G. G. KAISER.

WOOD BURNING STOVE.

APPLICATION FILED MAR. 23, 1908.

900,384. Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

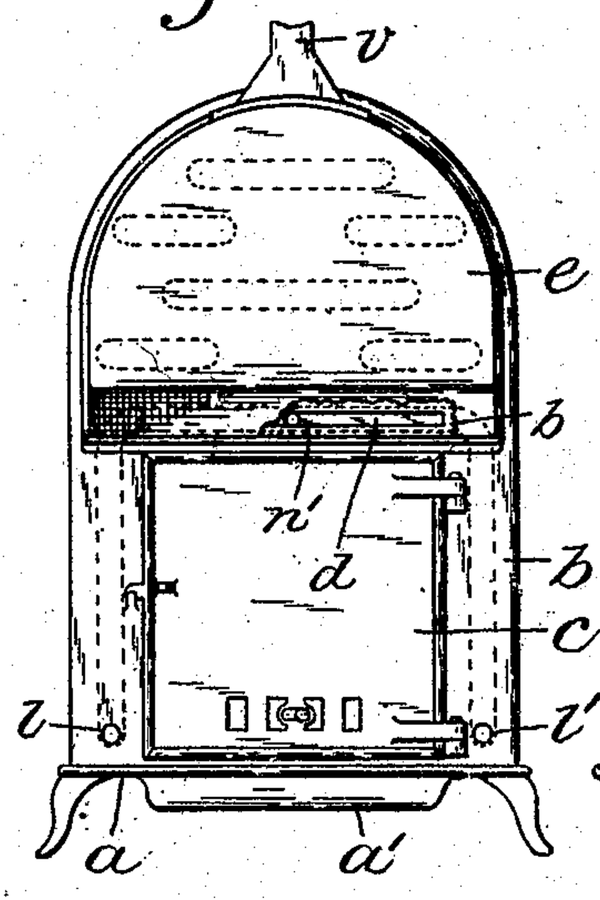

Fig. 2.

