(No Model.) 2 Sheets—Sheet 1.

H. B. DEWEY.

GATE FOR AIR FLUES.

No. 434,627. Patented Aug. 19, 1890.

Fig. 1.

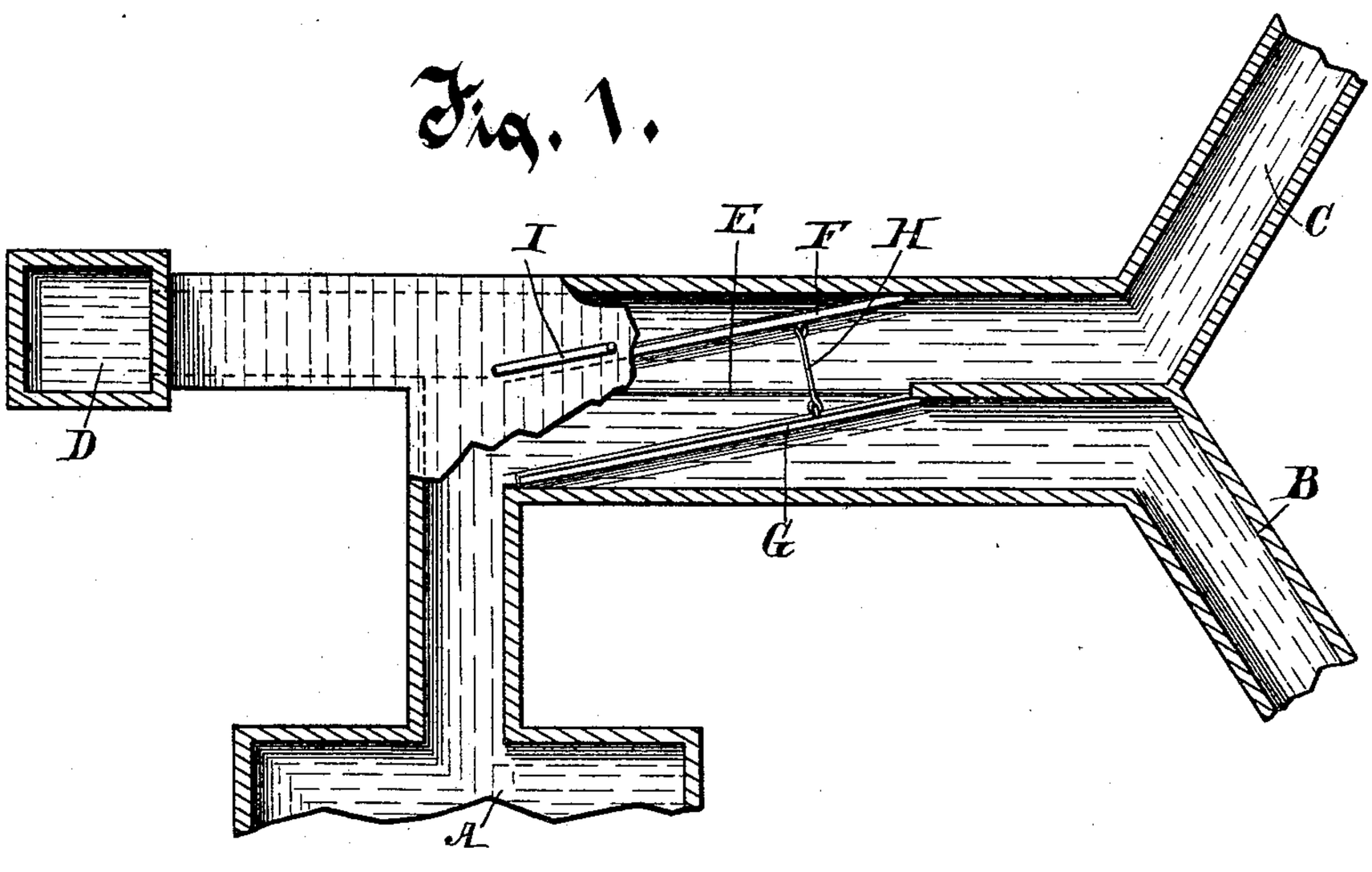
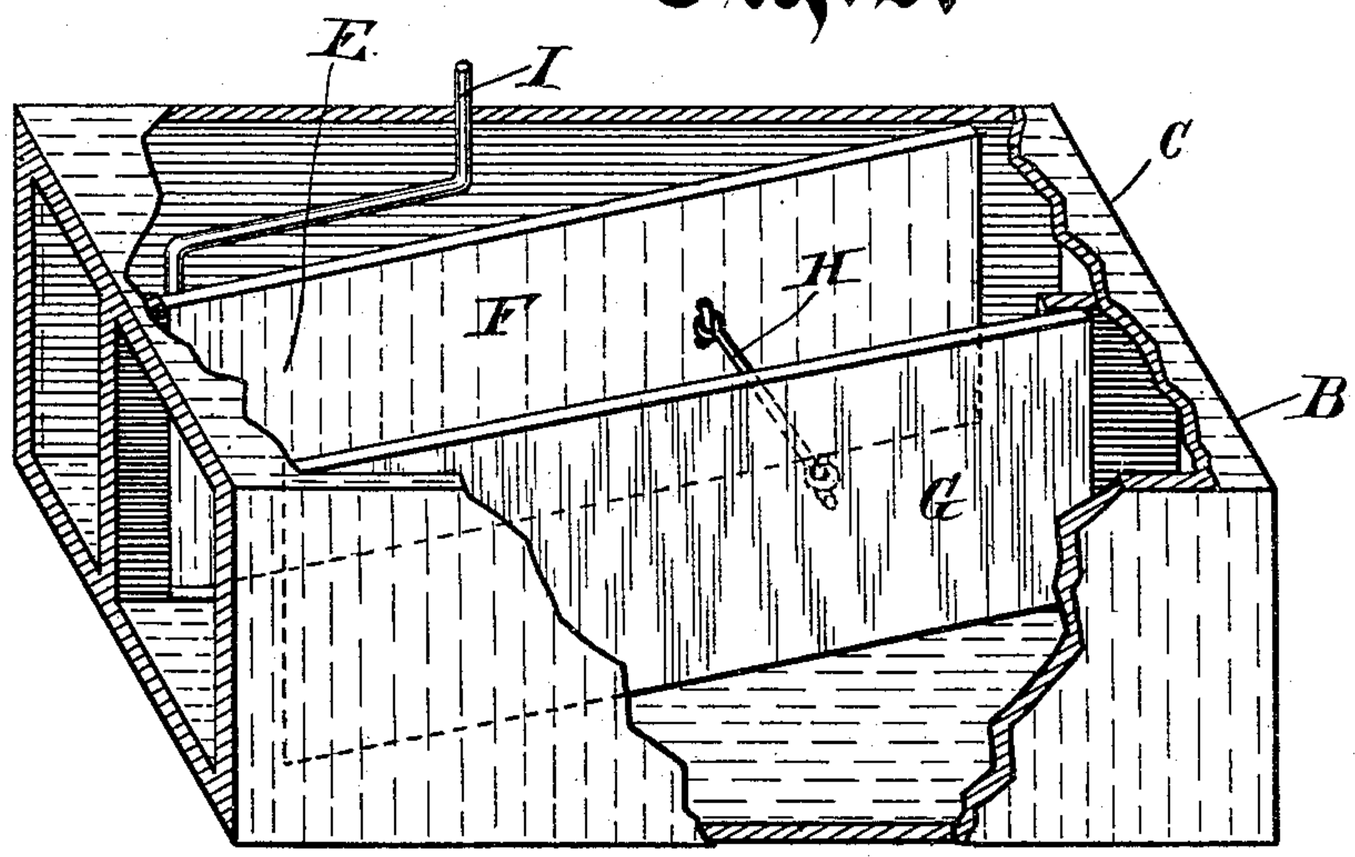


