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HOUSE AND RAILWAY CAR VENTILATION.

MR. Charles Cluthe, the well-known surgical machinist of Toronto, has just made an invention, which, although on quite another field, will undoubtedly prove itself none the less beneficial to the general public, than the number of other inventions previously introduced by that gentleman, more especially in the surgical line. The invention is a system for the rational and thorough ventilation of dwelling houses, and buildings generally, as well as railway cars, and has already been patented in the United States and Canada. For Great Britain and Ireland letters patent have been applied for and will be issued shortly. It is a well-known fact, that whilst our dwellings and buildings of the present day are fitted up with the latest appliances and conveniences looking to the comfort and well-being of their inmates, in point of proper and rational ventila-

tion, they are still sadly deficient, and if Mr. Cluthe's system, for which he claims that it is designed to bring about a lasting and permanent remedy for this long-felt defect, only fulfils a part of the expectations that the inventor bespeaks for it, the community at large will hail its advent with unfeigned pleasure, and its general introduction will without doubt be assured.

The general system for house ventilation may be seen at a glance, and may be easily understood by referring to Figure 1. It will be seen that there are two flues, one a smoke flue, and the other a ventilation flue, running off from the chimney breast up through the different stories of the house. These flues are united in the inlet of the pipe from the furnace in the cellar. For the purpose of opening or closing either of these flues for the transfer of heat, a valve is attached to this inlet. Openings proportioned to the size of the respective apartments connect each flat systematically with the suction flues, both at floor and ceiling, and these openings are covered with ventilation plates, no register being necessary. The branch pipes tapping each floor are proportionate to the size of the room, and increase in size until they reach the apparatus which constitutes the main and most important part of the invention, and has been styled by the inventor, from its shape, the "swan's neck," located in the centre of the chimney breast, between the two flues, as shown in Fig. 2. The "swan's neck"

consists of a chamber having two partitions extending across the full width of the chamber, but having openings

similar to the letter S), so that the air entering the ventilation plates must pass round the end of each to reach the discharge flue. By the peculiar construction of this chamber draught is entirely done away with, and this is one of the most prominent features claimed by the inventor for his system. The whole is so arranged that the heated air near the ceiling and the foul air near the floor, which contains so much carbon, must be drawn off, rendering the atmosphere of the room healthful and sweet, in the absence of all draught.

The working of the apparatus is altogether automatic, and is based on the principle of the thermometer. A metal shute running on six rollers at the top and bottom, is connected with the thermometric arrangement acted on by the atmosphere by a simple lever attachment, and thus nature herself thoroughly regulates the ventilation.

Figure 3 represents the chimney breast of a finished

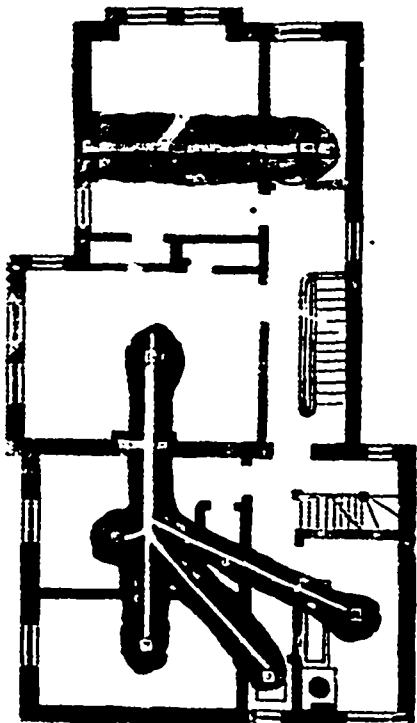


Fig. 4. Showing the system of tapping the various rooms.

