A. S. JOHNSON.

VENTILATING APPARATUS FOR KITCHENS.

APPLICATION FILED APR. 21, 1913.

1,087,380.

Patented Feb. 17, 1914.

2 SHEETS—SHEET 1.

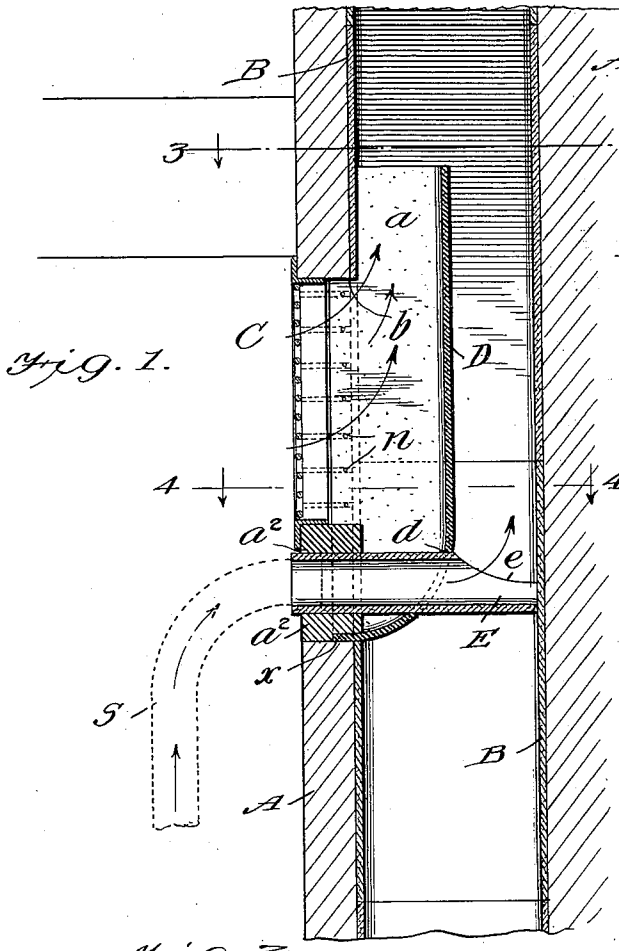


Fig. 1.

Fig. 2.

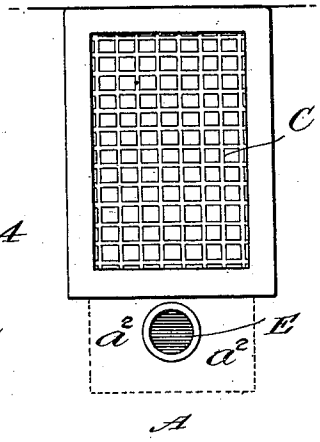


Fig. 3.

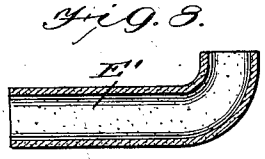
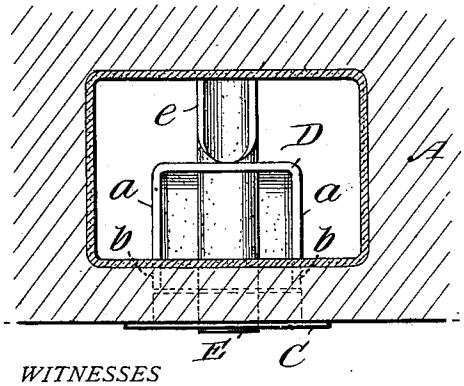
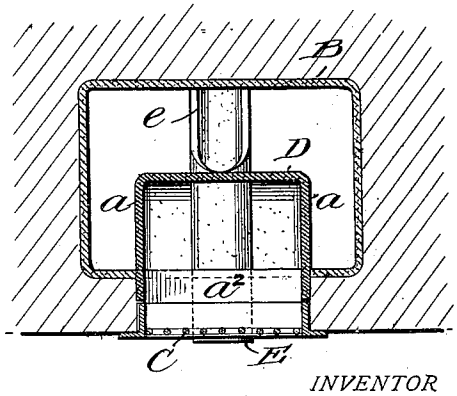


Fig. 4.





WITNESSES

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2 SHEETS—SHEET 2.

Fig. 5.

