

GEORGE ROBERTS.

Improvement in Cooking Stoves.

No. 119,999.

Patented Oct. 17, 1871.

Fig. 1.

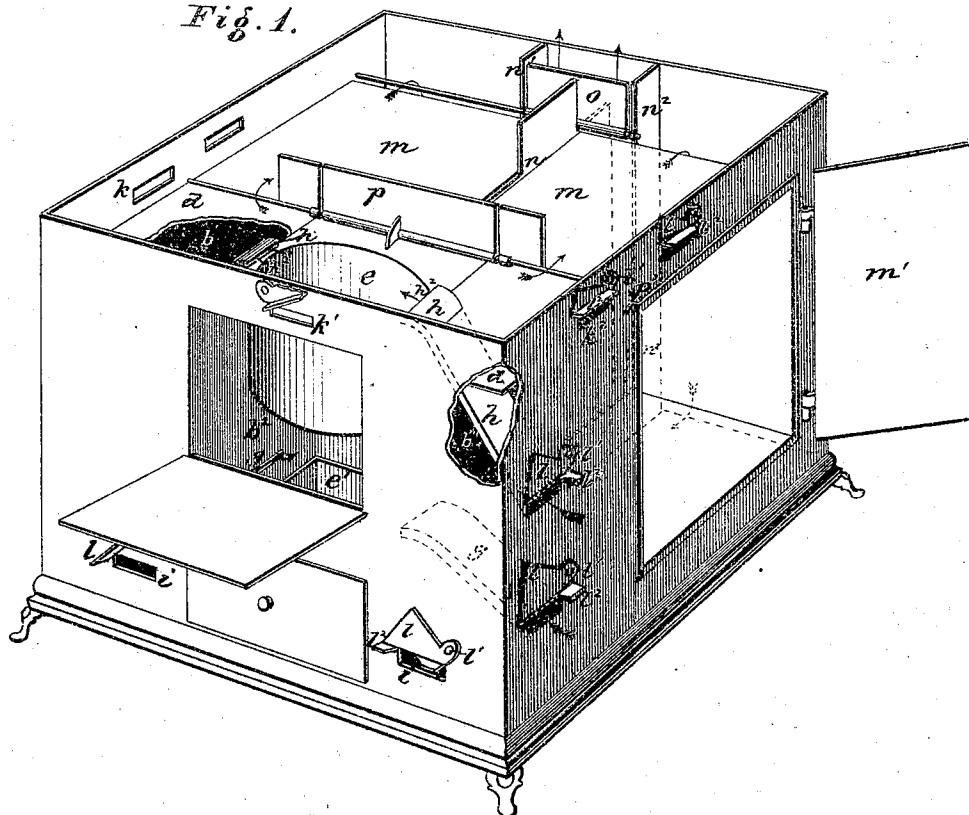
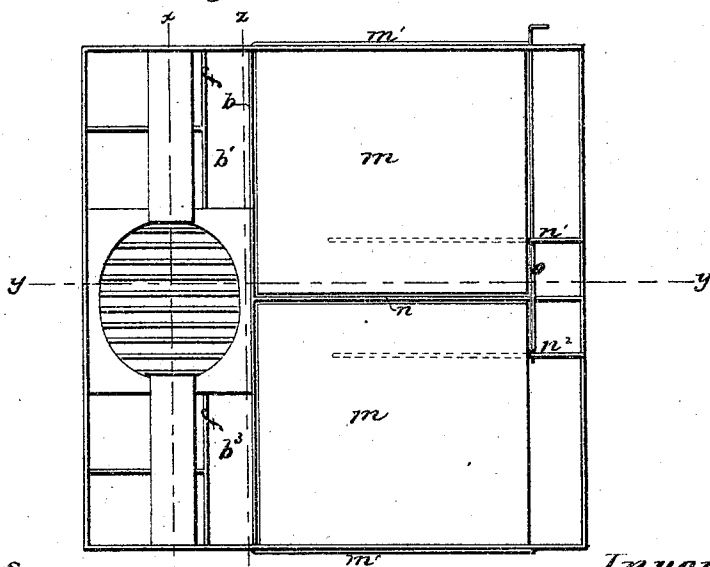


Fig. 2.



