"In applying any system of artificial warming to a large school-house we must be careful that the ventilation is ample, and that a condition of stagnated air is impossible. This can only be effected with certainty by gathering together all the outlet flues to one common shaft placed in a central position in the roof, and by applying the artificial extracting power of gas, hot water, or other means. Fire is the most effectual agent, but the trouble of maintaining a fire at so great a height from the ground renders it practically out of the question. Air, when expired from the lungs, flows upwards, because of its greater heat and consequent lightness. Each exit-flue should therefore carry off the vitiated air at the highest point of the room, where the heat is greatest. Each inlet should supply copious volumes of warm fresh air as near the floor-line as may be. With such a system carried out thoroughly, the small amount of carbonic acid gas which will have separated itself from other impurities, becomes cold, and settled to the bottom of the room, may reasonably be left to itself. The warm air inlet should be about 6 ft. 6 in. from the floor, so as to clear the boys' heads, but the extraction is from the bottom of the room in winter and the top in summer. The theory of extraction from the bottom instead of the top may be scientifically and theoretically the best, but it is practically inapplicable to a school-house. It may be perfectly true that the

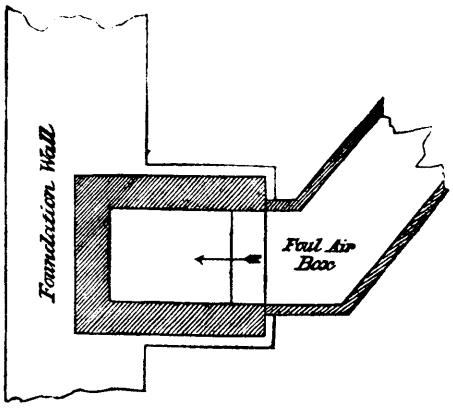


Fig. 2.—Plan at bottom of Ventilating Shaft.

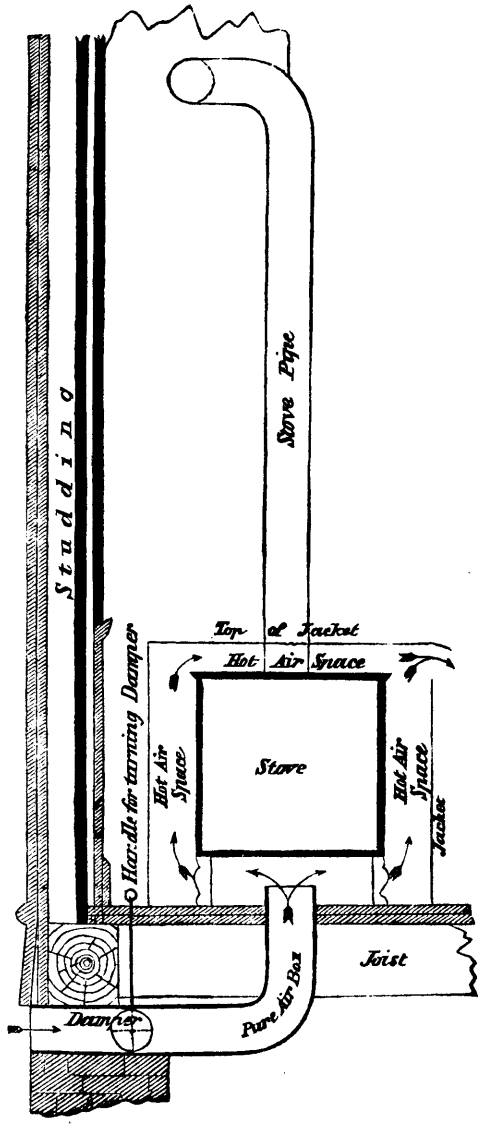
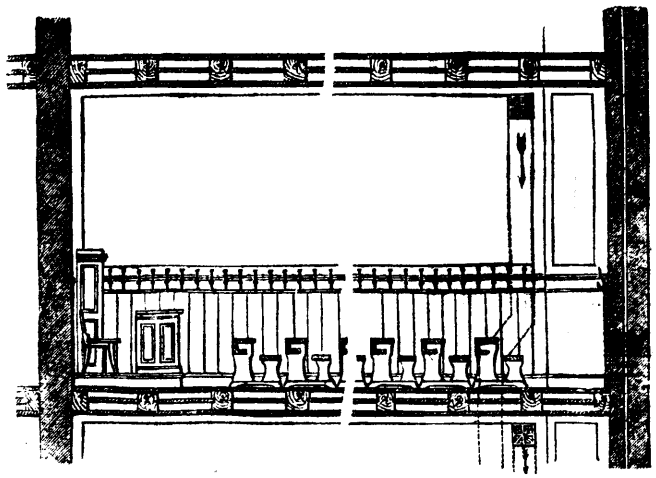


Fig. 3.—Section through Stove, &c., showing Pure Air Pipe and Jacket.



Ventilation as arranged in a Gemeinde Schulhaus, Berlin.

circulation of air in a room should be as constant as that of blood in the body. In practice it can never really be so. We go to sleep and forget all about the circulation of the blood, which continues its action without attention. If we go to sleep and forget the duties of the stoker, the fires die out and the warming power also dies a natural death. In all systems of warming and ventilation, the practical and working daily use must have a voice in the arrangements. Extraction from the bottom requires, from its great friction, so enormous a motive power as to be out of the question except in buildings of very great size, and, for school purposes, affords no advantage sufficient to compensate for reversing the order of nature."

The following are an outline of specifications applicable to the New Brunswick illustrations of Heating and Ventilation, which we insert :—

SPECIFICATIONS FOR VENTILATION AND HEATING.

The ventilating shaft to be finished above roof as shown in Fig. 1, the sides to have openings fitted with Louvre slats ; the slats on one side, and one centre post, to be removable, and this post to be fixed in place with screws. The roof to be shingled and to have a galvanized smoke cowl 12 in. in diameter, securely fixed and made tight to roof.

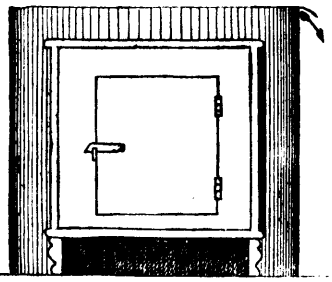


Fig. 4.—Elevation of Front Part of Stove, showing Fitting of Jacket.

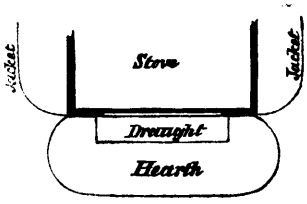


Fig. 5.—Plan of Front Part of Stove, showing Fitting of Jacket.

Provision to be made in *each* school-room, *and class-room,* for drawing off the foul and cold air by means of 8 in. by 12 air-tight wooden or other tube secured to the underside of the floor joists, and fitting air-tight into *each* ventilating shaft ; *each* foul air-tube to have an opening into room at the end opposite entrance into ventilating shaft (Fig. 6) ; this opening to be made in the floor close to the base-board, and fitted with a register to open or shut at pleasure, and connected air-tight with the tube under the joists. (Fig. 3.)

A circular opening to be made in the ceiling of *each* school-room and fitted with register, having a cord carried above ceiling joists and in the wall to platform, so that the teacher may open and shut at pleasure. A clay, sheet iron, galvanized iron, or other unin-