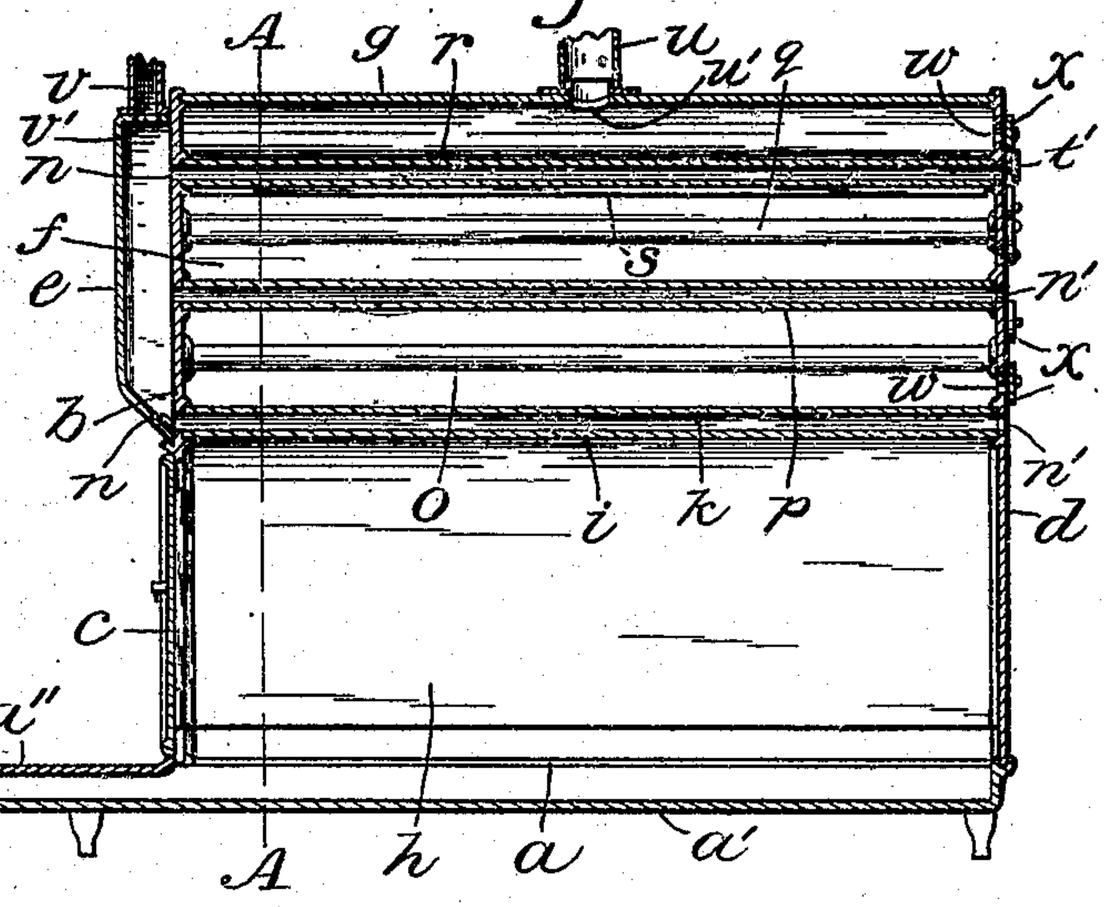

Fig. 3.

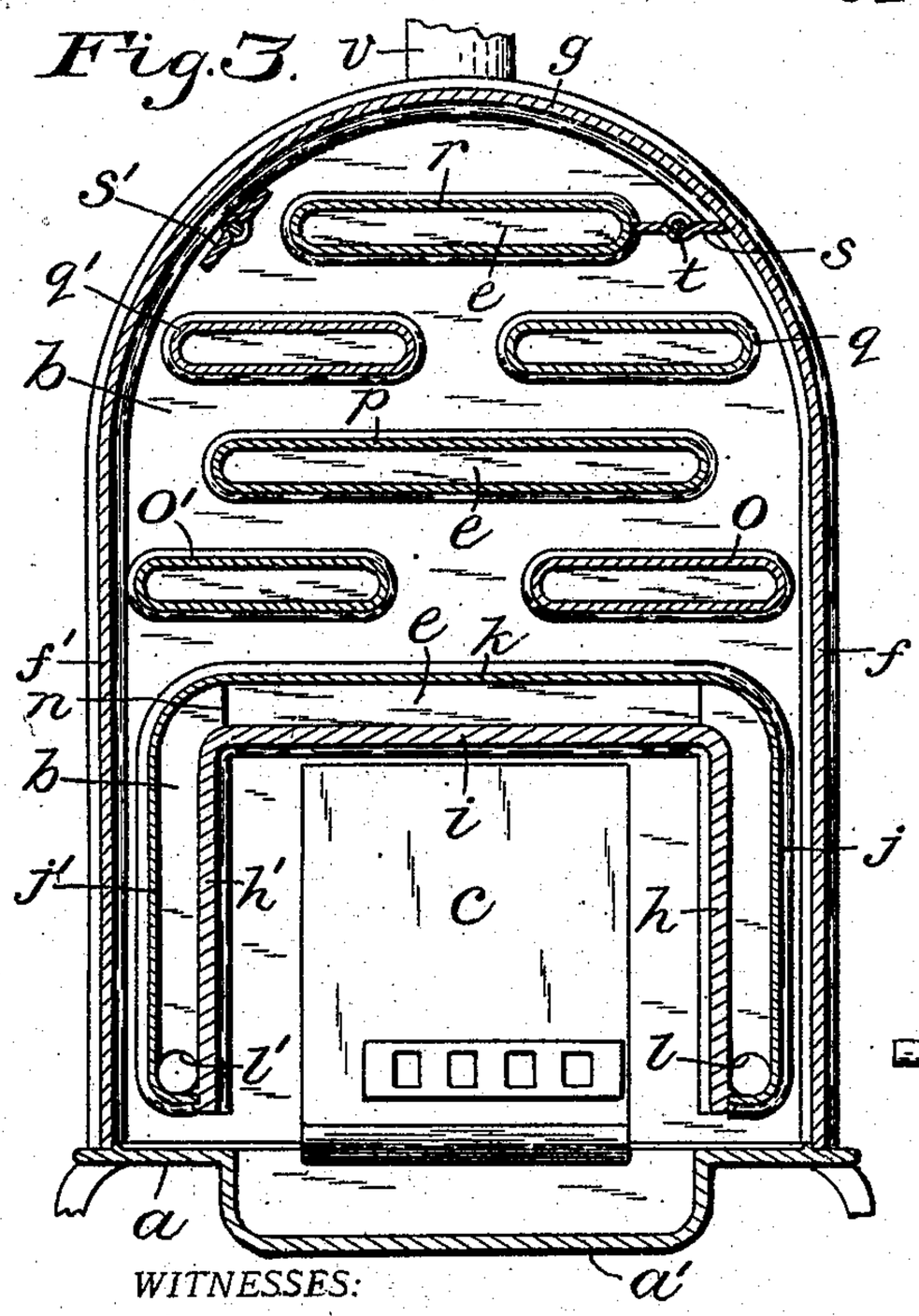

Fig. 4.

