

(No. Model.)

2 Sheets—Sheet 1.

A. M. LANNER.
STOVE.

No. 567,398.

Patented Sept. 8, 1896.

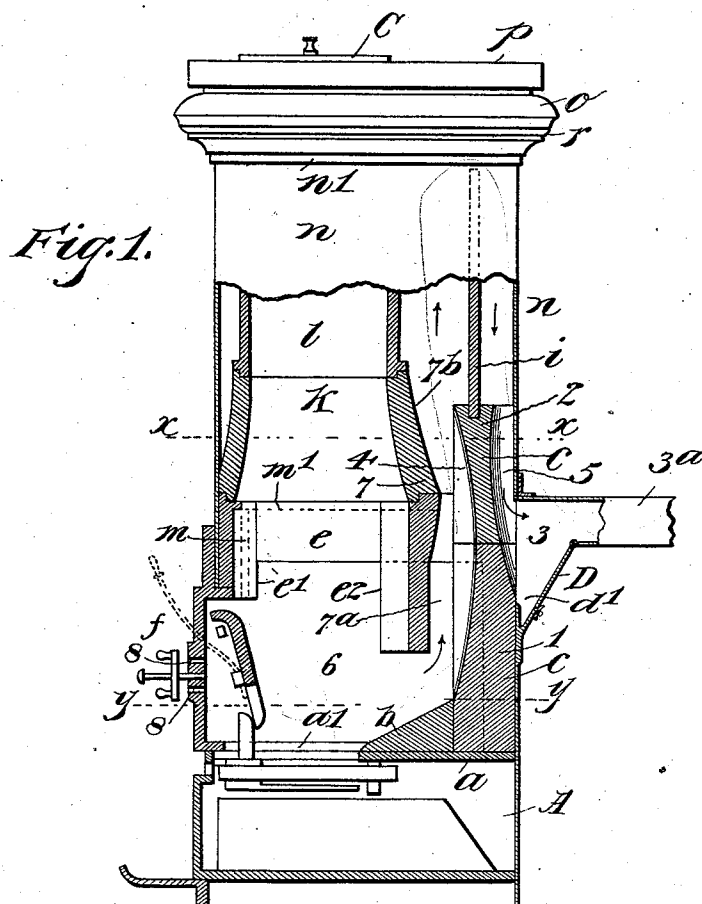
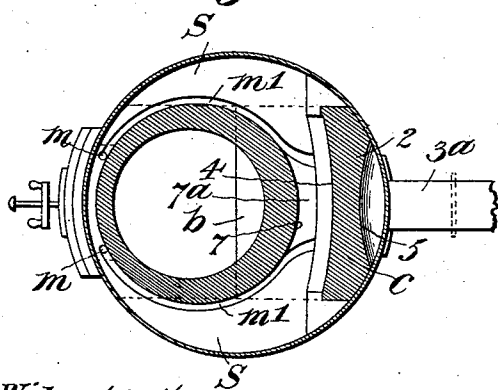


Fig. 4.

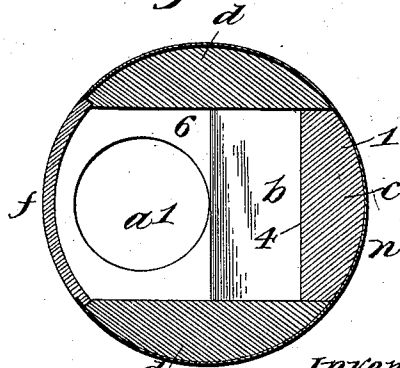


Witnesses,

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Fig. 4^a



Inventor:

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By

Henry C. Oth.
Attorney.

