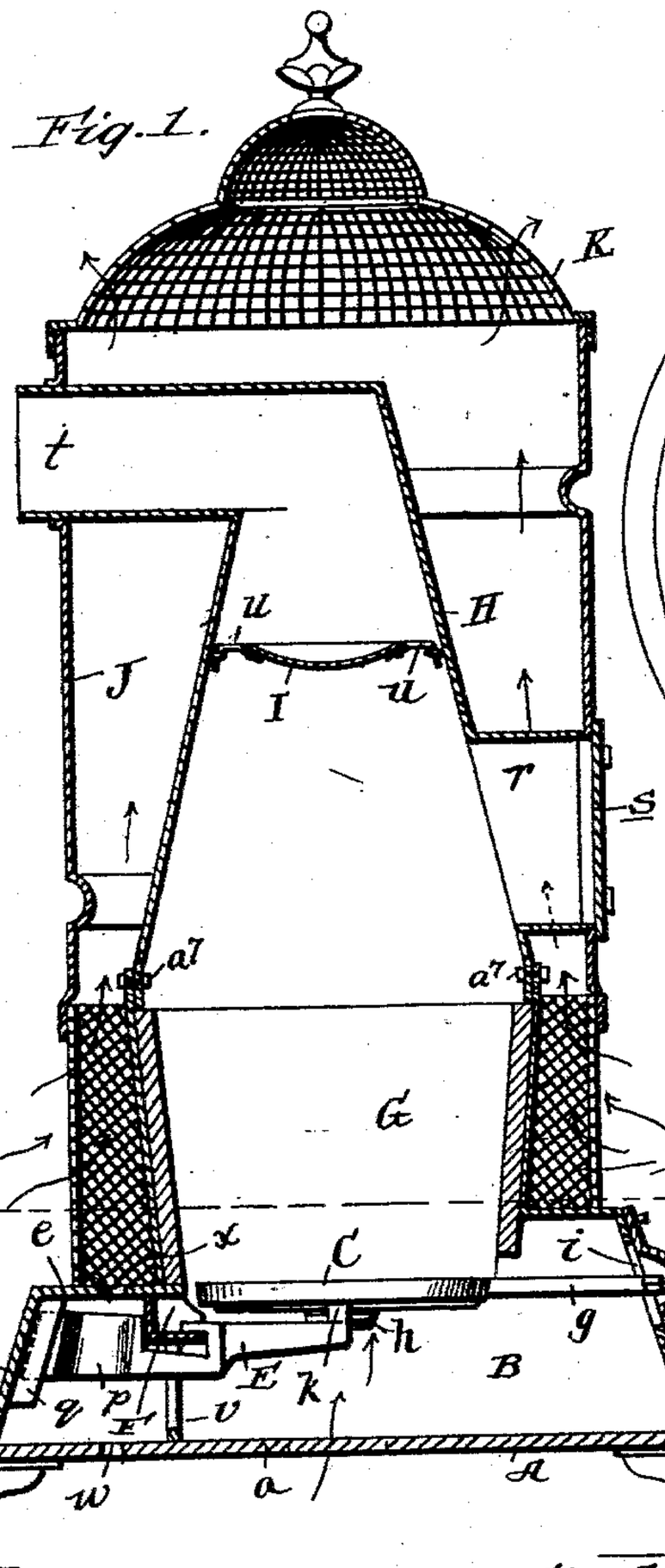


Fig. 2.

