

S. H. RANSOM.

Magazine Stove.

No. 98,416.

Patented Dec. 28, 1869.

Fig. 1.

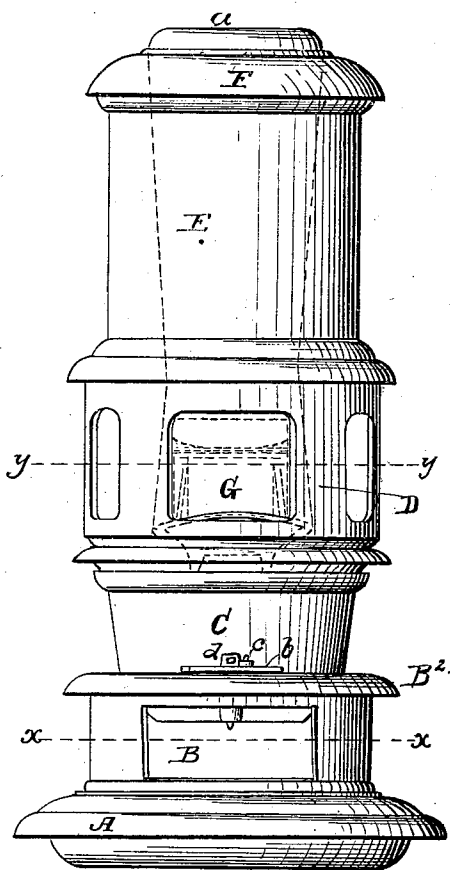


Fig. 2.

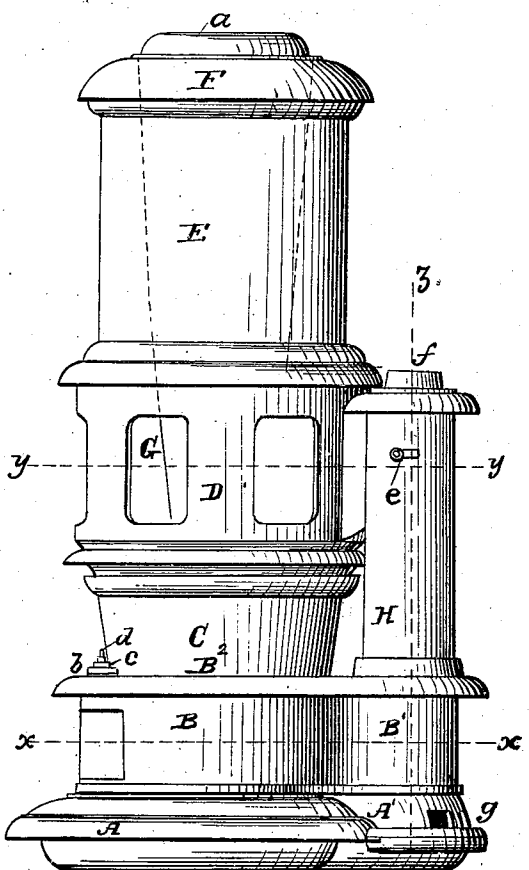


Fig. 3.

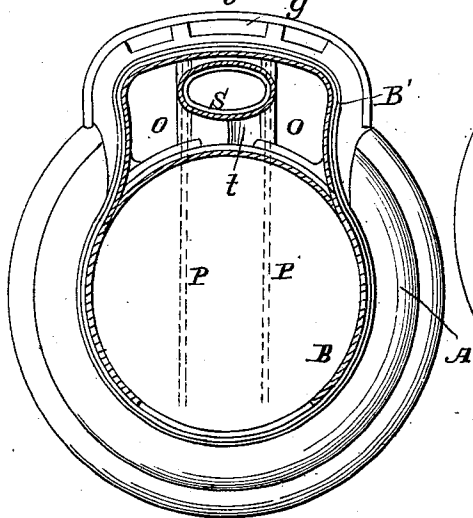
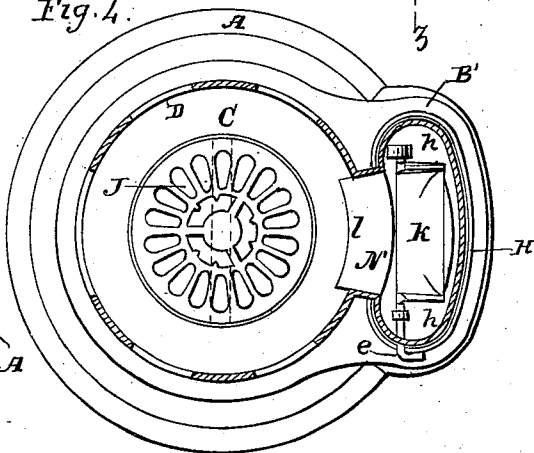


Fig. 4.



