

J. F. QUIMBY.

MAGAZINE HEATING-STOVE.

No. 176,681.

Patented April 25, 1876.

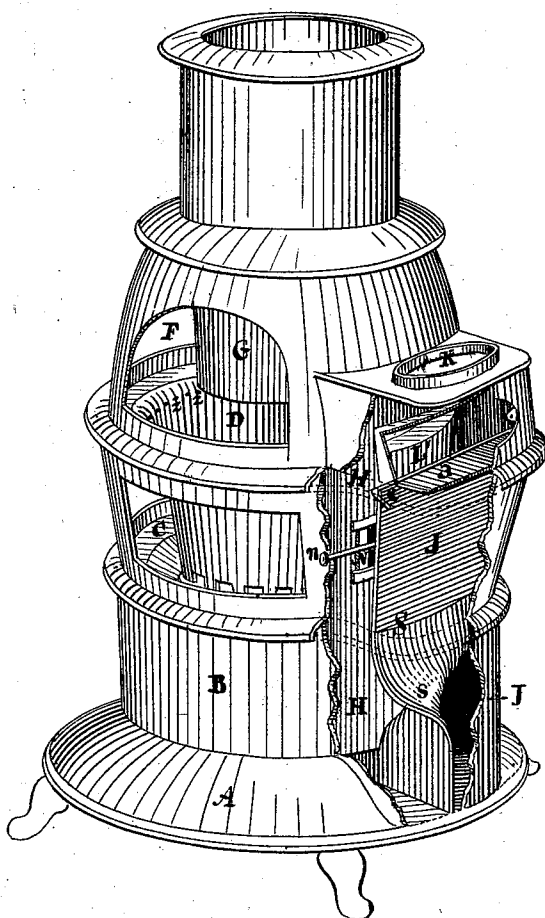


Fig. 1.

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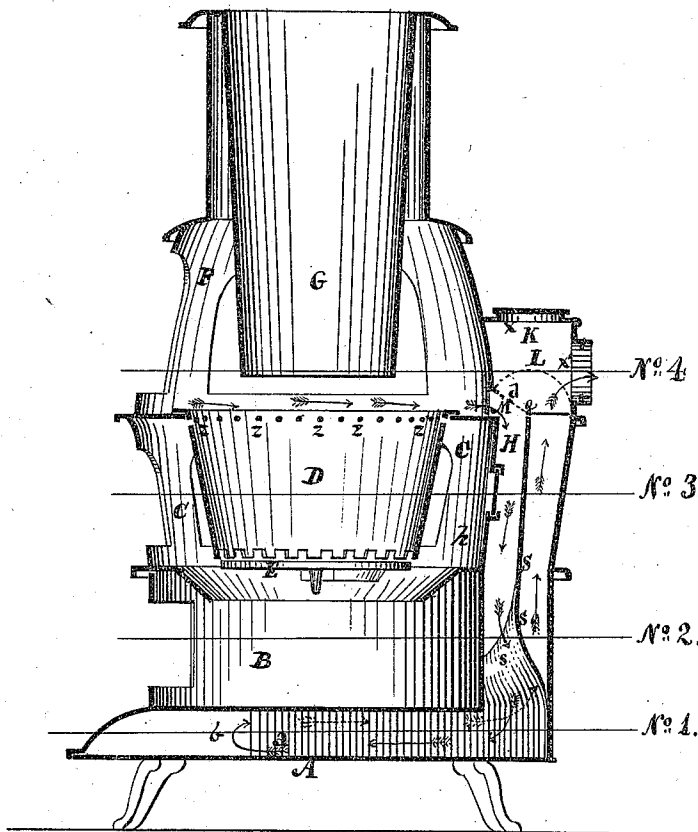


Fig. 2.

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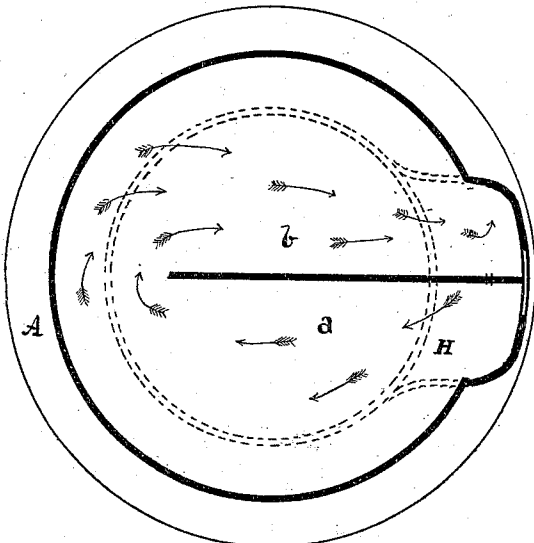


Fig. 5.