Fig. 2.



Witnesses.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

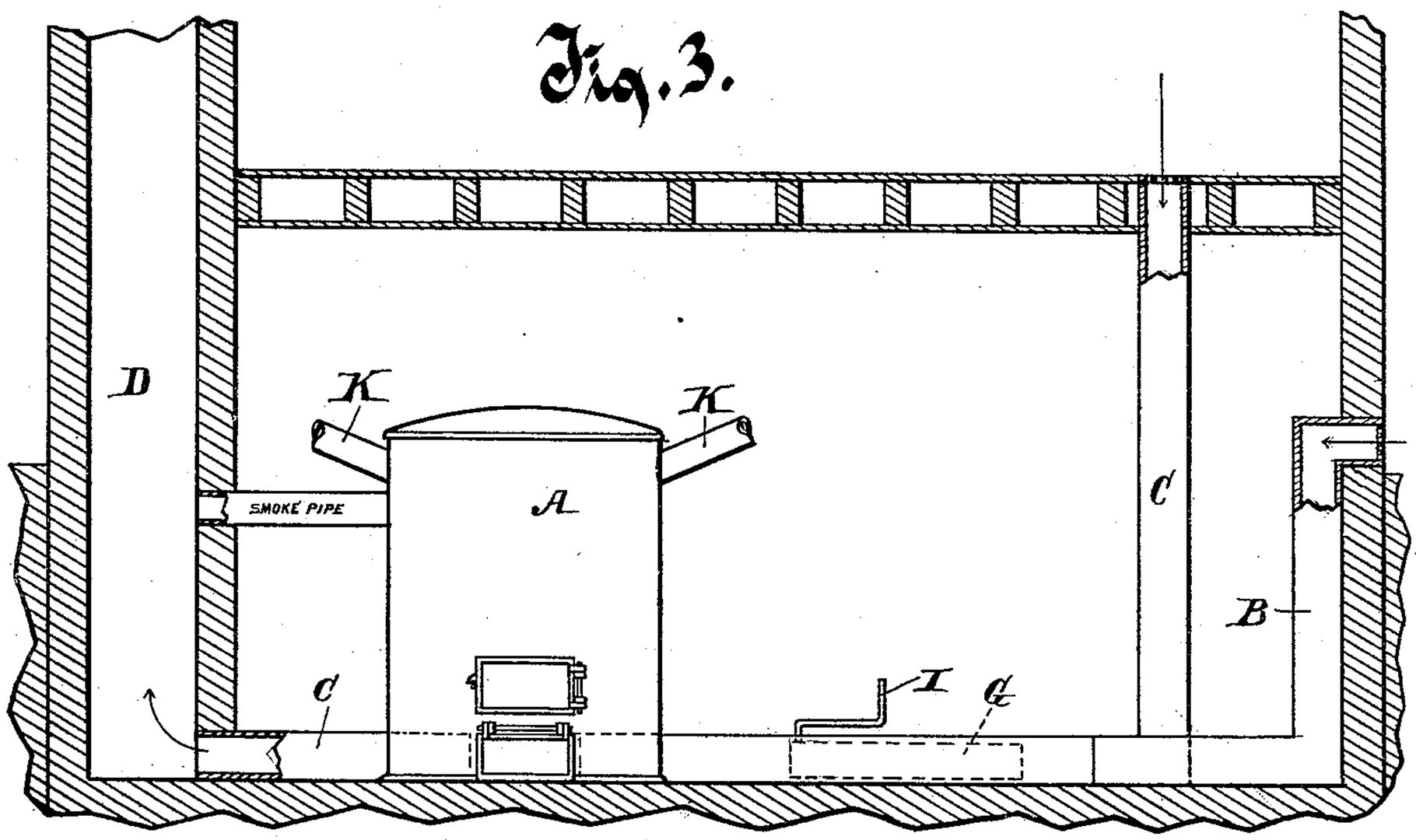
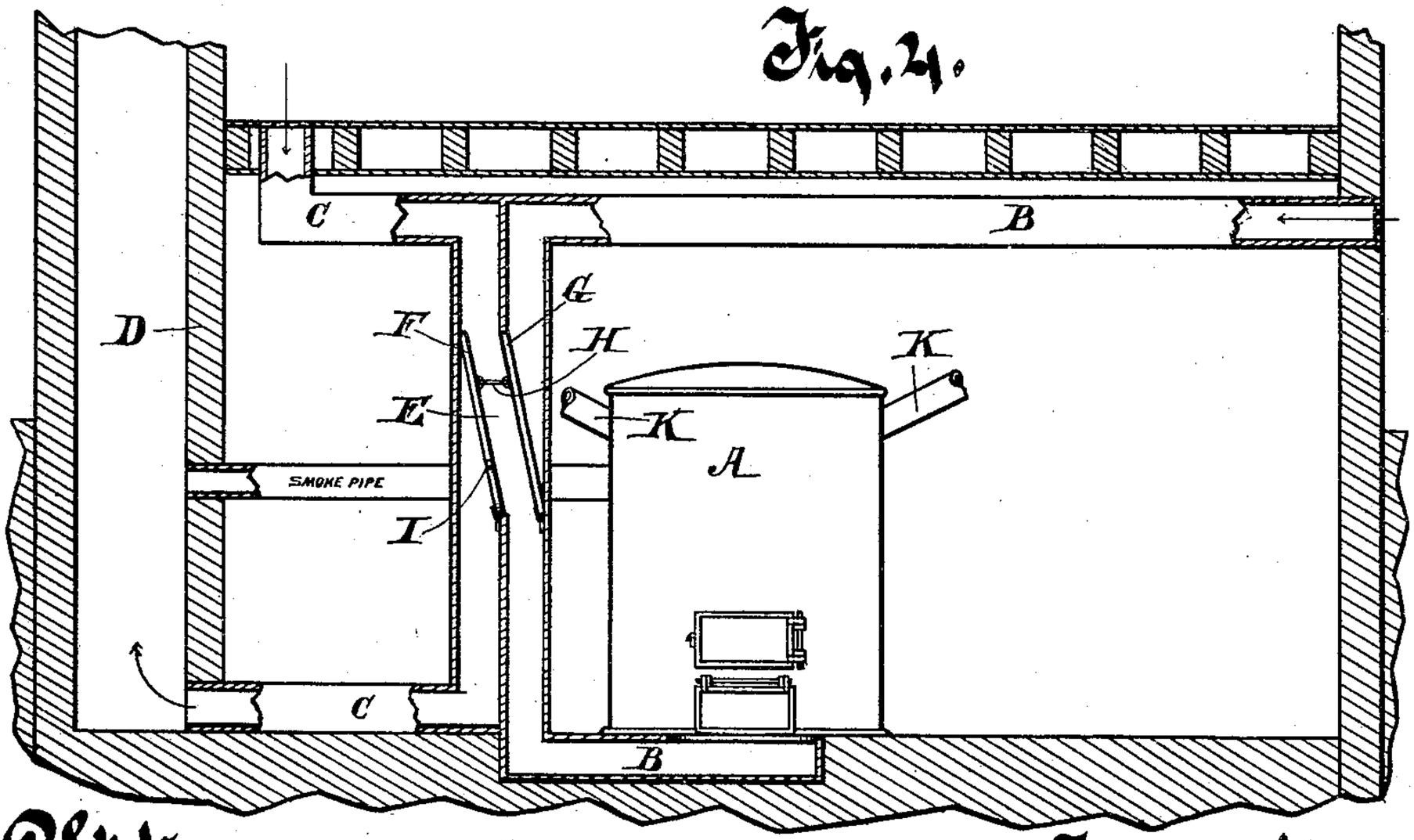