Witnesses:

R. Campbell
J. V. Campbell

Inventor:

S. H. Ransom
By O. H. H. Fennell & Co.

S. H. RANSOM.

2 Sheets—Sheet 2.

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Fig. 5.

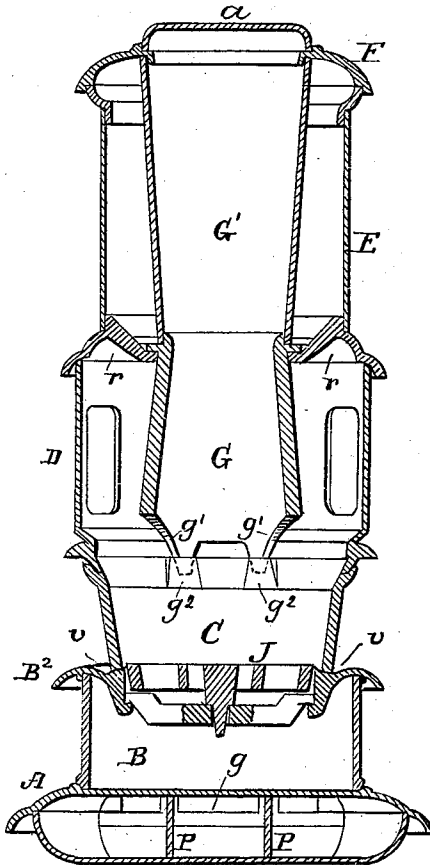


Fig. 6.

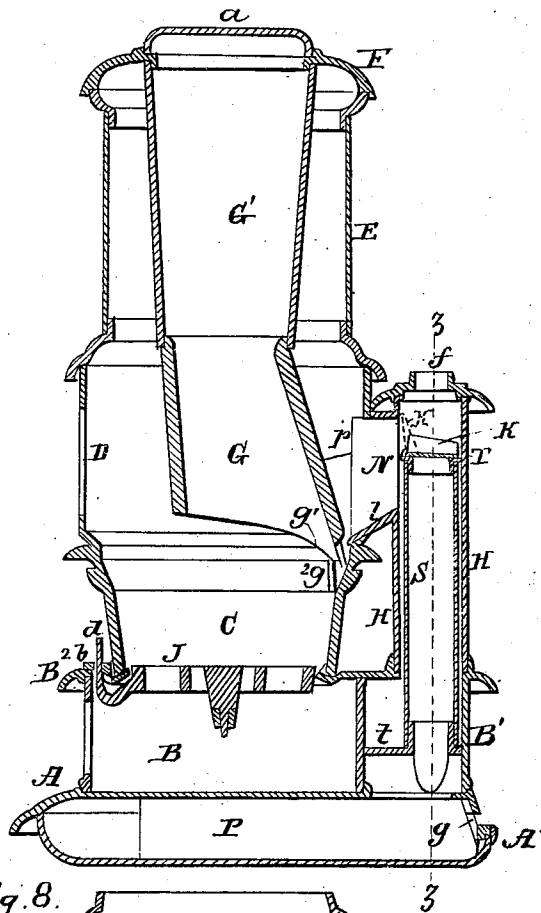


Fig. 7.

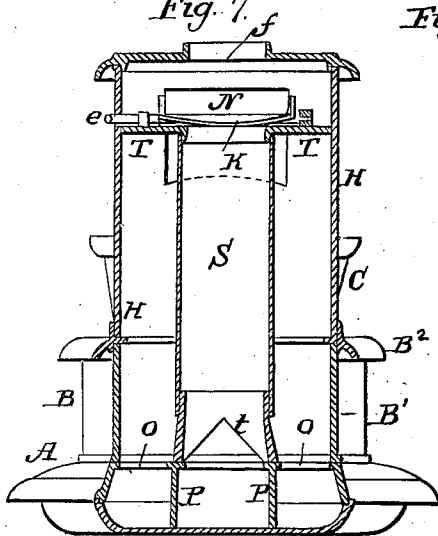
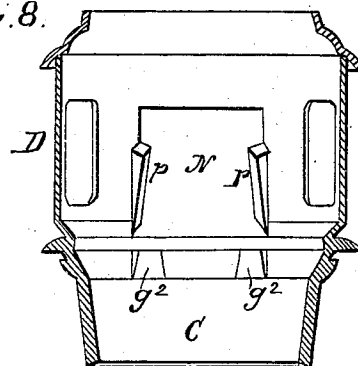


Fig. 8.