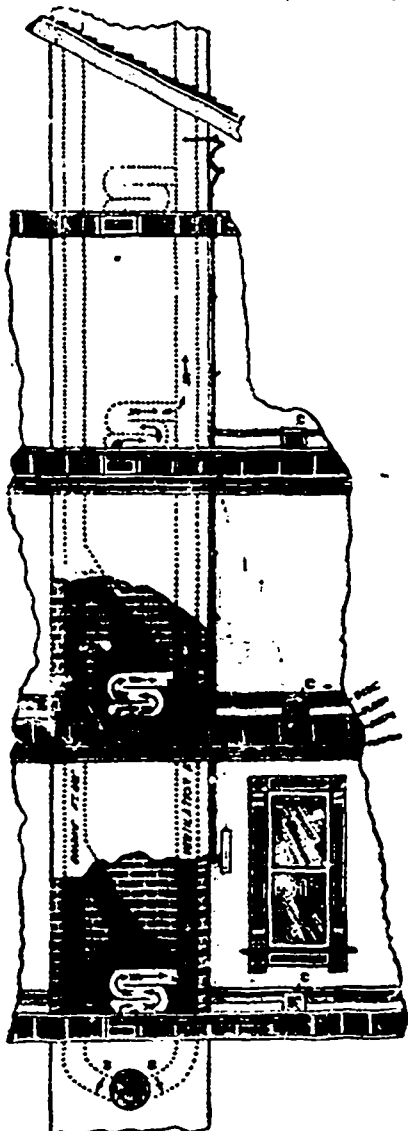


Fig. 1. Showing the system of house ventilation.



Fig. 3. Showing finished apartment partly opened.

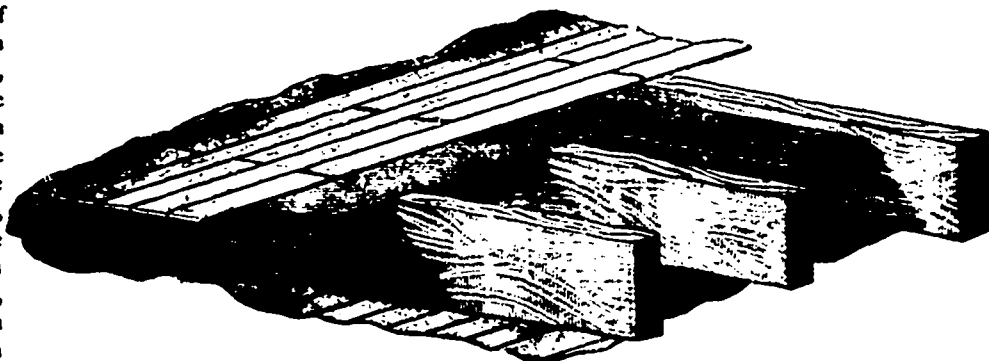


Fig. 5. Showing the laying of flue over joist.

at opposite ends of each (in short being formed very

apartment with the grate, which so far has been the only means to relieve our lungs from over-inhaling the descending poisonous air.

The inlet of a part or the whole of the heat from a furnace fire will in ordinary dwelling houses be sufficient to draw off all foul air, but in large buildings where often hundreds of people congregate, such as churches, schools, theatres, public halls, &c., and where the volume of foul air to be removed is therefore so much greater, it may be necessary to increase the draught from the flue by introducing a small pipe at the bottom of the flue with a burning gas jet, whereby a vacuum will be created from the inlet of the apartment to the main flue. The whole ventilation can be controlled from every flat in the house by means of a rod running the whole length of the flue up to the afore-mentioned shute. By having a thermometer outside the house, it can be so regulated as to adjust to a thermometer plate on the side next to the rod to the very degree marked by the thermometer outside; thus the ventilation is regulated wholly on Nature's simple, yet grand principle. The entire arrangement is so simple that even a child can work it.

All that appears necessary to say in reference to Figure 4 is that the size of the flues should be in proportion to the size of the apartment to be tapped, and great care should be exercised not to overcharge the capacity of the main flue, which would stop ventilation entirely.