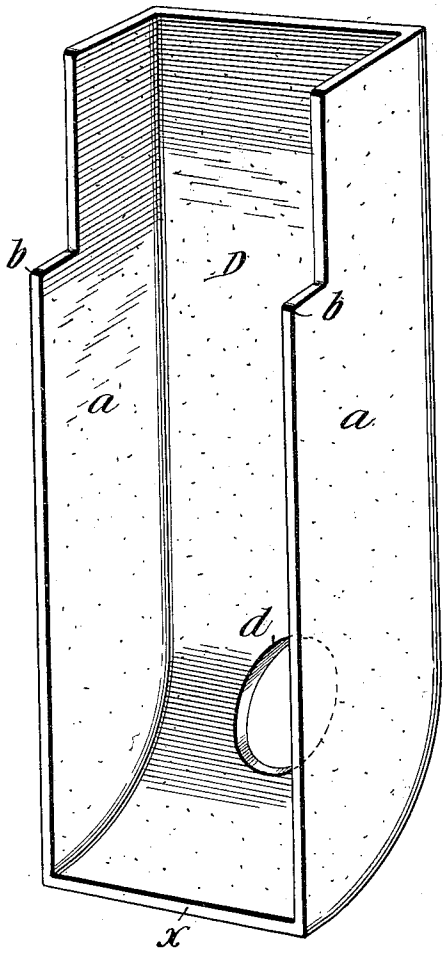


Fig. 7.

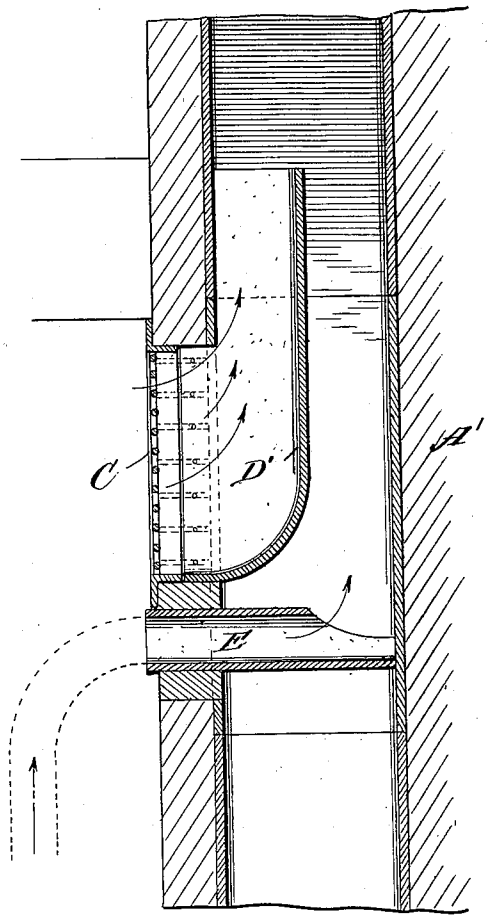
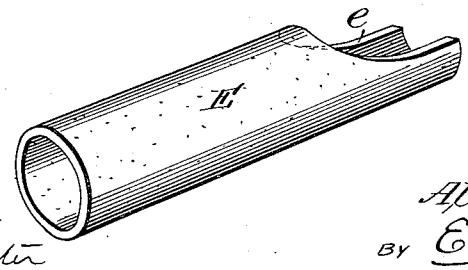


Fig. 6.



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UNITED STATES PATENT OFFICE.

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VENTILATING APPARATUS FOR KITCHENS.

1,087,380. Specification of Letters Patent. Patented Feb. 17, 1914.

Application filed April 21, 1913. Serial No. 762,539.

To all whom it may concern:

Be it known that I, ALLEN S. JOHNSON, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Ventilating Apparatus for Kitchens, of which the following is a specification.

In the patents granted me March 8, 1910, No. 951,761, and February 8, 1910, No. 948,629, provision was made for ventilating kitchens, and especially the small kitchens of apartment houses, for carrying off not only the poisonous gases of combustion from gas stoves, but also the vaporous odors of cooking. That system employed, as leading instrumentalities, an opening near the ceiling of the apartment, preferably grated and communicating with a flue in combination with a partition behind said opening and a discharge pipe for the combustion gases of the gas stove which communicates with the space behind said partition to form a by-pass to the flue so as to cause the upwardly moving hot gases from the gas stove to produce, by suction or induction, a draft through the grated opening to cause the odors of cooking to be drawn into the flue and mingled with the products of combustion and be thus carried off together through the flue into the outer air.

In the instrumentalities heretofore employed I used in the construction of the parts sheet metal, although not necessarily confined to the same.

My present invention is designed to provide such a construction of the parts as to render them not only fireproof, but also non-corrodible, so that there can be no deterioration from chemical corrosion of metal parts, and to this end my invention consists in a special and novel construction of parts made of fireproof and non-corrodible material, such as terra cotta, fire clay, asbestos, magnesia, or other fireproof, inert, refractory and non-corrodible compositions of material, as will be hereinafter more fully described with reference to the drawing, in which:

Figure 1 is a vertical section through an ordinary masonry flue equipped with my present invention. Fig. 2 is a face view of the wall at the point of the discharge openings. Fig. 3 is a transverse horizontal section through the flue on line 3—3 of Fig. 1. Fig. 4 is a transverse horizontal section on line 4—4 of Fig. 1. Fig. 5 is a detail view in perspective, showing the form of the by-pass partition made of terra cotta or other refractory mineral material. Fig. 6 is a perspective view of the terra cotta thimble used with the by-pass. Fig. 7 is a vertical sectional view, similar to Fig. 1, but showing a slight modification of the relation of the parts, and Fig. 8 is a detail of a modification of the thimble.