Witnesses.

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Fig. 3.

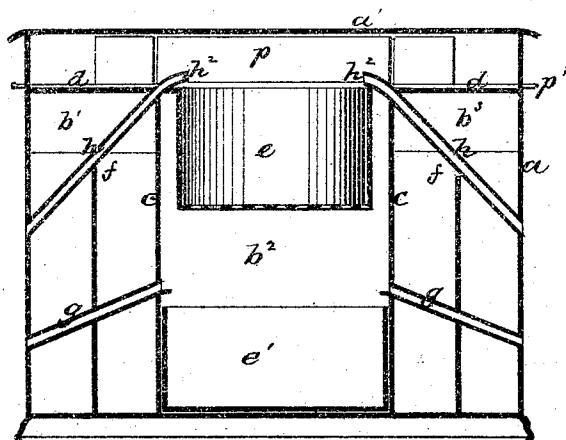


Fig. 5.

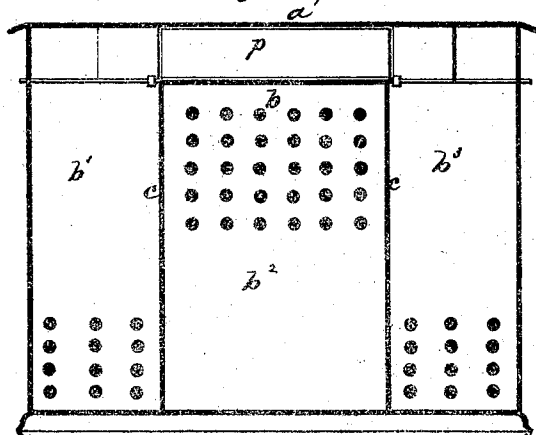
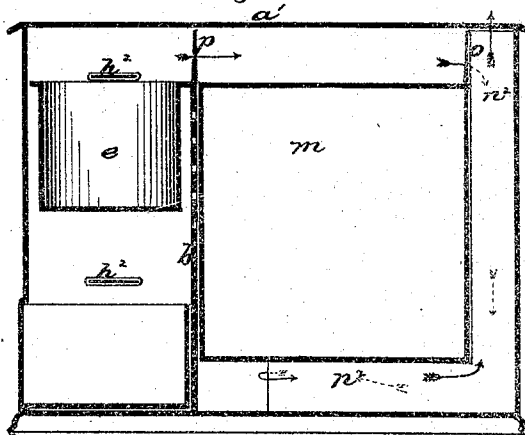


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE ROBERTS, OF MONTREAL, CANADA.

IMPROVEMENT IN COOKING-STOVES.

Specification forming part of Letters Patent No. 119,999, dated October 17, 1871.

To all whom it may concern:

Be it known that I, GEORGE ROBERTS, of the city of Montreal, in the district of Montreal, in the Province of Quebec, Dominion of Canada, bricklayer, have invented new and useful Improvements in Stoves and Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, where—

Figure 1 represents a front elevation of the stove. Fig. 2 represents a side elevation of the stove. Fig. 3 represents a horizontal section on line A B, Fig. 1. Fig. 4 represents a vertical section on line C D, Fig. 3. Fig. 5 represents a section of dampers. Fig. 6 represents a view of dampers, and Fig. 7 represents a sectional elevation through the line E F, Fig. 4.

This invention relates to improvements on stoves and furnaces generally, whereby peat, or soft or bituminous coal may be burned without experiencing any of the ordinary annoyances, or the flues and pipes being choked up, &c., as by this invention the smoke arising from the peat or coal is wholly, or in a very great measure, consumed, the heated air being concentrated in one spot in the center of the stove, whence it may be diffused in any way desired. The invention may also be applied to steam-boilers, or in any other case where it is desirable that the smoke should be consumed.