Witnesses:
H. Campbell
J. V. Campbell

Inventor:
S. H. Ransom
By Atty
Mason, Fenwick & Sauer

UNITED STATES PATENT OFFICE.

S. H. RANSOM, OF ALBANY, NEW YORK.

BASE-BURNING STOVE.

Specification forming part of Letters Patent No. 98,416, dated December 28, 1869.

To all whom it may concern:

Be it known that I, S. H. RANSOM, of Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements on Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, Plate 1, is a front elevation of the improved stove. Fig. 2, Plate 1, is a side elevation of the stove. Fig. 3, Plate 1, is a section through the stove, taken in the horizontal plane indicated by dotted lines *x x*, Figs. 1 and 2. Fig. 4, Plate 1, is a section through the stove in the horizontal plane indicated by dotted lines *y y*, Figs. 1 and 2, with lower section of fire-pot removed. Fig. 5, Plate 2, is a vertical section through the center of the stove from side to side. Fig. 6, Plate 2, is a vertical section through the center of the stove from front to rear. Fig. 7, Plate 2, is a section taken transversely through the back flues in the vertical plane indicated by dotted line *z z* in Figs. 2 and 6. Fig. 8, Plate 2, is a section taken centrally through the illuminating or window section, showing the outlet at the back part thereof.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates particularly to improvements on that class of outstanding stoves for warming purposes wherein an illuminating or window section is employed which incloses a combustion-chamber that is supplied with fuel from a magazine arranged above its center or on one side thereof, (or to straight or direct draft stoves without a magazine,) and wherein provision is made for a direct or straight draft from said combustion-chamber into the exit-flue.

One object of my invention is to provide descending and ascending draft-flues for the circulation of the products of combustion after leaving the combustion-chamber, and at the same time leave a free space externally around the fire-pot section, thereby securing an increase of heat-radiating surface independent of the fire-pot radiating-surface, and allowing the heated products to be conducted through a hollow base-section of the stove, as will be hereinafter explained.

Another object is to so arrange a damper in conjunction with two independent vertical flues outside of the body of the stove that such damper will allow control of the indirect as well as the direct drafts, as will be hereinafter explained; also, to employ within the combustion-chamber certain flue-strips, which will cause the products to rise above the lower termination of the magazine, when a magazine is used, before passing outwardly into the flue-space, thus preventing a too direct escape of the products from said combustion-chamber, as will be hereinafter explained; also, to provide for shaking and dumping the grate without opening the ash-chamber door by forming a hooked extension on the grate and providing a passage for the upper and outer portion of this extension through the top ring-plate of the ash-chamber, as will be hereinafter explained; also, to seat the fire-pot upon an outwardly-beveled surface formed upon the top ring-plate of the ash-chamber in such manner as will give perfect freedom to the vertical expansion and contraction of the fire-pot and relieve the rods that secure the fire-pot in place, as will be hereinafter explained.

To enable others skilled in the art to understand my invention, I will describe its construction and operation as applied to one form of outstanding stoves.

In the accompanying drawings, A represents the base-section of the stove, which is made hollow and provided with two flue-plates, P P, that extend from the back wall of the back extension, A', forward in vertical planes nearly to the front wall of the section A, and form three flues—to wit, two flues, one on each side of a central flue.

B represents the main portion of the ash-chamber section, which is extended back over the back extension, A', of the base A, so as to form a chamber which communicates with the hollow base A, but which does not communicate with the ash-chamber B. The rear extension, B', of B communicates with the vertical passages *o o* shown in Figs. 3 and 7, and within this extension B' a double-inclined collar-bridge, *t*, is applied for receiving a pipe, S, and causing all the descending products to circulate through the base A before entering this pipe, as will be hereinafter explained.

C represents an upwardly-flaring fire-pot,

which has its bottom edge beveled, so as to rest snugly upon the outwardly-beveled annular surface *v* of the ring-plate B^2 . By thus beveling the points of impingement of the fire-pot and its base support it is obvious that perfect freedom is allowed for lateral expansion and contraction of the fire-pot and base support, thus preventing the cracking of said parts or the cap-ring of the fire-pot, and also relieving the rods which hold the fire-pot in place from undue strain.

Upon the fire-pot rests the illuminating or window section *D*, which may be provided with a door and windows in the usual well-known manner of constructing this class of stoves, and which is also constructed with an opening, *N*, through its back part, as shown in Figs. 4, 6, 7, and 8. From the upper edge of this section *D*, and arranged diametrically opposite each other, are two stirrups, *r r*, which receive lugs formed on the lower section, *G*, of the fuel-magazine and assist in supporting and keeping in place this magazine. The section *G* inclines backward, so as to deliver most of the fuel on one side of the center of the bed of coals in the fire-pot, and thus expose a larger amount of incandescent surface in front of the magazine than is the case where the lower part of the magazine is arranged in the vertical center of the fire-pot or combustion-chamber.

