(No Model.) 2 Sheets—Sheet 1.

E. C. CONDIT.

VALVE FOR AIR FLUES.

No. 457,810. Patented Aug. 18, 1891.

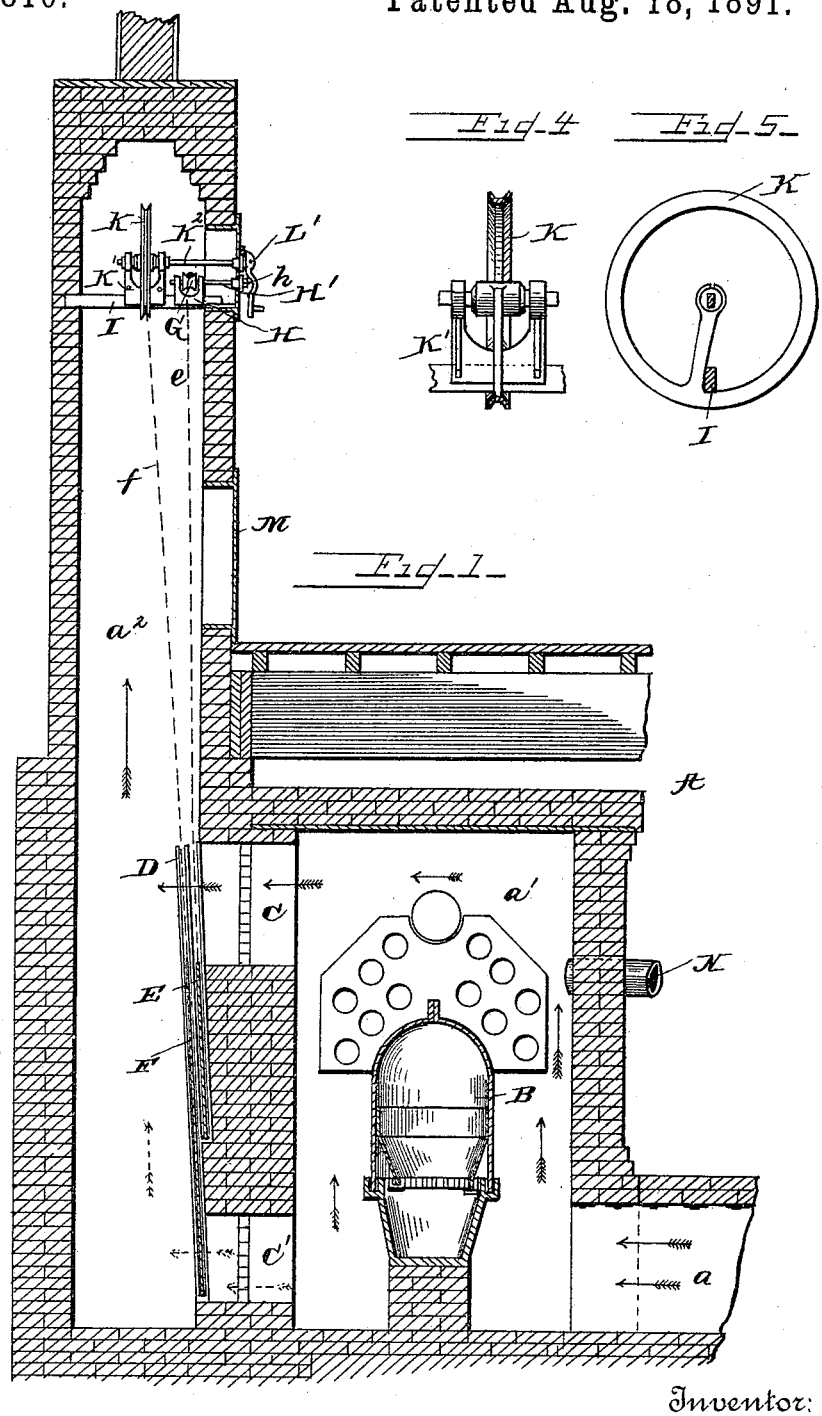

Fig. 1. Fig. 4. Fig. 5.