In the drawing similar letters of reference indicate like parts.

a is the casing of the stove, of any convenient or suitable form, *a'* being the top plate of stove. *b* is a partition cutting off from the main part of the stove a space, which is further divided transversely into three parts, shown at *b¹ b² b³*, by partitions *c c*, and inclosed on top by a plate, *d*, Fig. 7. Suspended from *d* and nearly filling the upper part of the space *b²* is the fire-pot *e*, preferably of the shape shown, and provided with a shaking-and-dumping grate of the ordinary description, and ash-pit *e'*, as shown, for the reception and removal of dust, ashes, &c. The fire is fed through an aperture (provided with a damper) in the top plate *a'*; but may be arranged in any other suitable way. The spaces or air-chambers *b¹* and *b³* are still further divided up by diaphragms *f* running at right angles to the partitions *c* and extending nearly as high as the plate *d*. Between this diaphragm *f* and the front of

the stove are arranged in each of the chambers *b¹ b³* two pipes, *g* and *h*, for the admission of cold air; *g*, the lower one, admitting the air to the chamber *b²* just below the grate, and *h*, the upper one provided, if desired, with a casing, admitting the cold air through the plate *d* above the fire-pot *e*. *i i* are air-ducts for the admission of cold air into the chambers *b¹* and *b³*, and *k k'* *k²*, apertures for the admission of small streams of cold air to the top of the fire-pot. The pipes *g g h h* have their ends provided with mouth-pieces *h²* as shown in Figs. 1 and 3, and all the outside openings are provided with dampers *l*, shown more clearly in Fig. 1, hung on pivots *l¹*, and provided on their lower sides with projecting ledges *l²*, arranged so that when the damper is open the under side of the ledge *l²* being flush with the upper edge of the air-duct may act as a conductor to the air. *m m* are two ovens with doors *m' m'*, divided from each other by a diaphragm, *n*, which, with the divisions *n¹ n²* on the lower part of which the ovens are supported, form the flue of the ordinary type, arranged as shown in Fig. 4, with a damper, *o*. The ovens are constructed so that they may easily be taken out for the purpose of cleaning the flue. A damper, *p*, actuated by a handle, *p'*, is placed behind the fire-pot, arranged so that it will, when closed, prevent the draught of the fire going directly to the flue.

I will now proceed to describe the operation of my invention. The fire-pot *e* being filled with fuel is lighted in the usual way, the pipes *g g* admitting the air to the bottom of the grate, and the dampers *p* and *o* conducting the smoke direct to the flue being opened, and the other pipes *h h* and air-ducts being closed, so soon as the fire has heated the air in the stove to a sufficiently high temperature cold air may be admitted to the top of the fire-pot through the pipes *h h*, the casing *h¹* keeping the air cool; and, if desired, through the apertures *k k' k²*, the damper *p* being closed to turn the fire to meet the several streams of cold air, the form of the mouth-pieces of the pipe and of the different apertures giving the streams a fan-like shape; immediately on contact with the fire they ignite and so consume the products of combustion, the currents of heated air converging again to the center, whence they may be carried off for heating purposes, if desired. Should any, however, remain they are carried down behind the ovens and into the flue in the usual way.

The cold air meanwhile being admitted by the ducts *i i* into the chambers *b¹ b³* is there warmed by contact with the partitions *c c*, and, passing over the top of the diaphragms *f*, escapes through the perforations in the lower part of the partition *b* in the chambers *b¹* and *b³*, thus both heating the ovens and tending to increase the draught to the flue. Behind the fire-pot *e* the partition *b* is perforated in its upper part in order that the air may be thoroughly heated by contact with the fire-pot before passing through the perforations.

Having thus described the construction and operation of my invention, to which I have given the name of the peat and coal smoke-consumer, what I claim as my invention, and wish secured by Letters Patent is, the new and useful im-

provements on stoves and furnaces, as follows:

1. The novel combination of the plate *d* and fire-pot *e*, with pipes *g* and *h*, arranged and operating substantially in the manner and for the purpose described.

2. The perforated division *b*, partitions *c*, diaphragms *f*, and air-ducts *i*, constructed, arranged, and operating substantially as described.

3. The novel damper *l* with pivot *l¹* and ledge *l²*, constructed as and for the purpose described.

4. The novel combination of the pipes *g* and *h* with mouth-pieces *h²* and apertures *k k¹ k²*, constructed, arranged, and operating as and for the purpose described.

Witnesses: GEORGE ROBERTS.

CHARLES LEGGE,

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(154)