M. SCHLEGEL.

Hot Air Stove.

No. 85,404. Patented Dec. 29, 1868.

Fig. 3

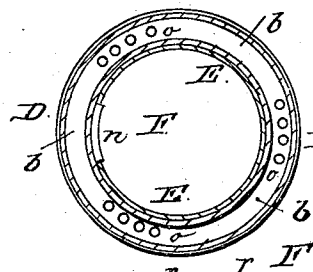


Fig. 2.

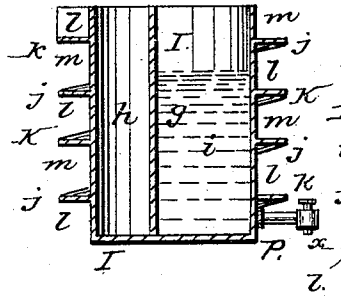


Fig. 1

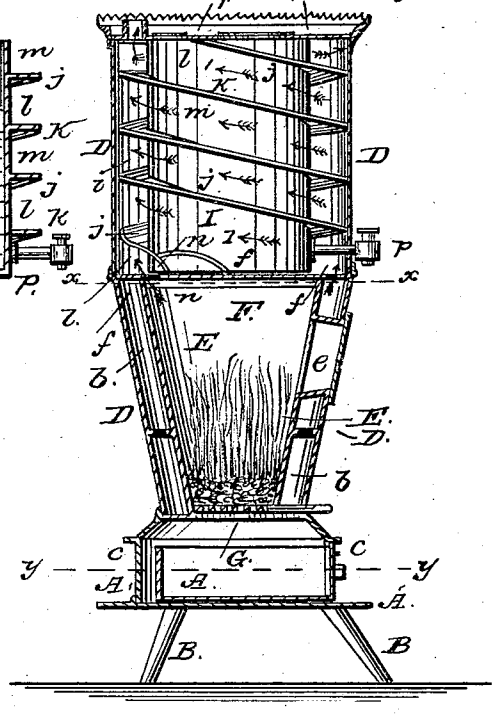
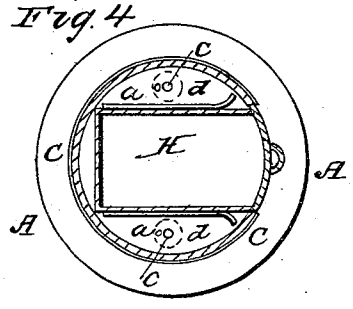


Fig. 4



Witnesses

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United States Patent Office.

MATHIAS SCHLEGEL, OF ST. JACOB, ILLINOIS.

Letters Patent No. 85,404, *dated December* 29, 1868.

HOT-AIR STOVE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, MATHIAS SCHLEGEL, of St. Jacob, in the county of Madison, and State of Illinois, have invented a new and improved Hot-Air Stove; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a sectional elevation of my improved hot-air stove.

Figure 2 is a detached vertical section of the inner drum of the same.

Figure 3 is an inverted plan view, produced by a horizontal section on the line *x x*, fig. 1.

Figure 4 is a horizontal section of the same, taken on the plane of the line *y y*, fig. 1.

Similar letters of reference indicate like parts.

The object of this invention is to produce a hot-air stove in which the largest possible amount of cold air is heated by the products of combustion, so that proportionately more heat than usual is produced by an equal amount of fuel.

The invention consists in such an arrangement of smoke and air-channels, and conduits, that the desired object is obtained by very simple apparatus.

A, in the drawing, represents the bottom plate of my improved stove. The same is of circular or other suitable form, and is made, like the other parts of my stove, of sheet or cast-metal, or other suitable material.

It is elevated above the floor by means of feet B B, of suitable number and kind.

On the plate A stands the base, C, and above the said base rises the main outer shell D of the stove. This shell can be made of the shape shown, *i. e.*, with its lower part tapering downward, or of any other suitable form.

Within the lower part of the shell, and a short distance from the same, is arranged another shell, E, which forms the fire-chamber F.

The bottom of this vessel, E, is the grate G, under which, in the base C, an ash-pan, H, is arranged.

The ash-pan, which is clearly shown in fig. 4, does not fill the whole base, but leaves spaces *a a* at its sides, which communicate with the annular space *b*, that is formed between the shells D and E.

The plate A has apertures *c*, that can be closed by means of gates *d*, and through which air can enter the spaces *a* from under the stove, to be heated by the fire in the fire-chamber.

The fire-place F is provided with a door, *e*, through which fuel can be fed into the stove. The casing of this door is of course formed by interrupting the annular space *b*, as shown.

The top of the fire-place F is closed by means of a plate, *f*, said plate extending also over the space *b*, as shown.

Upon the plate *f* stands, within the shell D, a cylinder, I, which is, by means of a vertical partition, *g*, shown in fig. 2, divided into two chambers, *h* and *i*.

The diameter of the cylinder I is such that an annular space is left between said cylinder and the shell D.

This space is, by means of two spiral plates, *j* and *k*, divided into two spiral passages, *l* and *m*, respectively.

The passage *l* communicates, by an aperture, *n*, in the plate *f*, with the fire-chamber, and serves to conduct the smoke upward, spirally around the cylinder, as indicated by arrows 1 in fig. 1. The smoke thus serves to heat the air in the cylinder I, and that in the passage *m*.

The passage *m* communicates, by means of apertures *o* in the plate *f*, (see fig. 3,) with the annular space *b*, so that the air rising through the holes *o* will be conducted from the space *h* into the passage *m*, whence it can be carried off in a heated state, by suitable means.

The chamber *h* of the cylinder I communicates, by a suitable aperture, with the space *b*, so as also to be filled with hot air, while the chamber *i* is or may be filled with water, which can be drawn off through a pipe, *p*.

Each chamber, *h* and *i*, has its removable cover in the main covering-plate *r* of the whole apparatus, as shown in fig. 1, to allow not only the inspection of its interior, but also insertion of water, &c.

The fire in this stove only comes in direct contact with the sides of the vessel F, and with the plate *f*. These parts must, therefore, be made strong and substantial. The others can all be made light, and of cheap material.

The cylinder I should be made removable, so as to allow the repair of the fire-place.

The spiral plates *j* and *k* can be cast either to the outer shell D or to the cylinder, or may be otherwise arranged.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The application, to a hot-air stove, of the cylinder I, around which the two spiral passages, *l* and *m*, one for smoke and the other for hot air, are formed, substantially as herein shown and described, for the purpose specified.

2. The combination of the plate A, base C, shell D, and fire-pot E, with the plate *f*, cylinder I, spiral channels *l m*, and covering-plate *r*, all made and operating substantially as herein shown and described.

MATHIAS SCHLEGEL.

Witnesses:

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JOSEPH SOMM.