Witnesses.

G. A. Taubenschmidt.

L. J. Higdon

Inventor:

E. C. Condit,

By his Attorneys.

Higdon & Higdon

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

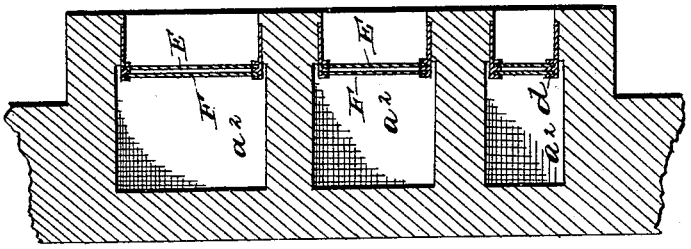
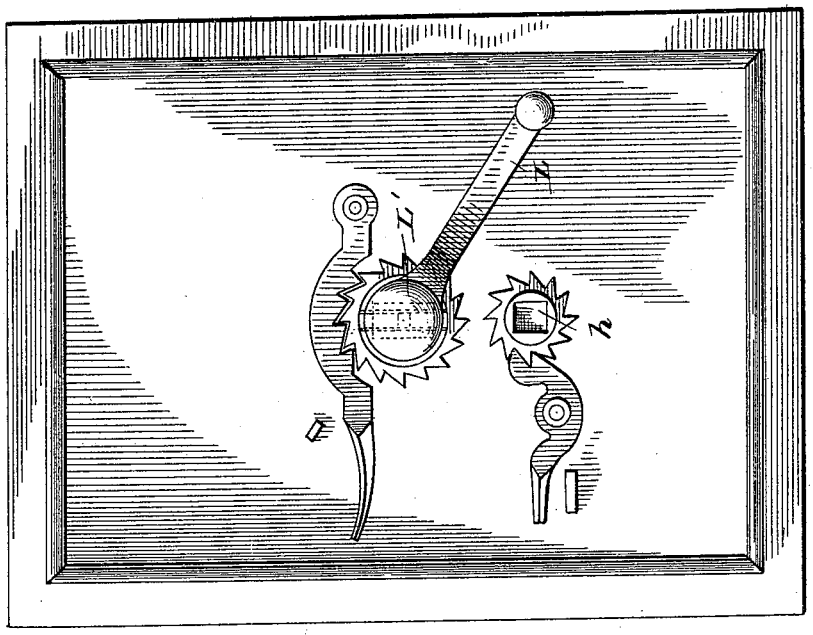


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

EZEKIEL C. CONDIT, OF DENVER, COLORADO.

VALVE FOR AIR-FLUES.

SPECIFICATION forming part of Letters Patent No. 457,810, dated August 18, 1891.

Application filed June 26, 1890. Serial No. 356,835. (No model.)

To all whom it may concern:

Be it known that I, EZEKIEL C. CONDIT, of Denver, Arapahoe county, Colorado, have invented certain new and useful Improvements in Valves for Air-Flues, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates generally to an improved method for heating and ventilating buildings by what is known as the "Ruttan" system, and more particularly to certain improvements upon Patent No. 261,879, issued to Isaac D. Smead, dated August 1, 1882. In this and other similar devices the valve swings on a pivot in the hot and cold air passages and must be entirely closed, or nearly so, before any appreciable change in temperature is secured, and when a change is made it is so sudden that the valve must soon be reversed, thus making continual adjustment necessary. Furthermore, these devices furnish no means by which a uniform temperature can be secured in rooms in the different stories of a building, and therefore are not adapted to a series of rooms one above the other. The devices which have been in use also possess the disadvantage that on the chilly days that often occur before the furnace is started for the winter, and after it is extinguished for the summer, they provide no means by which connection with the outside air by means of the flue can be entirely closed, and on such days, the cold-air passage being closed by the double damper, cold air will pass through the heating-chamber into the flue by means of the hot-air passage without being warmed in any manner, thus creating an unpleasant draft in the rooms.