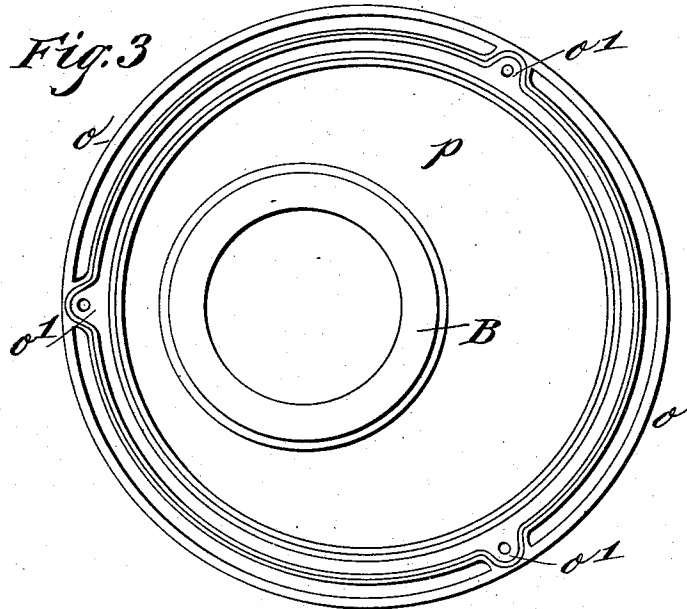
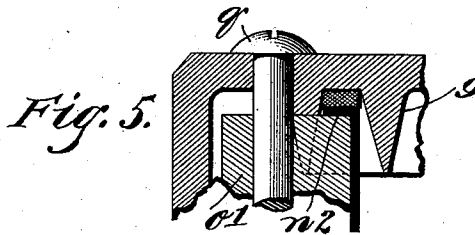
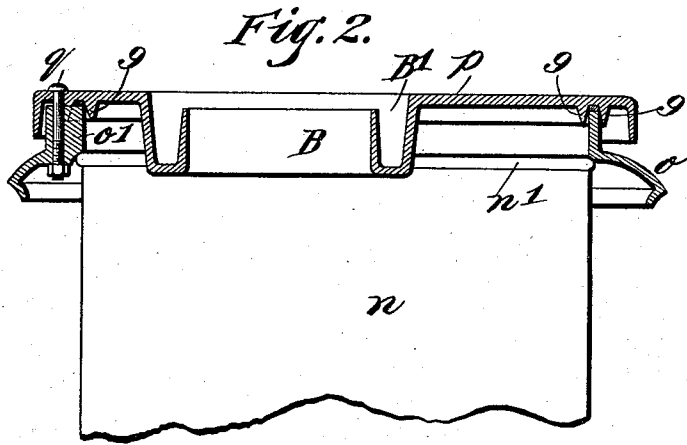
(No Model.)

2 Sheets—Sheet 2.

A. M. LANNER.
STOVE.

No. 567,398.

Patented Sept. 8, 1896.



Witnesses.

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Attorney.

UNITED STATES PATENT OFFICE.

AXEL MAURITZ LANNER, OF STOCKHOLM, SWEDEN.

STOVE.

SPECIFICATION forming part of Letters Patent No. 567,398, dated September 8, 1896.

Application filed December 26, 1895. Serial No. 573,360. (No model.) Patented in England June 16, 1892, No. 11,314, and November 18, 1893, No. 22,130; in Norway August 28, 1893, No. 3,525, and October 13, 1893, No. 3,723; in Austria-Hungary December 12, 1893, No. 90,349; in Denmark February 8, 1894, No. 52/94; in France March 3, 1894, No. 236,712; in Belgium March 31, 1894, No. 108,972, and in Sweden December 13, 1894, No. 5,681.

To all whom it may concern:

Be it known that I, AXEL MAURITZ LANNER, a subject of the King of Sweden and Norway, residing at Stockholm, Sweden, have invented certain new and useful Improvements in Stoves, (for which Letters Patent have been obtained in the following countries, to wit: in England, No. 11,314, dated June 16, 1892, and No. 22,130, dated November 18, 1893; in Norway, No. 3,525, dated August 28, 1893, and No. 3,723, dated October 13, 1893; in Denmark, No. 52/94, dated February 8, 1894; in France, No. 236,712, dated March 3, 1894; in Belgium, No. 108,972, dated March 31, 1894; in Austria-Hungary, No. 90,349, dated December 12, 1893, and in Sweden, No. 5,681, dated December 13, 1894;) and I do hereby 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, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to magazine-stoves, and it has for its object structural features and combinations of parts whereby a horizontal combustion is insured and a substantially complete utilization of the products of combustion attained.

My invention has for its further object the provision of means whereby the magazine is protected against the action of the heat in the combustion-chamber, and in the provision of means whereby ready access is had to the draft and smoke flues. But that my invention may be fully understood I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a magazine-stove embodying my invention; Fig. 2, a like view of the upper end thereof; Fig. 3, an under side view of the top ring and cover of the stove, and Fig. 4, a cross-sectional view on or about on line *xx* of Fig. 1. Fig. 4^a is a section on about line *yy* of said Fig. 1, and Fig. 5 a detail view.

