

(No Model.)

F. R. HOGEBROOM & G. O. WOOLCOCKS.

COMBINED VENTILATOR AND DAMPER.

No. 307,194.

Patented Oct. 28, 1884.

Fig. 1.

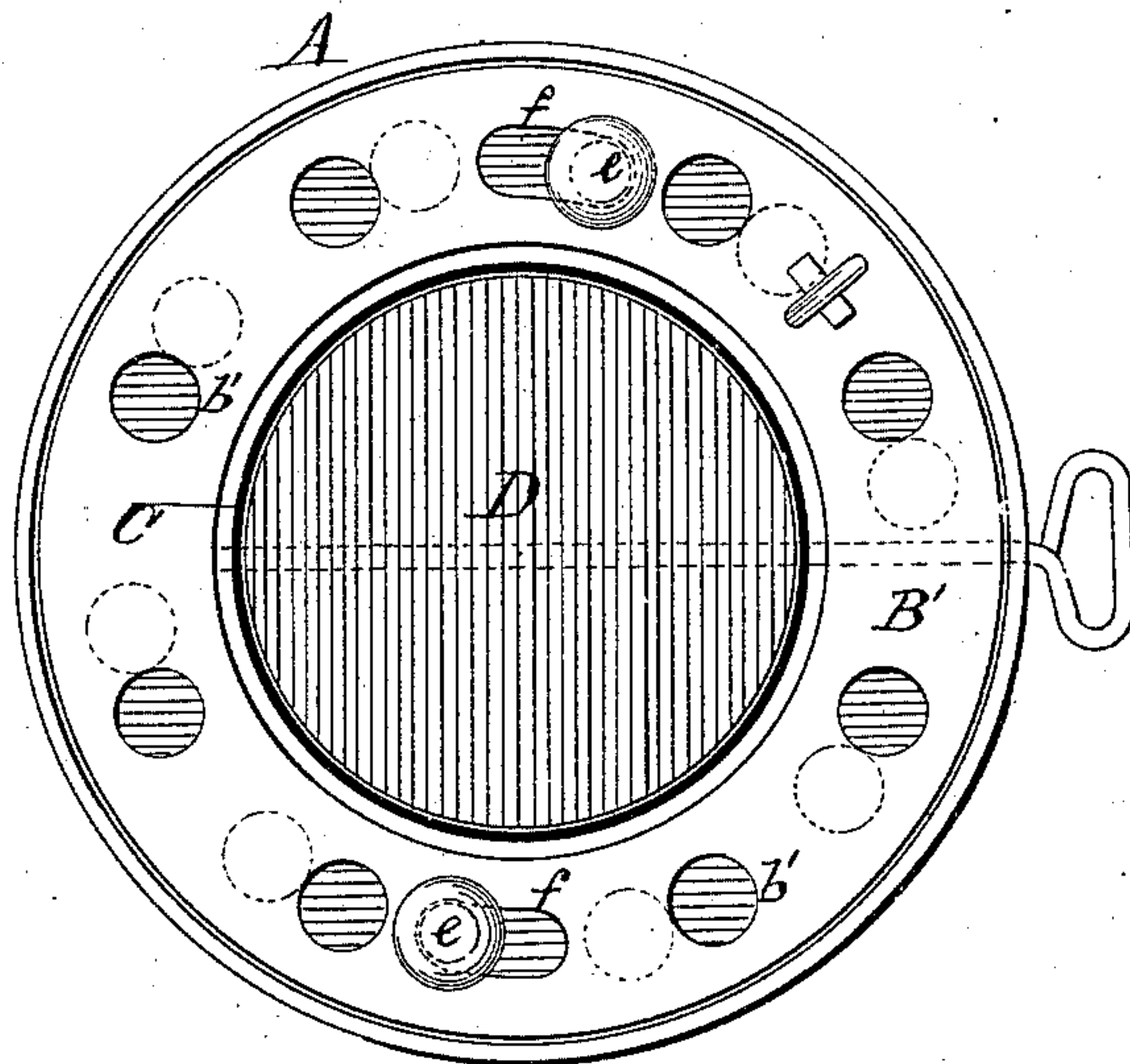
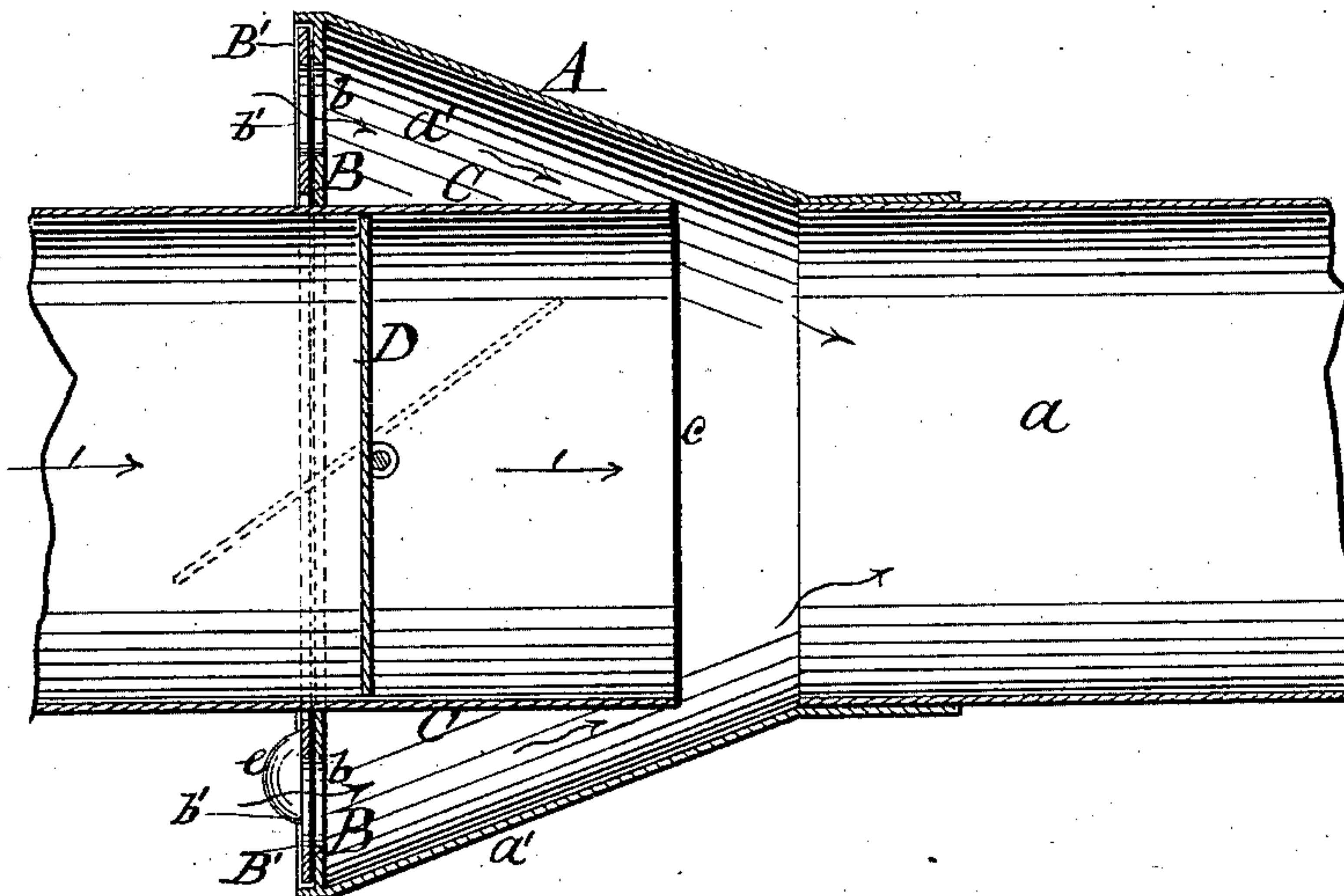