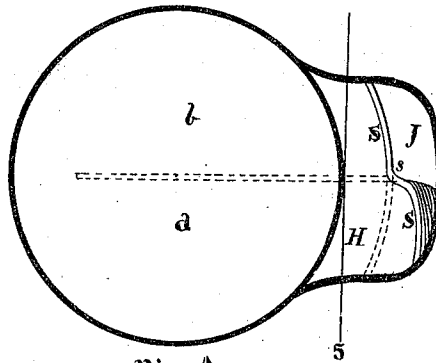


Fig. 4.

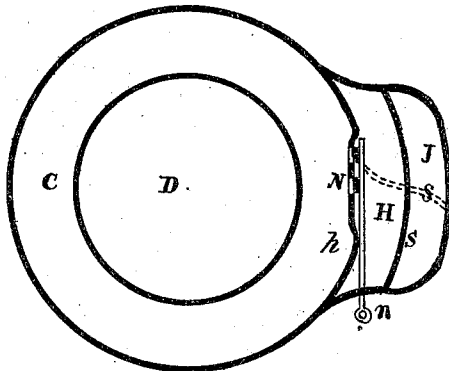


Fig. 5.

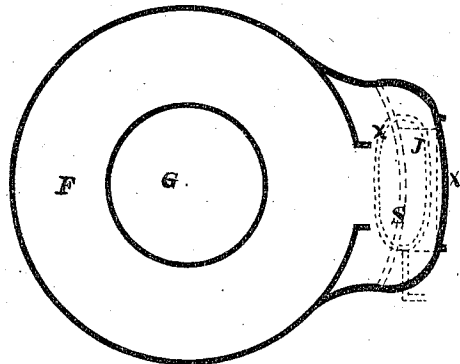
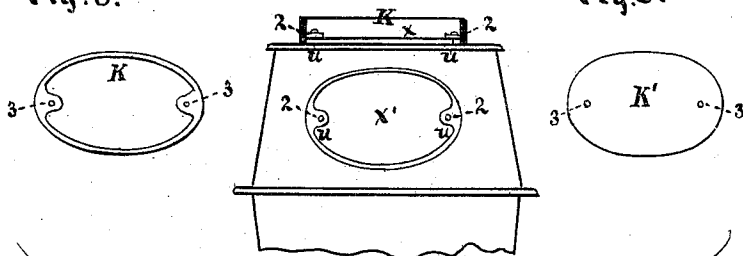


Fig. 6.



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UNITED STATES PATENT OFFICE.

JULIUS F. QUIMBY, OF TROY, NEW YORK.

IMPROVEMENT IN MAGAZINE HEATING-STOVES.

Specification forming part of Letters Patent No. **176,681**, dated April 25, 1876; application filed January 3, 1876.

To all whom it may concern:

Be it known that I, JULIUS F. QUIMBY, of the city of Troy, county of Rensselaer, State of New York, have invented certain Improvement in Heating-Stoves; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of the stove with parts broken away, and exposing a part of the improvements in this invention. Fig. 2 is a sectional elevation taken from front to rear. Fig. 3 is a horizontal flue taken at line No. 1 in Fig. 2. Fig. 4 is a horizontal flue taken at line No. 2 in Fig. 2. Fig. 5 is a horizontal flue taken at line No. 3 in Fig. 2. Fig. 6 is a horizontal view taken at line No. 4 in Fig. 2, illustrating the interchangeable exit-flue and stopping-plate. Fig. 7 is a view from the rear side of a section of the outer wall of the ascending flue, illustrating the means for an interchange of the exit and the stopping-plate.