In the drawings, *a* indicates the bottom

plate that divides the combustion-chamber 50 from the ash-pit *A*, and upon this plate is seated a slab of refractory material *b*, whose upper face is inclined or slopes toward or to the grate-opening *a'*. Between this slab of refractory material and the sheet-metal outer casing *n* of the stove is placed a block of refractory material *c*, which may be made of one or more pieces, according to the diameter and height, *i. e.*, the capacity of the stove. In the drawings I have shown said block as made in two sections 1 and 2. As shown, this block of refractory material *c* extends upwardly along the back of the stove some distance above the outlet-port 3 in casing *n* leading to the smoke-pipe 3^a and has a groove in its upper face in which is seated a metal plate *i*, that extends upwardly nearly to the upper edge of the said casing *n*.

The block *c* has in its front face a concave recess 4, extending from its upper edge to the block *b*, a like recess 5 being formed in its rear face, extending likewise from its upper edge to the lower edge of the opening 3 in the casing *n* leading to the smoke-pipe 3^a, the recess 4 extending practically across the front face, while the recess 5 is much narrower and forms with the space between the plate *i* and casing *n* a diving flue. On the bottom plate *a* are also seated two segmental blocks *d d*, of refractory material, one on each side of the combustion-chamber 6, (see Fig. 4^a,) and on said blocks is seated a slab *S*, of like material, from which depends an open-ended cylinder *e*, of varying length, as shown at *e'* and *e''*, Fig. 1, the shorter portion *e'* serving to protect the front portion of the outer casing *n* of the stove where the door-framing *f* is secured, while the longer rear portion *e''* constitutes the fireback and forms with the concave recess 4 an uptake or flue 7^a for the products of combustion, said cylinder *e* having an enlargement 7, whereby the area of the uptake 7^a is somewhat contracted. The downward projection or fireback *e''* of the cylinder *e*, which constitutes the lower portion of the magazine, as shown, extends close to the inclined face of block *b* and terminates practically in the plane of the air-intakes 8 8 in the door or door-

framing *f*, thereby insuring a horizontal draft, that is to say, preventing the combustion of the fuel above the line of draft or in the lower part *e* of the magazine, as is generally the case, and resulting in a waste of fuel. The cylinder *e* is further provided with vertical channels *m* in its front wall that open into circular channels *m'* in the upper face of slab *S*, which latter communicate with the uptake *7^a*, as shown in Fig. 4, whereby air entering at the door or below the same is caused to flow through the said channels *m m'*. Such air being heated in its passage and mingling with the products of combustion in the uptake *7^a*, promotes the combustion of the gases, hence insures the almost complete utilization of the products of combustion.

Upon the cylinder *e* is seated a cylindrical section *k*, of refractory material, on which is seated the cast-metal cylinder *l*, the elements *e k l* constituting the magazine for the stove. The conical section *k* of the magazine has its back *7^b* also enlarged to form with the enlarged portion *7* of section *e* a convex back wall for purposes above explained. Near its upper edge the sheet-metal casing *n* has a circular bead or peripheral rib *n'*, on which is seated a ring *o*, of cast metal, the lower part of said ring being curved outwardly, as shown in Figs. 1 and 2, and *p* is a cover provided with a circular groove formed by two circular ribs *9* on its under side. The ring *o* has enlarged portions *o'*, provided with bolt-holes, the circular ribs *9* in the cover *p* being interrupted at the point where this fullness occurs in the ring *o*, and, as shown more clearly in Fig. 5, the sheet-metal casing *n* has at its upper end an outwardly-projecting circular flange *n²*, that seats upon the upper edge of the aforesaid ring *o*, a packing *z*, preferably of asbestos, being interposed between said parts and the bottom of the cover-groove, as more clearly shown in Fig. 5, the cover being thus secured gas-tight to the ring by means of bolts and nuts *q*, while said ring affords a means for lifting the stove when this becomes necessary or desirable for any purpose. The cover *p* is further provided with a depending cylindrical bearing *B* for the upper end of the magazine, which bearing is surrounded by a circular chamber *B'*, and said chamber and bearing are closed by a cover *C*. Instead of seating the ring *o* directly on the bead *n'*, a ring *r* may be seated on said bead for the reception of the ring *o*, as shown in Fig. 1.