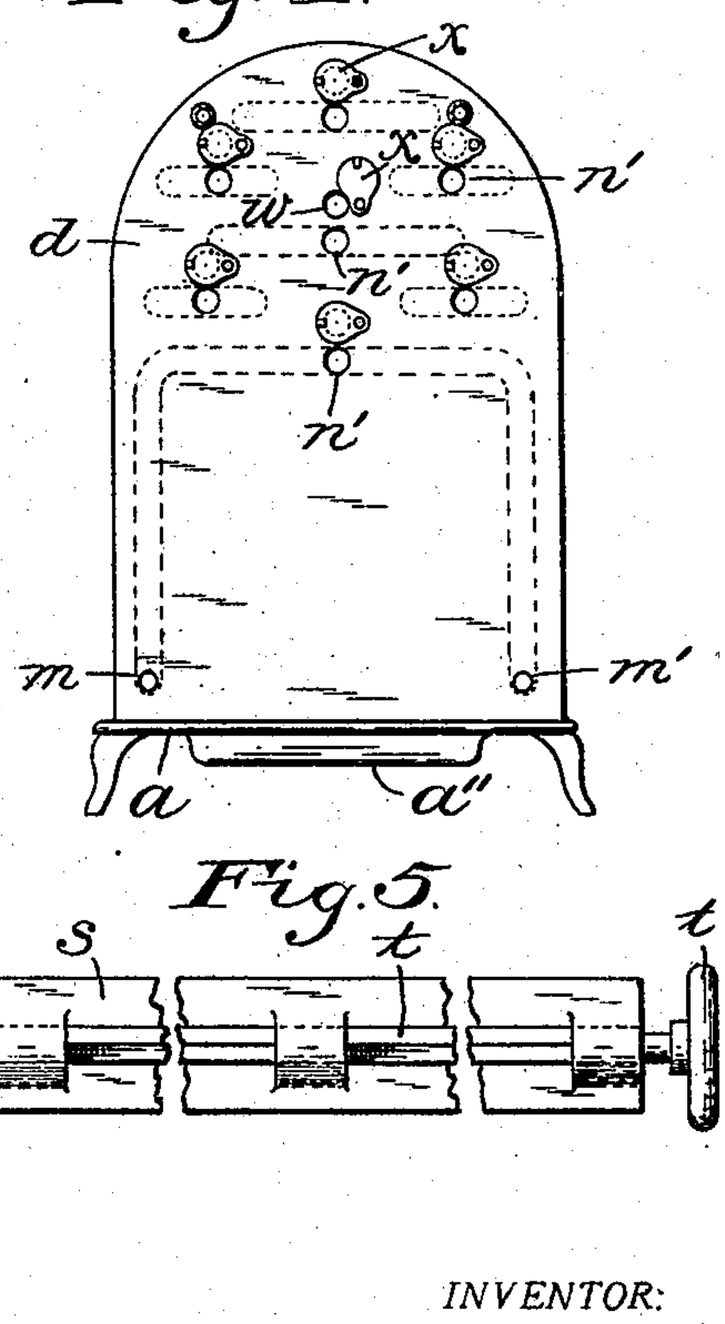

Fig. 5.

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2 SHEETS—SHEET 2.

Fig. 6.