Similar letters of reference indicate the same parts in all the views.

In the drawing, Fig. 1, A represents the inner and A′ the outer masonry walls of a chimney flue. B is the ordinary terra cotta flue lining in the same. The inner wall A is usually of brick about four and a half inches thick, *i. e.*, the width of one brick. In this wall near the top of the kitchen, and as close to the ceiling as practicable, there is formed an opening which is preferably closed by a grated register C. D is the refractory mineral partition arranged in the flue behind the register opening and extending about eight inches above the top of said register. This partition D serves the same purposes as the partition of the by-pass in each of my former patents, but its form and material and arrangement with the other parts are substantially different. It is made preferably in one piece, as seen in Fig. 5, of either terra cotta, molded asbestos or magnesia, or any special mineral composition which is both fireproof and non-corrodible, and it is preferred, when made of plastic composition, that it should have a reinforcement of wire embedded in it to give it greater strength. This by-pass in form is made with a main body or back plate D having at the vertical side edges the angularly projecting wings or sides *a a*. The bottom of the back part D curves at its lower end out to the outer edges of the side wings *a a* and has near the bottom a hole *d* through it to receive the terra cotta thimble E, as hereafter described. The upper parts of the side pieces *a a* are reduced in width at *b b* for a distance equal to the distance from the top of the register to the top of the partition D. This is to permit the wider lower portions of the side wings *a a* to project into the register opening far enough to be secured by nailing or wiring.

The terra cotta thimble E is an ordinary straight pipe with the upper half of its inner end cut away at *e* above its longitudi-

nal axis. This pipe may be made not only of terra cotta, but of any other fireproof and non-corrodible material of which the by-pass is made.

In fitting the parts in the chimney flue, a rectangular hole is cut through the inner masonry wall of the chimney close to the ceiling, which hole in vertical depth is equal to the distance from the shoulder *b* of the side pieces of the by-pass to the lower end of the latter and of a width a trifle greater than the width of the terra cotta by-pass, *i. e.*, just wide enough to allow the by-pass to be inserted through the hole. When so inserted in upright position, its lower end *x* rests on the inner edge of the opening in the wall and the wider portion of the side pieces *a*, from *b* to *x*, extend into the register opening about one and a half inches. Nails *n* are then driven through this inch and a half lap of the side pieces into the mortar joints of the brickwork of inner wall A of the chimney. The gas stove pipe thimble E is then extended through the opening in the wall and through the opening *d* in the by-pass until the end of the thimble strikes the back of the chimney flue, as in Fig. 1. A filling a^2 of brick and mortar, or cement, is then built around the thimble E until it is firmly anchored in place and the rectangular hole in the wall is reduced to the exact size of the register frame C. This register, or other grating, is then inserted in the opening and is seated and sealed in place by plaster of Paris in the usual way, its inner flange fitting against the adjacent edges of the wings of the by-pass; or, if desired, the opening may be left open entirely without a grating and finished at its edges with cement to give a bigger discharge where there is an unusual amount of kitchen vapors to be taken off. When the parts are thus fixed in place the outlet pipe from the gas stove is entered into the thimble E, as indicated by dotted lines at S, and the narrow upper edges of the wings *a* abut against the flue lining of the chimney, and the curved lower part *x* of the by-pass, by its joint with the front wall, separates entirely the space on one side of the partition D from the space on the other side except at the top, the space on the left side of the partition D being in open communication with the kitchen near the ceiling, and the space on the right side of the partition being in open communication with the gas stove through the cut away end *e* of the thimble and also with all the other gas stoves which may be in the suites below, and opens also into the main flue above.

As the hot gases of combustion arise on the right of partition D they draw by induction, through the upper end of the by-pass, the vapors of cooking out from the top part of the kitchen and the rising currents from the gas stoves of the suites below also produce, by induction, a suction through the thimble E, by virtue of the fact that the inner end of the thimble is cut away at *e* on the upper side only, causing an inward draft through thimble E. The inner end of pipe E may be turned up, if desired, as shown at E′, Fig. 8. As the hot currents rise in the flue it will be seen that they bathe the by-pass all around on the three sides of the by-pass, as seen in Figs. 3 and 4, since the by-pass is not as wide as the width of flue. This stimulates the updraft and makes a more energetic clearance of the kitchen vapors, as well as a better draft for the gas stoves.