Fig. 4.



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UNITED STATES PATENT OFFICE.

HOSEA B. DEWEY, OF MILWAUKEE, WISCONSIN.

GATE FOR AIR-FLUES.

SPECIFICATION forming part of Letters Patent No. 434,627, dated August 19, 1890.

Application filed January 9, 1890. Serial No. 336,436. (No model.)

To all whom it may concern:

Be it known that I, HOSEA B. DEWEY, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Gates for Air-Flues; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In the heating and ventilating of buildings through the medium of hot air it is common to introduce fresh cold air from outside of the building to the furnace-chamber, where it is heated and is led to the rooms to be heated. The excess of air in the rooms as it becomes foul or otherwise is carried off through proper ducts therefor. At some seasons of the year the fresh air introduced from the outside is so intensely cold as to require a large and constantly-burning fire to properly heat it for warming the rooms, and where the air that has been already heated and passed into the rooms has not become foul by the respiration of persons occupying the rooms it is entirely satisfactory to reheat the once-used and still partially-warm air, thereby economizing considerably in the consumption of fuel; also, in school-buildings, where the rooms are occupied for school purposes only about six or eight hours of the twenty-four hours of the day, while it is important to supply the rooms with fresh air properly heated during their use for school purposes, still during the remaining sixteen or eighteen hours of the day in which the rooms are required to be kept warm the once-used air may be reheated by transmitting it through the furnace-chamber, thus obviating a large expense in the keeping up of sufficient fires to properly heat fresh cold air, which would have to be done unless the once-used air could be reheated and reused for warming purposes.

The object of my invention is to provide a device whereby, when desired, the supply of cold air flowing to the furnace may be shut off and the supply of air escaping from the warm rooms may be led to the furnace for reheating it. It is important to have such a device as simple as possible and so constructed and arranged as to be capable of being used with but very little trouble, or otherwise janitors and persons in charge of such buildings will omit to make the required change or shift in the device to accomplish the purpose desired.