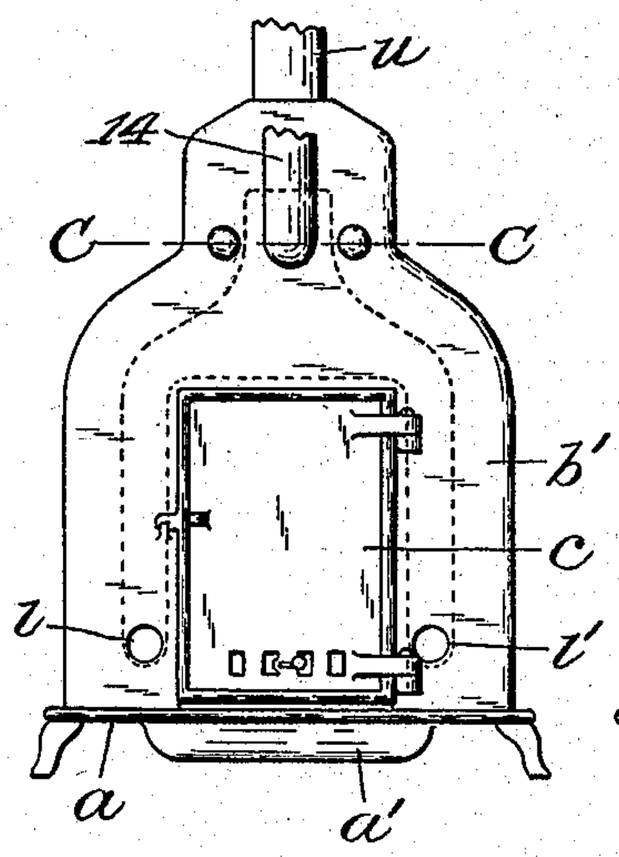


Fig. 7.

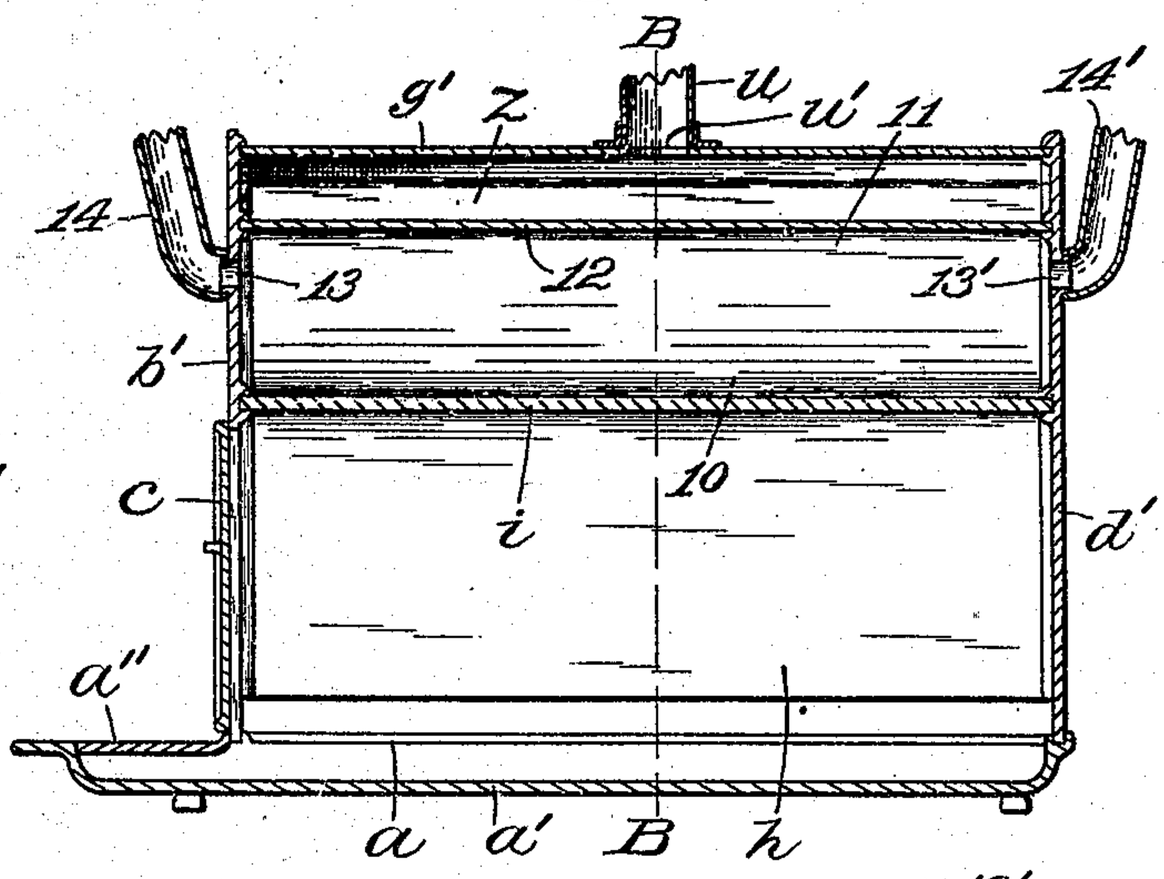


Fig. 8.