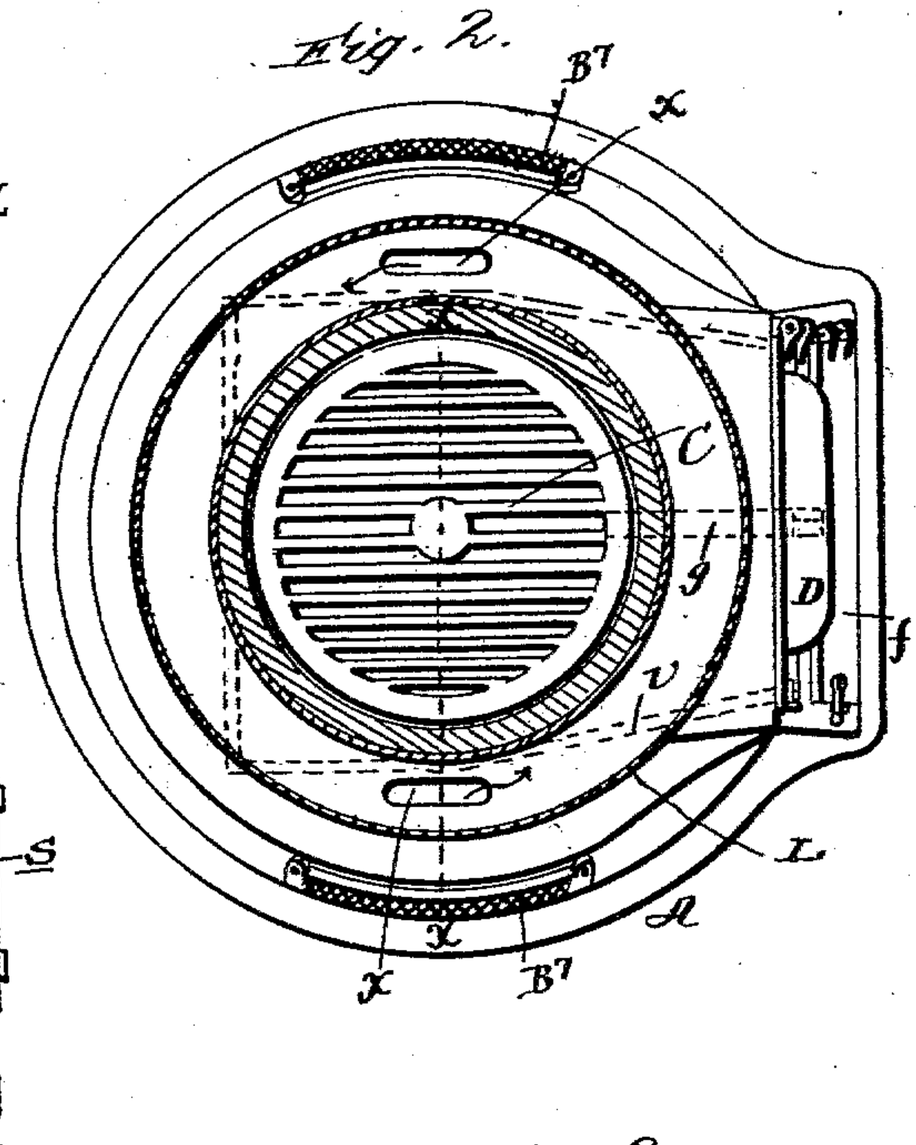


Fig. 3.

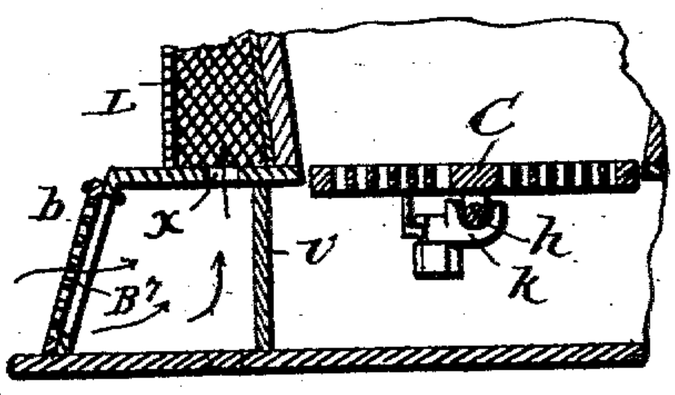
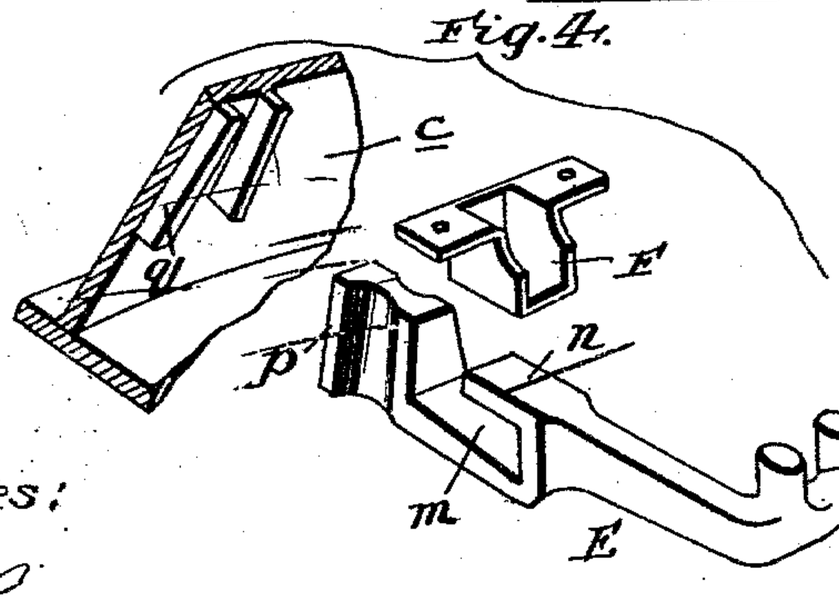


