

N. A. BOYNTON.
Ventilating Damper.

No. 38,370.

Patented May 5, 1863.

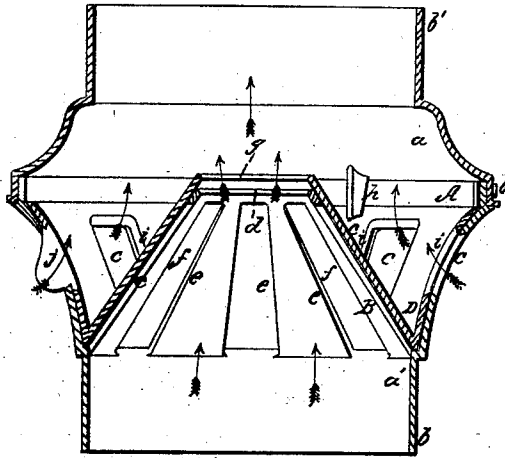


Fig. 1.

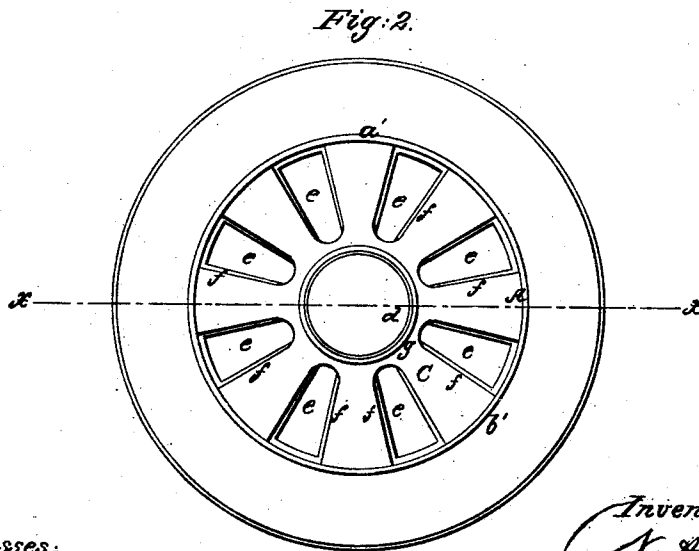


Fig. 2.

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UNITED STATES PATENT OFFICE.

N. A. BOYNTON, OF NEW YORK, N. Y.

IMPROVEMENT IN VENTILATING-DAMPERS.

Specification forming part of Letters Patent No. 38,370, dated May 5, 1863.

To all whom it may concern:

Be it known that I, N. A. BOYNTON, of the city, county, and State of New York, have invented a new and Improved Ventilating-Damper; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *xx*, Fig. 2; Fig. 2, a plan or top view of the same.

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

The invention relates to an improvement in that class of dampers for stoves, heaters, &c., which have ventilators combined with them in such a manner as to operate in conjunction with the damper to regulate the fire, and at the same time afford a perfect means for ventilation.

The object of the invention is to obtain a device for the purpose specified which may be very economically constructed and operated in the most efficient manner.

To this end the invention consists in having both the damper and regulator constructed substantially in one piece on the slide-register principle—that is to say, with a perforated or slotted part sliding or working over a stationary perforated or slotted part, substantially as hereinafter described, so that by the act of opening one set of apertures the other set will correspondently close, and vice versa.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a box or chamber formed of two horizontal parts, *a a'*, connected together by screw-bolts *b*, as shown in Fig. 1. Each part *a a'* terminates in a flange, *b'*, to receive the joints of the pipe of the stove or heater, and the lip or chamber A constitutes an enlarged section of the pipe, being in communication with it at both ends. The lower part, *a'*, of the box or chamber A is provided with openings *c*, of square or other suitable form, and which extend all around it at equal and suitable distances apart, and said part *a'* has within it a central conical projection, B, having an opening, *d*, at its apex or top, and a series of radial openings, *e*, extending all around it at suitable and equal distances apart.

The inner slotted projection, B, and the shell A, it will be noticed, are made in one piece. On this conical projection B there is fitted a conical shell, C, which is constructed precisely similar to the projection B, it being provided with similar openings, *f*, at its side and an opening, *g*, at its top. The base of the shell C has a flange, D, connected to it, which fits against the inner side of the part *a'* of the box or chamber, and corresponds in form to it, as shown in Fig. 1. This flange D extends upward nearly to the top of *a'*, and guides or lugs *h* at the lower part of *a'* fit over the top of the flange D, and retain it in proper position. The flange D is provided with openings *i* precisely like the openings *c* in the side of *a'*, and said flange has two lips, *j*, projecting from it at opposite points, said lips extending through two of the openings *c* in the part *a'*. One of these lips is shown in Fig. 1. The shell C and flange D are made in one piece, and are intended to turn freely on the projection B, and said parts are turned by grasping the lips *j*. The openings in the projection B and shell C have such a relative position with the openings in the flange D and the part *a'* of the box or chamber that when the openings in the said part *a'* are closed the openings in the projection B will be open, and vice versa. When the openings *c* in the part *a'* are fully open, the openings *i* in the flange D of course register or are in line with them, as the spaces between the openings *i* in flange D cover the openings *c* when the latter are closed. The same is true respecting the opening and closing of the openings *e* in the projection B. The combined area of the openings *e* is equal to the combined area of the openings *c* in the part *a'*, and hence in operating the device it will be perceived that a certain relative proportion of the area of the openings *e* to that of the openings *c* is observed at all points of the movement of the shell C and flange D. When the openings *c* are half open, the openings *e* are half open, and when the openings *c* are two-thirds open the openings *e* will be two-thirds closed, and so on. The flange D and the openings *c* in *a'* form the ventilator, and the openings *e* in the projection B, with the openings *f* in the shell C, constitute the damper.

This damper, when the openings *f* are closed, does not form a complete barrier to the draft,

for the openings *d g* in the top of the projection B and shell C are always open and admit of sufficient draft to keep the fire. When the damper is closed, the ventilator, being open, of course admits air into the pipe above the damper, thereby ventilating the apartment, and at the same time serving to retard or check the draft, and the fire may be regulated as desired with the greatest nicety, and a uniform heat obtained without any trouble whatever, and without a waste of fuel.

In Fig. 1 the ventilator is represented fully open and the damper closed. The red arrows show the direction of the air passing into the box or chamber A, and the black arrows show the products of combustion passing up through the openings *d g* of the damper.

The advantages of the invention are simplicity and economy in construction. The shell C and flange D may be cast in one piece, and the projection B may be cast in one piece with the part *a'* of the box or chamber A. These castings compose the whole device, and when cast may be put together and adjusted for use without any mechanical labor, with the exception of the insertion of the bolts which secure the two parts *a a'* together.

Another advantage the invention possesses is the non-liability of any parts to get out of

order, and the perfect operation of the damper and ventilator in conjunction with each other.

I would remark that the invention is not confined to the conical form of the projection B and shell C, for the same end may be obtained by a flat or horizontal plate in *a'*, provided with necessary openings with a corresponding plate working over it. If this modification be used, however, the part *a'* must be necessarily greater in diameter than where said parts are used in conical form in order to have the openings of the damper of the requisite area.

The conical form of the damper admits of the part *a'* being less in diameter than would otherwise be required.

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

The employment of the double-slotted flanged shell C, in combination with the slotted projection B and slotted shell A, the parts being constructed and operating together substantially in the manner herein shown and described.

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Witnesses:

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