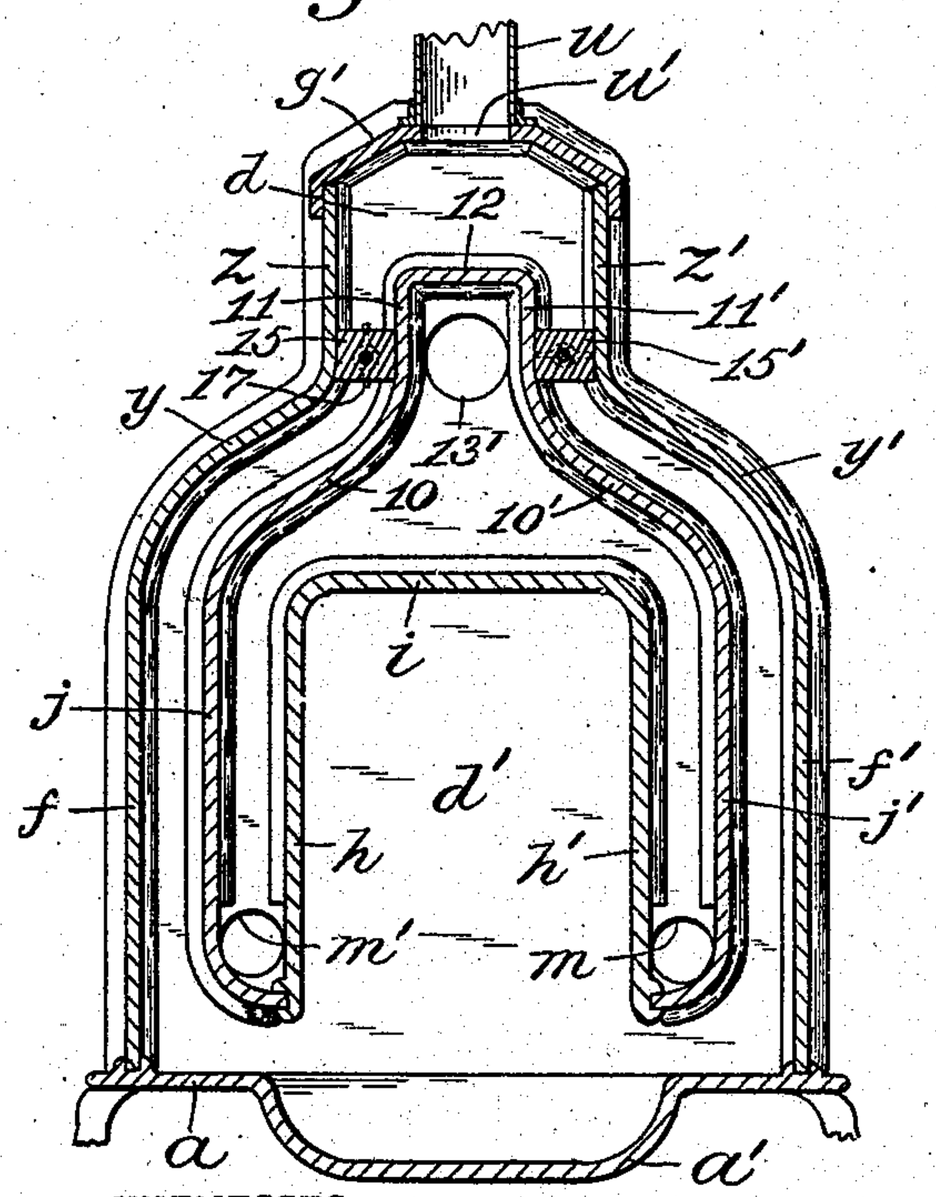
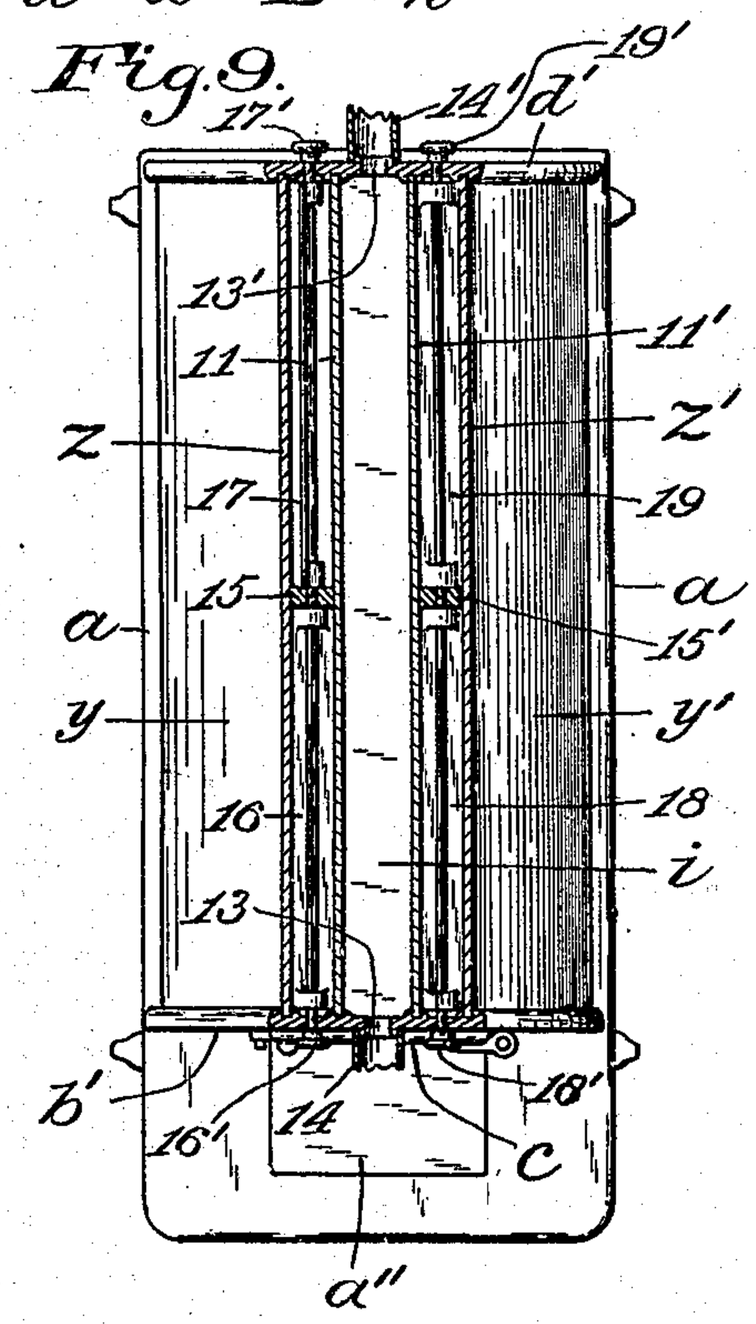