In the drawings, Figure 1 is a plan of two flues, showing my improved device therein, parts being in section and other parts being broken away to show interior portions. Fig. 2 is a perspective view of my device, parts being broken away to show the interior construction. Fig. 3 is an elevation, part in section, of a hot-air system in which my device is embodied. Fig. 4 is an elevation, part in section, of a modified form of hot-air system in which my device is embodied.

In the drawings, A is the furnace, located, as is the usual practice, in the basement or cellar of the house.

B is a cold or fresh air flue leading from outside the building into the furnace-chamber at or near the bottom of the furnace.

C is a flue leading from the warmed room of the house normally to a ventilating shaft or chimney D, and is adapted for discharging air from the warmed room to make place for newly-heated air being introduced into the rooms through other pipes, as K K, leading from the furnace-chamber to the rooms. The pipes K are not continued in the drawings to the rooms, as to carry them up to the various rooms to be heated for conveying the hot air from the furnace to those rooms is a common feature in a system of hot-air heating. The flue C may lead from a room on the first or grade floor of a building, as shown in the drawings, to the discharging flue or chimney, or it may lead from rooms in the second or higher stories, and in such case the necessity for its terminating in a chimney or high ventilating-duct would be apparent in order to create a proper draft. It is, however, frequent to supply such chimney or discharging air-duct with means for creating an artificial draft.

My improved device consists in locating the cold or fresh air furnace feeding-flue B alongside the discharging air-flue C at some convenient point and providing an aperture E between them, which aperture has a swinging gate F, the aperture and gate being preferably longer than the width of the adjacent

flues. Another gate G is hinged to the outer wall of the cold-air flue B opposite to the gate E, and the two gates are connected together by a link H or other equivalent means. The gates F and G, as shown in the drawings, are hinged at their ends nearest to the furnace; but the same results could be accomplished if the gates were hinged at their other ends, but in such case the gate F would need to be hinged to the outside of the flue C, while the gate G would be hinged to the partition between the two flues, so as to be adapted to close the aperture E instead of the gate F; but on account of the direction of the currents of air through the flues it is a preferable construction to hinge the gates at their ends nearest to the furnace, as shown in the several drawings. A crank-handle I is secured rigidly to one of the gates, preferably to the one that closes the aperture E, and is adapted for conveniently swinging the gates, though any other equivalent means may be used for this purpose.

In the system illustrated in Fig. 3 it will be noticed that the flues B and C are located alongside each other on the bottom of the cellar in the manner shown more clearly in Fig. 1, and that when so located the gates swing horizontally, while in the modified system shown in Fig. 4 the flues B and C adjoin each other in a vertical portion of their course, and when so constructed the gates swing in a vertical arc.

It will be understood that when the gate F, as shown in the drawings, is swung away from the aperture E across the flue C, thereby closing it in the direction of discharge into the chimney D, that the air being discharged through the flue C will be led through the aperture E and the inner end of the flue B to the furnace A, while at the same time the gate G will close the flue B, so that cold air may not pass therethrough to the furnace-chamber. It will also be understood that when the gate F is shifted back into the aperture B, closing the passage away from the flue C into the flue B, the flue C will then be open directly from the room to the chimney D, and that the cold-air flue B will at the same time be opened from the outside directly to the furnace-chamber, the gate G being swung to one side and lying against the outer wall of the flue B.

The part marked A and referred to as the furnace indicates the case which surrounds the hot-air chamber, within which is the fire-pot or furnace proper, which is not shown, as this feature of the device is in common use.

What I claim as new, and desire to secure by Letters Patent, is—

In a hot-air system of heating and ventilating for buildings, a fresh-air flue leading from the outer air to the furnace-chamber for supplying the furnace with air, a discharging air-flue leading normally from a warmed room of the building to the outer air, which discharging air-flue is located at some place alongside and adjoining the fresh-air flue, an aperture opening from one of said flues to the other flue, where the flues are alongside, and two swinging gates connected movably together, one gate being located and arranged normally to close the aperture between the flues, but being capable of being swung away from the aperture across one of the flues, the other gate being located opposite the first gate and normally against the opposite wall of one of the flues, but being capable of swinging parallel with the first gate across such flue, whereby the fresh-air flue is closed against the admission of air to the furnace-chamber and the air is turned from the discharging-flue through the aperture between the two flues into the fresh-air flue leading to the furnace-chamber, substantially as described.

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

HOSEA B. DEWEY.

Witnesses:
JAS. B. ERWIN,
C. C. H. KEENEY.