When the thimble E is in place and rigidly held in its retaining filling of wall at a^2, said thimble helps support the by-pass, and as said thimble extends back to and bears against the back wall of the flue it braces and holds all the parts in rigid and fixed permanent position.

As a modification of my invention, the thimble E may enter the flue below the by-pass, as seen in Fig. 7, in which case there is no need for an opening *d* in the lower end of the by-pass to receive the thimble and the by-pass is made somewhat shorter, as seen at D′, but I prefer the arrangement shown in Fig. 1, as the parts are there more self bracing and more permanently locked in position.

With the construction and arrangement of parts thus described, all the parts of the ventilating apparatus are made not only fireproof, but of non-corrodible mineral material and fully comply with the most rigid municipal regulations.

I do not confine my invention to the exact construction and arrangement of parts shown, but may vary them within the limits of my claims.

I claim:

1. A ventilating apparatus of the kind described, comprising a masonry flue with an outlet opening from the apartment near the ceiling, a by-pass for said opening, consisting of a partition with side wings and with its lower end closed, the side wings being made wider at the lower portion and entered into the opening in the masonry flue and secured to the edges of the same, and whose upper narrower portions lie flush against the inner walls of the flue, and a stove pipe thimble extending through the flue below the opening in the same and having its inner end closed on the lower side and opening on its upper side behind the by-pass.

2. A ventilating apparatus of the kind described, comprising a masonry flue with an outlet opening from the apartment near the ceiling, a by-pass for said opening, consisting of a partition with side wings and with its lower end closed, the side wings being

made wider at the lower portion and entered into the opening in the masonry flue and secured to the edges of the same, and whose upper narrower portions lie flush against the inner walls of the flue, and a stove pipe thimble extending through the flue below the opening in the same and having its inner end closed on the lower side and opening on its upper side behind the by-pass, the by-pass being of less horizontal depth and also less width than the flue to expose its three sides to the upwardly rising hot currents.

3. A ventilating apparatus of the kind described, comprising a masonry flue with an outlet opening from the apartment near the ceiling, a by-pass for said opening consisting of a partition with side wings and with its lower end closed, the side wings being made wider at the lower portion and entered into the opening in the masonry flue and secured to the edges of the same, and whose upper narrower portions lie flush against the inner wall of the flue, the lower portion of the back of the by-pass having a hole through it, and a stove pipe thimble extending through the inner wall of the flue and also through the opening in the back of the by-pass and opening on its upper side into the flue, and a filling around the thimble below the discharge opening in the wall.

4. A ventilating apparatus of the kind described, comprising a masonry flue with an outlet opening from the apartment near the ceiling, a by-pass for said opening consisting of a partition with side wings and with its lower end closed, the side wings being made wider at the lower portion and entered into the opening in the masonry flue and secured to the edges of the same, and whose upper narrower portions lie flush against the inner wall of the flue, the lower portion of the back of the by-pass having a hole through it, and a stove pipe thimble extending through the inner wall of the flue and also through the opening in the back of the by-pass and opening on its upper side into the flue, and a filling around the thimble below the discharge opening in the wall, the by-pass being of less horizontal depth and also of less width than the flue to expose its three sides to the upwardly rising hot currents.

5. A ventilating apparatus of the kind described, comprising a masonry flue with an outlet opening from the apartment near the ceiling, a by-pass for said opening, consisting of a partition with side wings and with its lower end closed, the side wings being made wider at the lower portion and entered into the opening in the masonry flue and secured to the edges of the same, and whose upper narrower portions lie flush against the inner walls of the flue, and a stove pipe thimble extending through the flue below the opening in the same and having its inner end closed on its lower side and opening on its upper side behind the by-pass, and a register grating filling the opening from the apartment and having its inner flange fitting up against the side wings of the by-pass.

6. A by-pass for a ventilating system of the kind described, consisting of a fireproof and non-corrodible body portion having side wings which are wider at the lower portion than they are above, the back of the body portion being extended out to the edges of the side wings.

7. A by-pass for a ventilating system of the kind described, consisting of a fireproof and non-corrodible body portion having side wings which are wider at the lower portion than they are above, the back of the body portion being extended out to the edges of the side wings, and having a hole through the same to receive a stove pipe thimble.

8. A by-pass for a ventilating system of the kind described, consisting of a fireproof and non-corrodible body portion having side wings which are wider at the lower portion than they are above, the back of the body portion being extended out to the edges of the side wings, and having a hole through the same to receive a stove pipe thimble, combined with a stove pipe thimble adapted to fit the hole in said by-pass, said thimble having an opening at one end on one side of its longitudinal axis.

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

ALLEN S. JOHNSON.

Witnesses:
SOLON C. KEMON,
PERRY B. TURPIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."