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*Remarks on the STOVES used in RUSSIA for warming dwelling houses, with a Plan and Model, by the Honorable Chief Justice SEWELL.*

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IN every climate which in severity is equal to that of Canada, whatever tends to promote œconomy in the article of fuel, and to enable the inhabitant to keep his habitation warm and comfortable at a diminished expenditure of wood or coal, deserves attention. The Russians and the people in the north of Germany are liable to the effects of as great a degree of cold as we are in Lower Canada, and they have, for a series of years, endeavoured to obtain the greatest quantity of heat from the smallest possible expenditure of fuel, and have ultimately adopted and maintain in general use, stoves of a peculiar construction, which appear from the accounts which are given of their effects to answer the purposes for which they were intended. Of these stoves I have the honor to submit to the consideration of the society, a model and two drawings with sections horizontal and vertical.

The model represents such a stove as is used in an ordinary peasant-house in Russia, and is said to be in general use in the hospitals of that country. This stove consists of a small iron oven, surrounded on three sides

with a wall of brick or tile, arched. Between the walls and the exterior of the oven, there is a space, into which the common air of the room is admitted through apertures which are placed in the brick wall on the level of the hearth; it there mixes with the heat which it imbibes from the oven, and becoming sufficiently rarified ascends through the pipes, which are placed in the arched covering of brick, to the top of the room, from whence it is diffused through the whole apartment or carried into other apartments, at the option of the owner. The smoke descends from the interior of the oven into a flue which surrounds it, and passing through that flue ascends and escapes by a chimney.

This description will be better understood by references to the model, in which

(A) is a foundation of brick or stone, on which the stove stands.

(B) the grate on which the fire is made.

(C) a wall of brick surrounding the grate.

(F) the oven, which is of wrought or cast iron.

(D) the passage to the smoke flue or chimney.

(O) the external wall of brick which surrounds the oven with apertures at the floor to admit the air.

(G) the arch turned over the oven.

(P. P) the pipes through which the heated air ascends into the room.

(H) the door of the oven.

(I) the chimney, or smoke flue by which the smoke escapes, in which there is a regulator, which is nearly closed when there is no smoke.

There is annexed to this model, a scale of English feet

by which the exact size of any particular part of this stove can be immediately and correctly determined.

The drawings represent two Russian stoves of a different description, intended for entrance halls, parlours, dining rooms, &c. The first of these drawings delineates such a stove as is usually placed against the wall, in the centre, between the two extremities of the room. The other, such as is usually placed in the corners of two contiguous apartments and is intended to warm both.

These stoves are not calculated to heat a current of air, passing through the stove, and to disperse it through the apartment by rarefaction ; on the contrary, they are designed to warm the circumambient air within the room, by heat imbibed by the air from the exterior of the stove, and for this purpose they are lofty, and the flame, heat, and smoke, are made to circulate through several flues which are formed within the stove, before they are suffered to escape by the chimney, in which there is a regulator, to be nearly closed when there is no smoke, as in the common stove.

The figure (D) in the drawing exhibits the exterior of the first of these stoves with the stove-door (*m*) and two smaller doors, (*a*)—(*a*) which afford access to the dampers. The dotted line *c d* is the line of the horizontal section of this stove delineated in the figure (A) and the dotted line *f g* is the line of the horizontal section, delineated in the figure (B).—The figure (C) is a vertical section of this stove, and the dotted lines *a b*—on the figures A & B—show the line of this vertical section which cuts the front flues in the centre.

In all these figures the brick work is represented in red, the external ornamental covering in yellow ; and the walls of the apartments and of the chimnies in black.

The construction of both these stoves is alike.—Both rest upon a brick foundation, on which a hearth stone is placed, on these the fire place, the flues, and the exterior walls are raised, and to the latter the ornamental covering is united by iron clasps.—Three rows of tiles lying one over another, and two rows of bricks, form the ceiling of this stove and a double superstructure of the ornamental covering terminates the whole.—This is shown in the figure (C)—The space *p g e u* (figure A) is the fire chamber arched to *t r* (as shown in the figure C)—From the open arch at *t r* (figure A) the flame, heat, and smoke rise into the flue (*o*) and ascend through it to the ceiling of the stove, and there enter through an aperture of the same diameter as the flue (*o*) into the flue No. 1, descend again to the level of the hearth, and there pass through a similar aperture into the flue No. 2—then fall into No. 3—rise again into No. 4—fall into No. 5—rise again into No. 6—fall into No. 7, and descend till they reach the arch of the fire place from whence they ascend through No. 8, into the chimney.—The passage of the flame, heat, and smoke through the flues Nos. 6, 7 and 8, is particularly delineated in the figure C and the lines *i k s q* in this figure exhibit the aperture by which they pass from No 5 into No. 6.

As soon as the wood in the stove is reduced to charcoal and there is no more smoke—the heat is retained by nearly closing the damper in the flue No. 8. which is shown in figure C. This damper is removed through the door (*a*) (figure D) before the fire is lighted. The damper is sometimes placed in No. 6, at the spot where the other small door (*a*) appears in the figure D.

The figure (H) in the drawing exhibits the exterior of the second stove with the stove door (*m*) and the damper

door (*a*)—the dotted line *c d* is the line of the horizontal section of this stove delineated in the figure E—and the dotted line *f g*—is the line of the horizontal section delineated in the figure F. The figure G is a vertical section of this stove, and the dotted lines *a b* on the figures E & F show the line of this vertical section which cuts the front flues in the center. The letters *w p r t* in figure E, is in this stove the arched fire chamber, out of which the flame enters into the flue (*o*)—rises therein falls into No. 1, rises into No. 2, falls into No. 3, rises into No. 4, falls into No. 5, rises into No. 6, falls into No. 7, and passes from thence into the chimney at Z. It must be remarked that the figures, 9 and 10 in figure F only denote empty spaces.

Great care must be taken in heating these stoves; in Russia, birch wood is generally used for this purpose, but the damper must not be closed, until the ignited wood has become completely charcoal. If there be a piece of wood in flames when the damper is closed, suffocation may be the consequence. The exterior of these stoves is made in Russia of white glazed tiles. It is however, probable, that soap stone may be used with great advantage in the construction of these stoves throughout, but especially for the exterior, and if so, it would supply the want of tiles.

There is a scale of English feet upon the drawings of these stoves by which the dimensions of each of them, or of any part of either of them, may be readily ascertained.