(No Model.) 2 Sheets—Sheet 1.

# J. W. COLLINS.

## HOT AIR REGISTER.

No. 471,681. Patented Mar. 29, 1892.

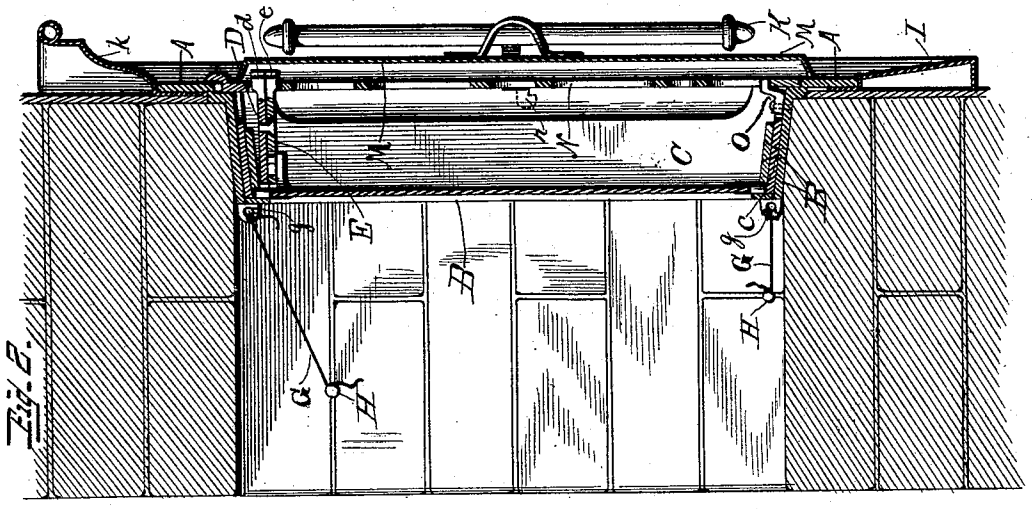

Fig. 2.