Fig. 9.



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UNITED STATES PATENT OFFICE.

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WOOD-BURNING STOVE.

No. 900,384. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed March 23, 1908. Serial No. 422,668.

To all whom it may concern:

Be it known that I, GEORGE G. KAISER, a citizen of the United States, residing in Harrison township, in the county of Clay and State of Indiana, have invented certain new and useful Improvements in Wood-Burning Stoves; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to heating stoves, especially of the kind that are adapted for use in dwellings, the invention having reference particularly to improvements in stoves that are adapted for using wood for fuel, and for supplying heated air for heating rooms separate from the room in which the stove may be situated, and while heating the room or apartment where the stove may be located.

Objects of the invention are to provide an improved wood burning stove of simple and cheap construction and adapted to serve the purpose of a hot air furnace while at the same time supplying heat for the apartment in which the stove may be located, and to provide a combination stove of the above-mentioned character that will be durable and economical in use, and in which various kinds of fuel may be used for producing heat.

The invention consists in a stove having an air chamber at the sides and top of the combustion chamber, and draft flues outside of the air chamber and serving as a heating jacket therefor, all of novel form and construction. And the invention consists further in the parts and combinations and arrangements of parts as hereinafter particularly described and defined in the appended claims.

Referring to the drawings Figure 1 is a front elevation of the improved stove; Fig. 2, a longitudinal vertical central sectional view; Fig. 3, a transverse sectional view on the line A A in Fig. 2, looking forward; Fig. 4, a rear elevation of the stove; Fig. 5, a fragmentary plan view of one of the draft shutters or gates comprised in the construction of the stove; Fig. 6, a front elevation of a modified form of the stove; Fig. 7, a longitudinal vertical central sectional view of the modified form of the stove; Fig. 8, a transverse sectional view on the line B B in Fig. 7; and, Fig. 9, a horizontal sectional view on the line C C in Fig. 6.