Fig. 2.



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COMBINED VENTILATOR AND DAMPER.

SPECIFICATION forming part of Letters Patent No. 307,194, dated October 28, 1884.

Application filed January 19, 1884. (No model.)

To all whom it may concern:

Be it known that we, FRANKLIN R. HOGEBROOM and GEORGE O. WOOLCOCKS, both of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Combined Ventilator and Damper, of which the following is a full, clear, and exact description.

This invention is intended to be applied in connection with the flues or pipes of stoves, furnaces, and other heaters, and has for its object to secure ventilation, regulate the draft of the stove or furnace, and also promote the combustion of smoke and inflammable gases.

The invention consists in having a damper placed within that portion of the flue that enters the central portion of the ventilating-register, and in certain novel details of construction, as will be hereinafter more fully described and claimed.

Referring to the drawings which form a part of this specification, Figure 1 is a front elevation of our improvement. Fig. 2 is a side sectional elevation of the same.

Similar letters of reference indicate corresponding parts in both figures.

A is a pipe or flue of conical shape at the front end, whereof the smaller rear end, *a*, is supposed to be extended to lead to the chimney. The enlarged or flaring end *a'* is provided with a fixed diaphragm, B, having apertures *b* for the admission of air. A movable diaphragm, B', having air-apertures *b'* is arranged to work with a partially-rotary movement upon the face of B. The two diaphragms B B' constitute an ordinary circular register for the admission of air into pipe A, as indicated by the arrows. The diaphragm B' is secured on B by means of button-headed rivets *e* attached to B, said rivets passing through slots *f* in diaphragm B', thus permitting the movement of B'. By moving the diaphragm B' in one direction, its openings *b'* may be brought wholly or partially into line with the openings *b*, when air will be admitted; or the openings *b* may be wholly closed by moving B' in a contrary direction.

C is a section of the pipe supposed to lead from the stove or furnace. It is arranged as shown in Fig. 1, and passes through the center of the diaphragm B B'. The diaphragm B'

moves around pipe C. The rear end, *c*, of pipe C terminates near the apex of the cone of pipe A, but sufficient space is left between the end *c* and the interior of pipe A for the passage of air from the register B B' into the rear end, *a*, of pipe A.

In the rear end, *c*, of pipe C, and just behind the register B B', we arrange an ordinary pivoted damper, D, as shown in Figs. 1 and 2, which damper may be turned so as to regulate the draft of the stove, and the consequent flow of the products of combustion from the stove into the rear end, *a*, of pipe A.

The operation is as follows: When the damper D is open, the products of combustion will be delivered in the direction of arrow 1 into the rear end, *a*, of pipe A, and the movement of the products of combustion will cause a suction or inflow of air through the register B B' from the apartment in which the register is located, and thus the ventilation of the apartment will be secured. By turning the damper D any desired regulation of the draft of the stove will be obtained, and by moving the diaphragm B' any desired regulation of the ventilation or inflow of air will be secured.

Our combined ventilator and damper may be arranged at any desired point on the line of pipe from the stove or heater to the chimney. If it is placed quite near the stove or furnace, then it will serve not only to ventilate the apartment and regulate the draft of the fire, but also promote the combustion of the smoke and inflammable gases, for by so turning the diaphragm B' as to admit the proper quantity of air, the latter will impinge upon and mix with the hot gases of combustion at the rear end, *c*, of the pipe C, and the oxygen thus supplied to the products of combustion will cause the burning of the smoke and inflammable gases, thereby saving fuel and increasing the heat yielded by the apparatus. Furthermore, in the combination of a ventilator and damper such as described, we have an invention subserving all the purposes for regulating the degrees of heat desired to be obtained, and also freeing the apartments from any noxious gases of whatever nature or kind.

We are aware that ventilating-registers have been used in stove-pipes, and that we do not, broadly, claim.

We do not claim, broadly, the use of a ventilating-register and damper in connection with a stove-pipe; as we are aware this is not new. As heretofore constructed—as, for example, in Patent No. 1,739, reissue—the register and the damper have been connected together, so that when one is opened the other is closed, rendering it impossible to open both or to close both, or to work them independently. In our improvement it will be observed that the independent adjustment which we have provided for the register and for the damper enables us to regulate the admission of air, and also regulate the intensity of the fire independently, and thus to effect the combustion of

the inflammable gases with economy and certainty.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with the conical hood and its inner pipe, of an independent air-register, B B', and an independent damper, D, substantially as and for the purpose set forth.

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Witnesses:

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