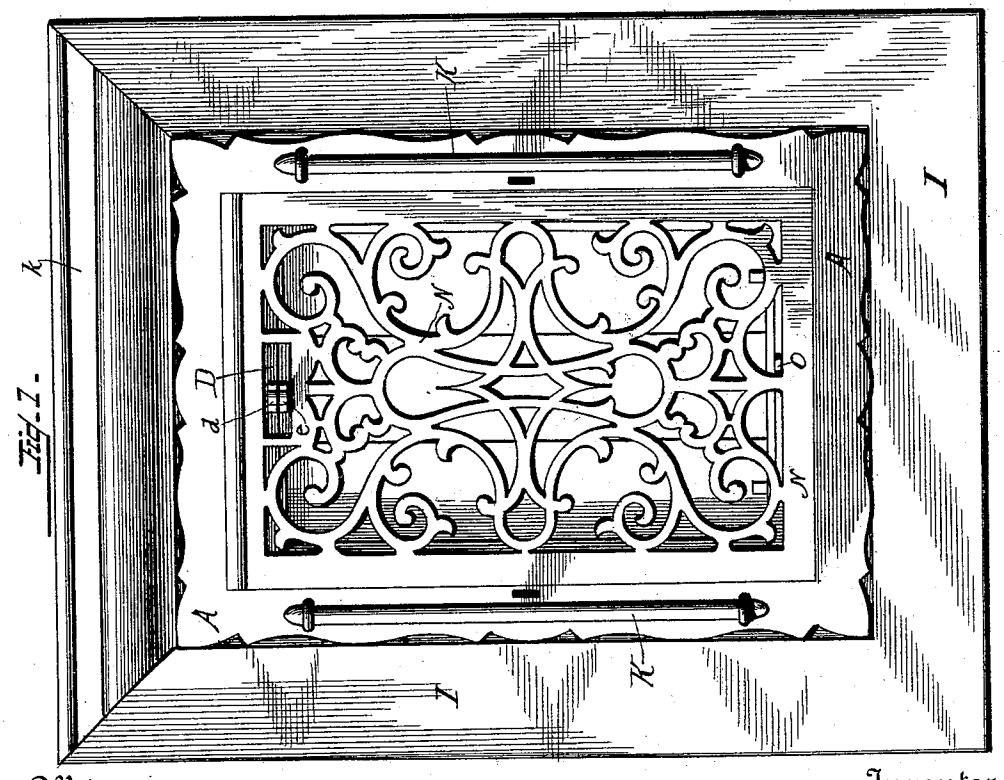

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

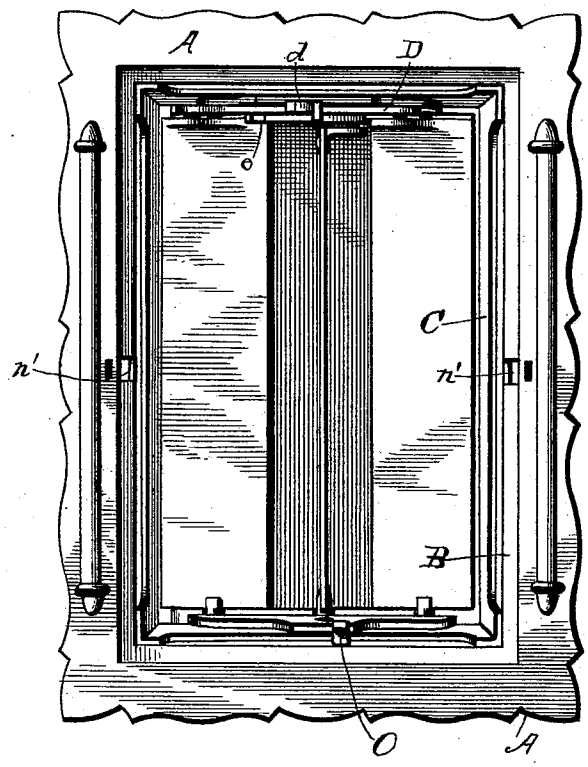
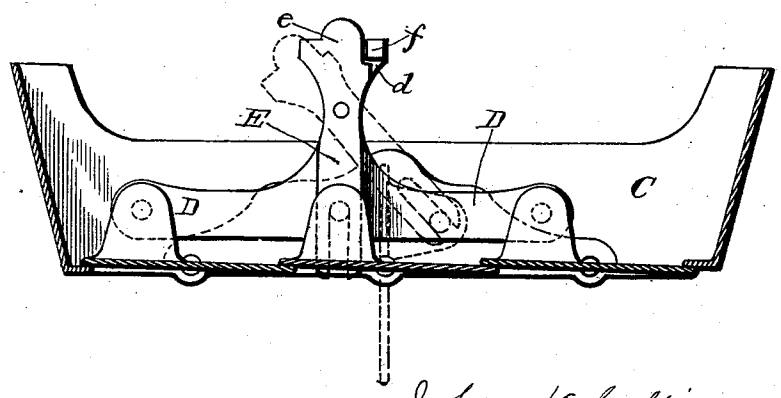



Fig. 4.

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# UNITED STATES PATENT OFFICE.

JOHN W. COLLINS, OF WASHINGTON, DISTRICT OF COLUMBIA.

## HOT-AIR REGISTER.

SPECIFICATION forming part of Letters Patent No. 471,681, dated March 29, 1892.

Application filed September 8, 1891. Serial No. 405,075. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. COLLINS, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Hot-Air Registers, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to make and use the same.

This invention relates to that class of registers adapted to fit in the exit-passage of hot-air-supply flues, such as are ordinarily employed for heating purposes, and has for its objects, first, to provide an improved means for securing the frame for the dampers in place in the mouth of the flue; second, to provide an improved damper mechanism adapted to permit the passage of a greater or less quantity of air, as desired, without deflecting the same; third, to provide against any accidental displacement of the removable face or removable damper-frame of such registers, and, finally, to provide a highly-ornamental device and means for entirely closing such registers when not in use.

The invention consists in certain novel details of construction and combination and arrangements of parts, all as will be hereinafter described, and pointed out particularly in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of a register constructed in accordance with my present invention with the damper-slats closed. Fig. 2 is a vertical sectional view showing the manner of retaining the frame in place and the dust-cover. Fig. 3 is a similar view with the central damper-slat alone open. Fig. 4 is a detail of the damper-operating mechanism preferably employed.

Similar letters of reference in the several figures denote the same parts.

In carrying the present invention into practice I have employed that type of register having a frame adapted to be secured permanently in the flue and dampers or damper-frame and face-plate removably secured in said frame, although, as will be at once seen by those skilled in the art, certain features of the invention are applicable to other types of registers. The frame above referred to as adapted to be permanently secured in place at the mouth of the flue is composed of a face-flange A, which fits against the surface of the wall around the flue, and an internal frame B, adapted for the reception of the damper-box, which latter may be of any desired construction, but, as shown, consists of a rectangular box C, having the bearings for the dampers at the bottom and top, with lugs *c*, which co-operate with recesses in the frame to retain it in place.

In this class of devices, while it has been the universal custom to employ a series of dampers for closing the flue, yet they have all been connected for simultaneous movement, rendering it almost impossible to regulate the amount of air passing through, the entire regulation being a matter of guess-work, and what is of greater importance the air passing through, save when the dampers were full on, would be deflected out at an angle, making the employment of awkward shields necessary or creating undesirable drafts in the room. Now in accordance with my present invention, while I still propose to connect the dampers for simultaneous movement, whereby they may be handled in the ordinary manner, yet I provide means whereby one or more of the dampers may be opened independently to permit a definite proportion of air to pass and at the same time the air will pass straight out without deflection. To carry this idea into effect by the simplest possible mechanism I have connected all the dampers, save the one or more to be independently operated, directly with the usual shifting-plate D in the usual manner, and on the plate I mount an auxiliary shifter or lever E, to which the remaining damper is jointed by a slot-and-pin connection, as shown in Fig. 3. The operating-handles *d e* of the parts D E are located close together, and under ordinary circumstances are adapted to be grasped together and all the dampers operated; but when desired the handle *e* may be moved to open the dampers connected to it independently, as before explained.