My invention relates to that class of stoves having a fuel-magazine, descending and ascending flues at the rear, and changeable exits, and consists in the several arrangements and combinations of parts hereinafter described. The object to be accomplished is, first, to locate the descending flue in its upper part directly opposite the rear of the combustion-chamber and the upper portion of the ascending flue at the rear of said descending flue, while the lower portions of both said flues may be transverse, the former to discharge into the base-flues and the latter to draw from said base-flues to a suitable exit; second, to divide the inclosed space of the rear-projecting portion of the stove by a flue-strip located about centrally in said space, and extending from side to side in the upper portion of the same, and in its lower portion extending from front to rear and transversely with the upper portion, with a twist intermediate between said upper and lower portions; third, to cause small streams of hot air, admitted to the combustion-chamber through the upper margin of the fire-pot, to be drawn in a horizontal direction over the hot fire-surface and through the entire space of the

combustion-chamber, and the hot gases evolved from the top surface of the burning coals to a descending flue or exit at the extreme rear of the stove; fourth, to render the exit-flue ring changeable from a horizontal to a vertical, and the reverse, and close the opening not occupied by the exit-flue ring, whether it be the horizontal or vertical opening not required to be used.

To enable others skilled in the art to make and use my invention, I will proceed to describe it in reference to the drawings and the letters of reference marked thereon, the same letters indicating like parts.

In the drawings, A represents the hollow base of the stove containing hot-gas-circulating chambers *a* and *b*. B is the ash-pit chamber, provided with the usual door or doors for access to the interior of the same, and draft-dampers for the admission of air to support combustion. C is the super-draft chamber, located above the ash-ring and surrounding the fire-pot, and is provided with doors set with mica or equivalent substance to permit illumination. D is the fire-pot. E is the grate. F is the combustion-chamber, in which the gases evolved from the top surface of the incandescent fuel are burned. G is the fuel magazine or reservoir. H is the descending flue leading from the rear of the combustion-chamber down into the hot-gas-circulating chamber *a*. J is the ascending flue leading from the hot-gas chamber *b* of the base to the exit K. All the said parts are old, and, as parts, form no portion of this invention. The rear portion of the outer casing or walls of the ash-chamber, super-draft chamber, and a portion of the walls of the combustion-chamber, are projected back to inclose a space at the rear for the descending and ascending flues H and J. The said space extends from the exit K vertically down to the hollow base A, and is divided by the flue-strip S, or aggregate sections of flue-strips, to form with the walls of the said-rear projecting casing the said flues. The flue-strip S, or the sections composing the same, commences at the base of the head L of the space containing the descending and ascending flues, and at a distance below the lower side of the short horizontal flue M leading from the combustion-cham-

ber to the said flue-space or exit, as at *e*, from which the damper *d* swings, as shown in Figs. 1 and 2. At the damper *d* the flue-strip *S* divides the flue-space contained in the rear extension of the casing, by running from side to side, as in Figs. 5 and 6, so that the descending flue, in its breadth, may extend from one lateral side wall of said casing to the other, and face the fire-pot, or the rear ash-chamber wall-plate *h*, in its full width. The said flue-strip is extended down in a plain vertical line to near or at line No. 2, Fig. 2, where it is made with a quarter twist, *s*, as shown in Figs. 1, 2, and 4, which twist turns the lower terminating end of the said flue-strip at right angles with the direction of its horizontal line above, at the damper *d*, and throws the one in a transverse direction of width with the other, so that while the direction of the width of the upper end of said flue-strip above will be relatively parallel with a line, 5, tangent with the combustion-chamber, the lower end will be relatively radial with the same.

It will be readily seen by thus dividing the flue-space by the flue-strip *S*, having each of its opposite ends in their extension of width transverse to the other, with the twist *s* intermediate between, that the said space is divided into two flues of about equal capacity, in which each flue may have an easy curve of surface from the said flue-strip to lead the hot products in a sheet form of volume from the combustion-chamber to a more square form of the same, without being in the least liable to choking. In the front wall of the descending flue *H*, separating the same from the super-draft chamber *C*, is located the check-damper *N*, operated by the rod *n*. The upper-margin edge of the fire-pot is provided with small perforations *z z z*, which communicate from the super-draft chamber *C* to the combustion-chamber *F*, where the hot and inflammable gases are evolved from the massed fuel in combustion in the fire-pot. The said perforations admit air from the said super-draft chamber after it has been received within and highly heated by the radiant heat from the inclosed fire-pot, and discharges the same in small currents or streams into the said combustion-chamber to mingle with the hot gases evolved from the top surface of the burning fuel, and contribute to the combustion of the said gases, which otherwise would escape unconsumed to the exit or to the descending flue.