Fig. 4.



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ANDREW GEORGE GRAY, OF ST. JOHN, CANADA.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 561,662, dated June 9, 1896.

Application filed September 12, 1895. Serial No. 562,301. (No model.) Patented in Canada April 25, 1895, No. 48,763.

To all whom it may concern:

Be it known that I, ANDREW GEORGE GRAY, a citizen of Canada, residing at St. John, in the Province of New Brunswick, Canada, have invented certain new and useful Improvements in Heating-Stoves, (for which I have obtained Letters Patent in Canada, dated April 25, 1895, No. 48,763;) and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in heating-stoves; and its novelty and many advantages will be fully understood from the following description and claims when taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical diametrical section of a heating-stove constructed in accordance with my invention. Fig. 2 is a horizontal section taken in the plane indicated by the line *y y* of Fig. 1. Fig. 3 is a detail section taken in a plane at right angles to Fig. 1, and Fig. 4 comprises detail perspective views of parts to be hereinafter referred to.

Referring by letter to said drawings, A indicates the base of my improved stove, which may be formed of cast-iron or other suitable material. This base A comprises the bottom wall *a*, side walls *b*, back wall *c*, front wall *d*, and the horizontal flange *e*, extending inwardly from the back and side walls, and it forms the ash-box B, which is provided with a suitable door *f* in the front wall, as illustrated.

C indicates the circular grate, which is arranged above the ash-box and is provided with the radial shank *g* and also with the central depending lug *h*, as shown. The grate-shank *g*, as better shown in Fig. 1, extends through an opening *i* in the front wall *d*, and the said opening is normally covered by a hinged door D, which is of a form to receive the end of a shank, as illustrated, when tightly closed against the front wall of the ash-box.

The lug *h*, upon the under side of the grate C, is seated in the bifurcated end *k* of the grate-supporting bar E. (Better illustrated in Fig. 4 of the drawings.) This bar E, which is of the proportional size shown, is provided at an intermediate point in its length with the undercut recess *m*, the overhanging upper wall *n* of which is designed to engage the bracket F on the under side of the flange *e*, and said bar E also has a dovetail enlargement *p* at one end designed and adapted to be placed in the dovetail space formed by the bars *q* on the rear wall *c*, as shown. In assembling these parts the bar E is first placed in engagement with the bracket F and the lower end of the space between the bars *q*, and its inner end is then lowered to a horizontal position. This downward movement of the inner end of said bar E carries its opposite enlarged end *p* up into the dovetail space between the ribs or bars *q*, and in consequence of this and the fact that the overhanging wall *n* bears upon the bracket F the bar is securely held in position and affords a strong and firm support for a grate, which may be rocked in the usual manner. When either the grate or bar E, or both, are burned so as to be rendered useless, it will be observed that they may be readily removed and replaced by a new bar and grate, so as to prolong the usefulness of the stove, which is a desideratum.