For the sake of convenience a stop *f* is provided on the main operating-plate D, against which the lever rests, when all the dampers are closed, and when the main plate is moved to open the dampers all the dampers are caused to open in unison, even though the auxiliary shifter be not touched. The connection between the auxiliary shifter and main plate may be such as to cause considerable friction, the two being thereby held to move in unison under ordinary circumstances,

although the auxiliary shifter and its connected damper may move independently. The main shifter-plate and its operating-handle may be of any of the ordinary constructions, it being a simple matter within the province of an ordinary mechanic to apply the auxiliary shifter to any of them.

The frames inclosing the damper-box are ordinarily set in the flue-opening with plaster-of-paris and often become loose, to say nothing of the difficulty of setting and removing them, or of applying an ornamental frame, as is desirable in some instances. To overcome these difficulties the frame part B is provided at any suitable points with means for the attachment of wires G, the means preferably employed consisting of openings at the four corners, such as *g*, through which the wires are twisted. Within the flue and any appropriate distance from the mouth thereof nails H are driven, corresponding to the position of the wires, and when the frame is put in position with the flange A pressed tightly against the face of the wall outside the flue the wires are given a turn around the nails and the whole structure is fast in place, it then being only necessary to put the damper-box in place and apply the front or scroll plate, all in the usual manner. With this arrangement now it will be seen that any desired ornamental frame—such as I—may be clamped beneath the flange A, enabling a simple damper-box and frame to answer for a cheap and highly-ornamental structure, as desired. To increase the effectiveness of the ornamentation, bars K may be secured on removable brackets at the sides of the frame and a cornice *k* at the top, as shown, or attached to the outer ornamental frame or border. During the time the heat-flue is not in use I design to entirely close the same and prevent the entry of dust and dirt by means of a fancy cover M, which is placed against the front of the frame and held by apertures and bayonet projections similar to those employed to hold the scroll-work face-plate in place.

The whole structure, it will be seen, is simple and in many respects superior to those heretofore made, for besides its ease of application and adaptability for ornamentation the heated air passing through may be regulated to a nicety without causing the same to be deflected in the least.

To prevent any accidental raising of the face or scroll plate N, which is held in place by the hooks *n* passing into openings *n'*, a catch of any suitable style—such as a turn-button O—is mounted on the bottom of the frame B and may be turned through the scroll-work, being adapted to pass over a portion of the face-place—such as a lug—or, as shown in figure, into an opening in the bottom of the plate.

While I have specially and specifically mentioned the register as applied to the exit-openings of hot-air flues, yet it is obvious that it is as well adapted for application to ventilating-flues, and hence I do not wish to be limited to the first-named application, although specifically mentioned.

Having thus described my invention, what I claim as new is—

1. In a hot-air register, the combination, with the frame having the face-flange and frame fitting within the flue and having eyes or equivalent therein, and wires secured in said eyes and to the inside of the flue, whereby the frame is held in place, of the removable dampers in said frame, and the removable face-plate overlying the dampers, substantially as described.

2. In a hot-air register, the combination, with the damper-frame and series of dampers, of the damper-operating plate and auxiliary mover connected with different dampers, respectively, whereby all or a part of the dampers may be operated, substantially as described.

3. In a hot-air register, the combination, with the damper-frame and series of dampers co-operating to close the flue-opening, of independent damper-operators to which different portions of said series of dampers are connected, whereby they may be opened independently, substantially as described.

4. In a hot-air register, the combination, with the damper-frame and series of dampers co-operating to close the flue-opening, of the damper-operating plate with which a portion of said dampers are connected and the auxiliary mover mounted on the plate and connected with the other damper, substantially as described.

5. In a hot-air register, the combination, with the damper-frame and series of dampers co-operating to close the flue-opening, of the damper-operating plate with which a portion of the dampers are connected and the auxiliary mover pivoted on said plate and connected with a damper by a slot-and-pin connection, substantially as described.

6. In a hot-air register, the combination, with the damper-frame and series of dampers co-operating to close the flue-opening, of the damper-operating plate and the auxiliary mover connected, respectively, to different dampers, and the handles for said plate and mover lying in proximity and adapted to be grasped together, substantially as described.

7. In a hot-air register, the combination, with the frame, the removable dampers therein, and the face-plate having hooks co-operating with apertures in the frame to hold the plate in position and adapted to be released by an upward movement of the plate, of the catch or turn-button located inside of and co-operating with said plate to prevent its upward movement, whereby its accidental release is prevented, substantially as described.

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