In order that ready access may be had to the smoke-pipe and downtake *5* for purposes of cleaning the same, I provide the door *D*, Fig. 1, closing an opening leading to said downtake and smoke-pipe. As shown, the connection of the smoke-pipe with the stove-casing is such that a pocket *d'* is formed for the collection of solid products of combustion, while the door *D* is hinged to the under side of the enlarged portion of the inlet to the said smoke-pipe, so that on opening said door the

solid products of combustion that have accumulated in the pocket *d'* will drop out or can readily be removed.

The advantages derived from the construction of the magazine-stove described will readily be understood by those conversant with this branch of the art, and will therefore not require any further elucidation.

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

1. A magazine-stove comprising an outer shell or casing, a combustion-chamber and a grate, said casing provided with an outlet for the products of combustion at a point between said grate and the upper closed end of the stove, a magazine constructed and arranged relatively to the combustion-chamber, to close the upper end thereof outside of the magazine, in combination with a fireback extending from the magazine into the combustion-chamber nearly to its grate and a dividing-wall rising from said grate between the said fireback and the outer shell nearly to the top of the closed stove and forming between said parts up and down takes, the latter leading to the aforesaid outlet for the products of combustion, substantially as and for the purpose set forth.

2. A magazine-stove comprising an outer shell or casing, a combustion-chamber and a grate, said casing provided with an outlet for the products of combustion at a point between said grate and the upper end of the stove, a magazine constructed and arranged relatively to the combustion-chamber to close the upper end thereof outside of the magazine, and air-passages leading from the combustion-chamber through the walls of the magazine into the outer shell; in combination with a fireback projecting from the magazine into the combustion-chamber nearly to its grate, and a dividing-wall rising from said grate between the said fireback and outer shell nearly to the upper closed end of the stove and forming with said fireback and shell up and down takes leading from the combustion-chamber to the aforesaid outlet in the shell, for the purpose set forth.

3. In a magazine-stove the combination with the outer casing its smoke-pipe *3*, the combustion-chamber, and a magazine provided with a fireback projecting into the combustion-chamber; of the inclined hearth *b*, a dividing-wall rising from said hearth between the fireback and outer casing nearly to the closed top of the stove, said dividing-wall having a portion of its front face concaved and having a portion of its rear face also concaved from the smoke-outlet upwardly, whereby an up and down take is formed leading from the combustion-chamber to the smoke-pipe, for the purpose set forth.

4. In a magazine-stove the lower magazine portion *S*, *e*, *e'* *e²* provided with air-passages

m and *m'* arranged as described, and the uptake 7^a into which said passages open whereby hot air from the combustion-chamber is supplied to said flue, substantially as and for the purpose set forth.

5 5. In a magazine-stove the combination with the outer casing provided near its upper end with a peripheral seat *n'* and a ring, as *o*, seated thereon and provided with enlarged portions having vertical bolt-holes formed therein; of a cover provided with a circular groove for the reception of the upper end of the ring, and bolts and nuts bolting the cover to the ring, for the purpose set forth.

15 6. In a magazine-stove, the combination with the outer shell, the segmental blocks *d d*, the inclined hearth *b* and the vertical wall *c* having concavities 4 and 5, of a magazine constructed with depending fireback *e*² arranged relatively to the inclined hearth *b* and wall *c* as described, the lower part of said magazine and the parts *b c* and *d* being

constructed of refractory clay, substantially as and for the purpose set forth.

7. In a magazine-stove, the combination 25 with the outer shell, the segmental blocks *d d*, the inclined hearth *b* and the vertical wall *c* constructed and arranged as set forth, of a magazine the lower portion *S e* of which is provided with a depending fireback *e*² and 30 with passages *m m'* in its vertical walls, said lower portion of the magazine arranged relatively to the wall *d*, as described, whereby air from the combustion-chamber is conducted to the flue 7^a between the aforesaid 35 fireback and the wall *c*, for the purpose set forth.

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

AXEL MAURITZ LANNER.

Witnesses:

CARL P. GERELL,
TH. WAURINSKY.