Similar reference characters throughout the various figures of the drawings designate like parts or features of construction.

In Figs. 1 to 5 inclusive the invention is illustrated as being adapted for larger sizes when the maximum amount of heated air is required to be carried off for heating purposes, the stove comprising a suitable base *a* having an ash-pit *a'* and a hearth plate *a''* to permit of the removal of ashes, and a body part is suitably mounted on the base and comprises a front *b* provided with a fire door *c*, and a back *d*, the front and back being preferably composed of cast iron. A false front *e* is attached to the front *b* against the upper portion thereof and with the front *b* forms a chamber to receive heated air for distribution. The body part comprises also two vertical sides *f* and *f'* and an arched top *g* preferably formed integral with the sides, and all suitably joined to the front *b* and back *d* with the sides on the base *a*. The front *b* and back *d* and the base *a* preferably have joint flanges or ribs as is usual. The combustion chamber has two side walls *h* and *h'* spaced a suitable distance from the sides *f* and *f'*, and a roof plate *i* preferably formed integral with the side walls, the side walls and roof plate extending from the front *b* to the back *d* and suitably joined thereto. The air chamber is formed partly by the walls *h* and *h'* and roof plate *i* and by two vertical walls *j* and *j'* that are arranged between the combustion chamber walls and the sides *f* and *f'* of the body part, the walls *j* and *j'* being formed of metal and turned inward at their lower portions and joined to the lower edges of the walls *h* and *h'*, so that draft flues or passages are provided that extend under the walls *h* and *h'* and under the walls *j* and *j'*, and upward between the sides *f* and *f'* and the walls *j* and *j'*, there being a roof plate *k* preferably formed integral with the walls *j* and *j'* above the roof plate *i*. The front *b* has two inlet openings *l* and *l'* therein communicating with the air chamber at the lower portions thereof, and the back *d* has two inlet openings *m* and *m'* opposite to the openings *l* and *l'* to admit air to be heated in the air chamber. If preferred, however, one or more of the openings may be closed as occasion may require, and in some cases the back *d* may have an opening *n'* communicating with the air chamber above the roof plate *i*, the air chamber having an outlet opening *n* that is

arranged in the front *b* within the chamber formed by the false front *e*.

More or less space is provided between the air chamber roof *k* and the top *g* of the body part, and a suitable number of air flues are arranged therein that extend from the front *b* to the back *d*, there being two flues *o* and *o'* arranged above the roof *k* near the sides *f* and *f'*, the flues being slightly separated one from the other. The flues are preferably oblong in section and arranged with their greater diameters in horizontal planes. A similar but broader flue *p* is arranged above the flues *o* and *o'* and spaced midway between the sides *f* and *f'*, and two other flues *q* and *q'* are arranged above the flue *p* similarly to the arrangement of the flues *o* and *o'*, and yet another flue *r* is arranged above the flues *q* and *q'*. All the air flues have communicating openings or passages *n* so that heated air may pass from the flues into the chamber formed by the false front *e*. The back *d* has suitable openings *n'* to admit air to the air flues. A pair of draft shutters *s* and *s'* are arranged on operating rods *t* at opposite sides of the flue *r*, so that the draft passage between the flue and the top *g* may be entirely or partially closed as desired at either side of the flue *r*, so that when one shutter is closed, the greater amount of heat will be given off from the opposite side of the stove which may be desirable in cases when the stove must of necessity be placed where it may be desired to obtain more heat from one side than from the other side thereof, the shutters being provided with operating handles *t'* at the rear of the back *d*. The stove is provided with a chimney connection *u* connected at an opening *u'* in the top *g*, and a distributing pipe *v* is connected at an opening *v'* in the top of the false front *e* to carry off the heated air for distribution to other rooms or apartments. The back *d* has a suitable number of openings *w* therein each arranged slightly higher than the air flues, so that scrapers may be inserted to scrape soot from the tops of the flues, there being an opening also for cleaning the roof *k* of the air chamber, the openings being normally closed by gates *x* pivoted on the back *d*.