It will be readily seen that, as the exit or the descending flue at the rear draws the hot gases away from the front and side mica windows, and the highly-heated air admitted from the super-draft chamber to the combustion-chamber is introduced at the top margin of the fire-pot, and is also drawn by the draft toward the rear, the air thus introduced in small streams and in a highly-heated state to the said hot and inflammable gases, may cause their ignition when passing over the top surface of the fire toward the exit or descending

flue; also, that the hot gases will not be liable to move in contact with the mica windows set in the sides of the combustion-chamber to smoke the same, as the draft from the rear, together with the incoming expanded air, will operate to prevent the gases becoming inflamed outside of the line of the margin-edge of the fire-pot; and also, that, by reason of the better combustion of the hot gases resulting from the mingling of the highly-heated and expanded air from the marginal perforations *z* with the inflammable gases, and the draft of the resulting hotter products of combustion to the descending flue into the base, the said base may become more highly heated in its side walls than they would were the inflammable gases permitted to be drawn from the combustion-chamber without being ignited or inflamed by the heated air from the super-draft chamber.

The damper *d*, when turned as shown in Fig. 1, permits the hot gases to pass direct to the exit *K*, and when turned as shown by full lines in Fig. 2, causes the draft to be reverted into the base by passing down the descending flue *H* into the chamber *a* of the base, thence forward and into the chamber *b*, as indicated by arrows in Fig. 2, and thence up the ascending flue to the exit.

The exit-flue *K* consists of a removable piece made in the form of a pipe-collar and capable of interchangeable placement with the stop-plate *K'*, at either the top opening *x*, as in Figs. 1, 6, and 7, or with the rear opening *x'*, in Figs. 2, 6, and 7. The stop-plate *K'* consists of a plate corresponding in its circumferential form with that of the exit-flue *K*.

The openings *x* and *x'* are each provided with lugs or ears *u* provided with bolt-holes 2 2, which correspond in their relative location with their respective openings, one with the other. The removable and interchangeable exit-flue and stop-plate are each provided with bolt-holes 3 3, corresponding with bolt-holes 2 2, with openings *x x'*, the said holes being made in the stop-plate itself at its ends, and those with the exit-flue made in lugs or ears attached with the same, as shown in Fig. 7.

By thus constructing the openings *x* and *x'* with the corresponding circumferential forms, and with bolt-holes 2 2 corresponding with the circumferential forms of the exit-flue *K* and stop-plate *K'* and their bolt-holes 3 3, the said exit-flue may fit either opening *x* or *x'*, and the said stop-plate may also fit either of the said openings.

The advantageous results produced by this part of my improvements are these: the exit-flue may be employed with the top opening *x* when the smoke-pipe is to be extended vertically, while the stop-plate may be made to close the rear opening *x'*, or the exit-flue may be transferred to the rear opening *x'* and permanently secured to the same when the smoke-pipe is to lead horizontally from the stove, while the stop-plate may be made to

close the top opening, the same bolts and same bolt-holes in all cases employed to effect a secure attachment of the said parts.

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

1. The combination of the descending flue H and ascending flue J, separated by flue-strip S, made either in a single piece or in sections, and extending vertically from damper *d* to the bottom of chambers *a* and *b*, with their upper portions relatively as shown, and their lower portions relatively transverse to said upper portions, substantially as set forth.

2. The combination, with the space inclosed by the rear extension of the stove, and occupied by descending and ascending flues, of the flue-strip S, composed of either a single piece or sections, and dividing said space by

the lateral extension of its width from side to side, in its upper portion, and from front to rear or transversely in its lower portion, with the twist *s* between said upper and lower portions, substantially as set forth.

3. The combination, with the horizontal top opening *x* over the space containing the descending and ascending flues, and the vertical opening *x'* at rear of the head of said space, provided each with lugs *u* and bolt-holes 2 2, of the exit-flue ring K and stop-plate K', each provided with bolt-holes 3 3, and capable of an interchange of attachment with said openings *x* and *x'*, substantially as and for the purpose set forth.

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Witnesses:

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