I do not confine my invention to an inclined magazine. The lower back part of the magazine-section *G* is lipped at *g'*, which lips are received into and supported by lugs g^2 formed on the upper beveled margin of the fire-pot.

On opposite sides of opening *N* are two division-strips, *p p*, which extend up nearly to the top of the said opening, and which are adapted to fit snugly against the inclined section *G* of the magazine, thereby forming an outlet for the products at an elevated point and directing the ascending currents toward the upper part of the stove before they are allowed to escape outwardly through the passage *N*. These side plates or division-strips, *p*, prevent a too rapid or direct escape of the product from the combustion-chamber surrounded by the illuminating or window wall *D*.

The upper sections *E* and *F* inclose the upper section *G'* of the magazine, which latter is supplied with fuel through an opening that is closed by the cover *a*.

The magazine is made of two horizontal sections, as above stated, and as shown in Figs. 5 and 6, mainly for the purpose of substituting a new section for the lower one when this one burns out.

The base-plate B^2 , which supports the fire-pot *C*, extends back and covers the top of the chambered extension B' , and is constructed with a pipe-collar which receives a flue-pipe, *H*, (shown in Figs. 2, 4, 6, and 7.) This pipe rises vertically as high as the top of the section *D*, and communicates with this section through the passage *N*, which is closed in on four sides

by lips formed on pipe *H*. The perforated cap *f* covers pipe *H*, and has a collar formed on it for receiving the exit-pipe.

The pipe or flue *H* forms an extension of the chamber B' and establishes communication between the combustion-chamber and the hollow base *A* when a damper, *K*, is shut against the upper part of passage *N*, as indicated in dotted lines, Fig. 6. The pipe *S*, which is supported upon the bridge-collar *t*, extends upward to a horizontal partition, *T*, through which is an opening that will be closed by damper *K* when in the position indicated by full lines in Figs. 4, 6, and 7. This partition divides the exit-passage *N*, so that when damper *K* closes the upper end of pipe *S* the products escaping through passage *N* will rise directly into the exit-flue above the said partition *T*, and when the damper *K* is turned up, as indicated in dotted lines, Fig. 6, it will shut the direct-escape passage over division *T*, open the upper end of pipe *S*, and cause the products to pass from passage *N* beneath the plate *T*, thence downward through the pipe *H* and spaces *o o* into the base *A* of the stove, thence forward to the front thereof, where the two currents will merge and pass backward between plates *P P* beneath the collar-bridge *t*, and thence escape upwardly through the pipe *S* into the exit flue or pipe on cap *f*.

It will be seen from the above description, first, that I have an independent back-flue attachment which stands off free from the fire-pot and is connected at its base with a chamber formed in the base of the stove, said attachment consisting of two independent pipes arranged one within the other in such manner that the interior pipe is completely surrounded by the exterior, so that this interior pipe will be heated by the products descending around it, and the draft of the stove thereby strengthened and sustained.

The grate *J*, which is of the tilting or dumping and rotating kind, is constructed with a hooked prong, *d*, on its front part, which curves downward and then upward. When the grate is in its normal position—that is to say, when it is horizontal—the hook rises through a laterally-oblong slot made through the plate B^2 , and also through a follower or slide, *b*, which covers said slot, and is held by a notched button, *c*. The button *c*, when properly adjusted, will hold the grate in a horizontal position by its hook *d* and allow the grate to be vibrated horizontally with the ash-chamber closed. By turning the button so as to bring its notch in opposition with the exposed end of hook *d*, and then passing downward on this hook, the grate will be dumped and the contents of the fire-pot discharged into the ash-draw in the ash-chamber.

I have above described my invention in combination with a fuel-magazine; but it is obvious that the invention is applicable to a large class of heating-stoves known as "direct" or "straight" draft stoves, and therefore

the magazine is not an essential part of the invention.

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

1. The independent vertical ascending flue S, inclosed by the vertical descending flue H, and arranged to operate substantially as described.

2. The flues S H, combined with a hollow-flue base, A, substantially as described.

3. The arrangement of direct-draft damper K in the relation shown to the exit-passage S, substantially as described.

4. The wings or side plates, *pp*, applied to outlet-passage N, and magazine G, substantially as described.

5. The combination, with the grate-hook *d*, of the slide *b* and button *c*, substantially as described.

6. The fire-pot C, constructed with a beveled bottom edge and fitted upon the corresponding beveled surface *v* of the ring B², substantially as described.

S. H. RANSOM.

Witnesses:

B. BURTON,
JAMES A. GREIG.