In Figs. 6 to 9 inclusive is illustrated the modified form of stove which is designed to be built in the smaller sizes and has somewhat less capacity for heating air than with the construction hereinbefore described, the lower portions of the stove being substantially the same in all cases. In the modified form as shown, the base *a* is employed and a front *b'* and back *d'* of suitable shapes, the front having a door *c*. Sides *f* and *f'* have inwardly inclined upper portions *y* and *y'* and vertical portions *z* and *z'* extending upward a short distance from the inclined portions, a top *g'* resting on the tops of the side portions *z* and *z'*. The air chamber is formed partly by the side walls *h* and *h'* and roof plate *i* and partly by the walls *j* and *j'* which have inwardly extending inclined upper portions 10 and 10', and top portions 11 and 11' connected by a roof plate 12. The front *b'* has an outlet opening 13 connected to a distributing pipe 14, and the back *d'* has an outlet opening 13' connected to a distributing pipe 14', for conveying the heated air away from the top of the air chamber for use. The front *b'* has also the inlet openings *l* and *l'*, and the back *d'* has the inlet openings *m* and *m'* to admit air at the bottom of the air chamber to be heated. Bearing plates 15 and 15' are secured in the draft passages preferably near the upper parts of the portions 11 and 11' of the walls, and a shutter 16 is mounted in one plate and in connection with the front *b'* and has an operating handle 16', so that the draft may be shut off from one portion of the draft passage. Also a shutter 17 is mounted in the bearing plate and also in the back *d'* and has an operating handle 17'. A shutter 18 is mounted in the other bearing plate and in the front *b'*, and has an operating handle 18', and still another shutter 19 is mounted in the bearing plate and in the back *d'* and has an operating handle 19'. The shutters are rotative, as will be understood, and may be turned so as to either partially or entirely close a portion of the draft passage, so that if desired, the heat radiation may be decreased at either side of the stove. It will be understood of course that the stove may be slightly modified so as to permit of the use of any kind of fuel desired.

In practical use, the fuel will be consumed either in the ash-pit *a'* or on suitable grates if preferred, and the walls and roof of the combustion chamber will be highly heated so that air at the sides and above the combustion chamber will also become highly heated, and as the draft currents pass around the sides and top of the air chamber, the heat from the escaping gases will also be imparted to some extent to the air in the air chamber, while some of the heat will be radiated by the outer wall of the stove before escaping from the opening *u'* in the top *g* or *g'* into the chimney connection *u*. When fires are being started, it is preferable to open the shutters until relatively perfect combustion occurs, after which one or more of the shutters may be closed, if desired.

Having thus described the invention, what is claimed as new is—

1. A stove comprising a base, a front wall on the base, a door mounted on the front wall, a back wall on the base, a body part having side walls and a top connected to the front and back walls, the side walls being attached to the base, and the top having a draft opening therein, a combustion chamber

having two side walls and a roof plate attached to the front and back walls, the side walls being clear of the base, and an air-chamber formed by walls between the walls of the body part and the walls of the combustion chamber, the air-chamber having inlet openings and outlet openings.

2. A stove comprising a base, a front wall on the base, a door mounted on the front wall, a back on the base, a body part having side walls and a top connected to the front and back, the side walls being attached to the base, and the top having a draft opening therein, a combustion chamber having two side walls and a roof plate attached to the front and back walls, the walls being clear of the base, an air-chamber formed by walls between the walls of the body part and the walls of the combustion chamber and by a roof plate extending above the roof plate of the combustion chamber, the air-chamber having inlet openings and outlet openings, a plurality of air-flues above the air-chamber extending from the front wall to the back wall, the flues being open at their ends, and a false front attached to the front wall to form a chamber at the outlet ends of the air flues and at the outlet openings of the air-chamber.

3. A stove comprising a base, a front wall, a door mounted on the front wall, a back wall on the base and having cleaning holes therein, a body part having side walls and a top connected to the front and back walls and therewith forming walls of draft passages, the side walls being attached to the base, and the top having a draft opening therein, a combustion chamber having two side walls and a roof plate attached to the front and back walls, the side walls being clear of the base, an air-chamber formed by walls between the walls of the body part and the walls of the combustion chamber, the walls of the air-chamber forming parts of the draft passages, said air-chamber having inlet openings and outlet openings, and closures on said back wall opposite said cleaning openings.

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

GEORGE G. KAISER.

Witnesses:

JOHN BYERLY,

J. H. TRAVIS.