G indicates the fire-box, which is preferably of the form illustrated in Figs. 1 and 2. This fire-box is preferably formed of steel-plate which is connected to and rises from the flange *e* of the base A, and it is lined with fire-brick or other suitable material in the well-known manner, so as to prolong its usefulness. The steel-plate forming the fire-box G is connected by screw-bolts *a*⁷, as illustrated, to the stove-body H, which is provided at an intermediate point in its length with the lateral extension *r*, having a door *s*, and is also provided at its upper end with a lateral extension *t* for the connection of a stovepipe. Within the said body H is arranged a deflector-plate I, which is preferably of a concavo-convex form, as shown, and is designed to retard the passage of heat and particles of combustion from the stove, so as to enable the stove to better radiate the heat. This deflector or diaphragm is of a less diameter than the body H to permit the smoke to pass it, and it is provided with hooks *n*, which engage eyes on the wall of the body and serve to securely hold the deflector in position and yet permit of its ready removal when the stove is to be cleaned.

J indicates a drum of Russia iron or other suitable material which surrounds the upper portion of the body H.

K indicates a foraminated or open-work cap which is mounted and suitably secured upon the upper end of the drum J, and L indicates a foraminated or open-work wall which surrounds the fire-box G and is interposed between the drum J and the base A, as shown. This wall L permits cool air to enter and come into contact with the highly-heated fire-box, and such air then passes up between the drum J and the body H of the stove, where it is further heated and passes out of the open-work or foraminated cap K into the apartment in which the stove is located. In this way a circulation of the air in such apartment is constantly maintained and in consequence such air and the apartment are thoroughly heated in a short space of time and kept heated with the consumption of but a minimum amount of fuel.

In order to increase the circulation of air and better heat the air adjacent to the floor of the apartment, I provide the ash-box B with the partition-walls *v* and form the apertures *w* in the bottom wall *a*, between the transverse partition *v* and the rear wall *c* of the fire-box, and the aperture *x* in the flange *e* of base A, so as to permit the air to pass from beneath the stove directly up into the space between the foraminated wall L and the fire-box, for the purpose before stated. I also provide the side walls *b* of the ash-box B with foraminated or open-work panels B^7, as better shown in Fig. 3, so that the air from points adjacent to the floor may take into the space between the side walls *b* and partitions *v*, and then pass through the apertures *x* up into the space between the foraminated wall L and the fire-box, so as to be thoroughly heated before escaping into the apartment where the stove is situated.

It will be appreciated from the foregoing that while my improved stove may be made small and compact, so as to take up but a minimum amount of space in an apartment, it is by reason of its construction thoroughly capable of heating such apartment equally as well, if not better, than a larger stove of the ordinary pattern, which consumes a much greater amount of fuel. It will also be appreciated that my improved stove is advantageous by reason of the fact that the parts most subjected to wear and damage may be quickly and easily removed and replaced by new parts.

I have in some respects specifically described the construction and relative arrangement of the parts of my improved stove in order to impart a full, clear, and exact understanding of the same; but I do not desire to be understood as confining myself to such exact construction and arrangement, as such changes or modifications may be made in practice as fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. The herein-described stove comprising the base having the ash-box formed therein and also having the apertures *x*, in the upper wall of the ash-box, the aperture *w*, in the lower wall of the ash-box, the inclosure formed by the back wall *c*, of the ash-box and a transverse partition *v*, and communicating with the aperture *w*, and the aperture *x*, above it, inclosures formed by the side walls *b*, of the ash-box and partitions *v*, and foraminated panels connected to said side walls *b*, and adapted to admit air into the inclosures, the fire-box arranged upon the base and over the ash-box, the body arranged above the fire-box and provided at its upper end with a lateral extension for the connection of a stove-pipe, and also having the extension *r*, at an intermediate point of its length provided with a door at its outer end, the imperforate drum J, surrounding the body portion, the foraminated or open-work cap arranged upon the upper end of the drum J, and the foraminated or open-work wall arranged beneath the drum and upon the base and surrounding the fire-box and also surrounding the aperture *w*, in the upper wall of the base, substantially as and for the purpose set forth.

2. In a stove, the combination with a base comprising a bottom wall, side walls and a top wall and having ribs on one of its side walls forming a dovetail space and also having a bracket F, upon the under side of its top wall; of a bar E, having the undercut recess adapted to receive the bracket F, and the dovetail end *p*, at one end adapted to enter the dovetail space between the ribs *q*, and a grate mounted upon the opposite end of the bar, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW GEORGE GRAY.

Witnesses:

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