The object of my invention is to remedy these defects and provide means whereby any number of rooms may be heated uniformly and the temperature of each room regulated independently of the others, and uniformity of temperature secured in all.

With these objects in view my invention consists in the peculiar construction and novel combination of the several parts, as is shown in the accompanying drawings, and hereinafter referred to.

In the said drawings, which form a part of this specification, Figure 1 is a vertical section of a portion of a building provided with my apparatus. Fig. 2 is a horizontal section of the flues and valves. Fig. 3 is a front elevation of the regulating mechanism, and Figs. 4 and 5 are detail views of the operating-pulley.

Referring to the drawings, A indicates a building having the usual air-passage *a*, heating-chamber *a'*, and flues a^2. In practice, I provide a flue for each room, said flues being arranged in series, as shown in Fig. 2. B indicates a furnace provided with the usual heating-drums for heating the air in the chamber *a'*. The wall separating this chamber and the flues is provided with two apertures C and C' for each flue, near the top and bottom, respectively, of the said chamber. In the sides of each flue are placed the guide-plates D, said plates having the grooves *d*, adapted to receive the sliding valves E and F. Warm air will pass through the passage C into the flue and cold air through the passage C' when opened. The valve E is adapted to regulate the current of heated air and the valve F to regulate the current of either warm or cold air, as clearly shown in Fig. 1. The valve E is under the control of the person superintending the heating of the building, while the valve F is to be regulated by the occupants of the room to be heated. The valve E is operated by means of a chain *e*, which is wound upon a spool G, said spool being journaled in a bracket H upon a shaft H', the outer end of said shaft extending through the wall into the room and being provided with a socket *h* to receive a key carried by the person in charge of the heating apparatus. The bracket H is mounted upon a bar I secured in the flue, said bar sustaining all the operating mechanism.

The valve F is operated by means of the chain *f*, said chain passing around the pulley-wheel K, journaled in the bracket K' upon the shaft K^2, said shaft extending through the wall into the room. On the end of this shaft is secured an operating-handle L, whereby the valve can be raised or lowered by the occupants of the room. Each of the shafts H' and K^2 is provided with a pawl-and-ratchet attachment for holding it in place.

The pulley-wheel K is peculiarly construct-

ed and consists of a hub periphery or rim, and a single spoke. The supporting-bar I is passed between the hub and periphery or rim and contacts with the single spoke, thereby limiting the pulley to a single revolution. The object of this is to be able to locate the position of the valve F by the location of the handle L.

M indicates the register for the admission of air.

The operation of my improved apparatus is as follows: The cold air entering through the passage *a* passes upward through the heating-chamber *a'* and into the flue a^2 by the passage C. The valve E in each of the series of flues being under the control of the janitor is raised or lowered by that person, as may be necessary to raise or lower the temperature, and thereby secure a uniform temperature in all the rooms connected with said series of flues. After this has been secured, if any room is too warm the occupants by the use of the handle L may raise the valve F and by so doing shut off a portion of the warm air passing through the opening C and allow the cold air to enter through the passage C', which would have the effect of reducing the temperature of the air flowing into the room through the opening M and thus lower the temperature of the room. By this method I control the temperature of the room by raising or lowering the temperature of the inflowing air, but under no circumstances do I interfere with the ventilation, for pure air is constantly flowing in; but I can admit warm or cold air, or any proportion of either, as desired. All surplus heated air passes into the halls by the pipe N.

Having thus described my invention, what I claim is—

The combination, with the wheel K, composed of a hub and rim connected by a single spoke, of a supporting-bar, bearings thereon carrying the said hub, a valve adapted to close either the hot or cold air opening into a flue, and a flexible connection between said valve and rim, substantially as described.

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

EZEKIEL C. CONDIT.

Witnesses:
C. W. COWELL,
H. C. JOHNSON.