peculiarities connected with the general principle of their conſtruction.

The ſtove is intended as a fort oſ magazine, in which a great quantity of heat may be quickly accu­mulated, to be afterwards ſlowly communicated to the air of the room. The ſtove is therefore built extremely maſſive ; and it is found that they are more powerful when coated with clay as wet as can be made to hang together. We imagine the reaſon of this to be, that ve­ry wet clay, and more particularly ſtucco, muſt be ex­ceedingly porous when dry, and therefore a very slow conductor of heat. Inſtead of sticking on the glazed tiles with no more clay or ſtucco than is sufficient to attach them, each tile has at its back a sort of box baked in one piece about two or three inches deep. It is represented in fig. 2. This is filled with mortar, and then ſtuck on the brick-work of the ſtove, which has a great number of iron pins or hooks driven into the joints, which may sink into this clay and keep it firmly attached when dry. This coating, with the maſ­ſive brick-work, forms a great maſs of matter to be heated by the fuel. The loweſt chamber, which is the fire-place, is ſomewhat wider, and considerably thicker than the ſtories above, which are merely flues. When the fire-place is finiſhed and about to be arched over, a flat iron bar of ſmall thickneſs is laid along the top of the ſide-wall on both ſides, a ſet of finiſhing bricks be­ing moulded on purpoſe with a notch to receive the iron bar. Croſs bars are laid over theſe, one at each end and one or two between, having a bit turned down at the ends, which takes hold of the longitudinal bars, and keeps them from being thruſt outwards either by the preſſure of the arch or by the ſwelling in conſequence of the heat. In fig. 3. A is the croſs ſection of one of the long bars, and BC is part of one of the croſs bars, and CD is the clench which confines the bar A. This precaution is chiefly neceſſary, becauſe the contraction of the ſtove upwards obliges the walls of the other stories to bear a little on the arch of the fire-place. The building above is kept together in like manner by other courſes of iron bars at every ſecond return of the flue. The top of the ſtove is finiſhed by a pretty thick covering of brick-work. The laſt paſſage for the air at H (ſee Pneumatics, fig. 62.) has a ring lining its upper extremity, and pro­jecting an inch or two above it. The flat round it is covered with sand. When we would stop this paſſage, a cover ſhaped like a baſon or cover for diſhes at table is whelmed over it. The rim of this, reſting on the sand, effectually prevents all air from coming through and getting up the vent. Acceſs is had to this damper by a door which can be ſhut tight enough to prevent the heated air of the room from wasting itſelf up the vent. When the room is too warm, it may be very ra­pidly cooled by opening this door. The warm air ruſhes up with great rapidity, and is replaced by cool air from without.

The management of the ſtove is as follows. About eight o’clock in the morning the p*ietchnick,* or servant who has the charge of the ſtoves, takes off the cover, ſhuts the damper-door, and opens the fire-place door. He then puts in a handful of wood ſhavings orſtraw, and kindles it. This warms the ſtove and vent, and begins a current of air through it. He then lays a few chips on the ſole of the fire-place, immediately within the door; and behind this he arranges the billets oſ birchwood, with their ends inwards. Then he lays on more wood in the front, till he thinks there is enough. He ſets fire to the chips, ſhuts the door, and opens the ſmall wicket at its bottom. The air blows the flame of the chips upon the billets behind them, and thus kindles them. They conſume ſlowly, while the billets in front remain untouched by the fire. The fervant, having made his firſt round of the rooms, returns to this ſtove, and opens the door above to admit air into the vent. This is to ſupply its draught, and thus to check the draught in the body of the ſtove, which is generally too ſtrong at this time, and would coniume the fuel too faſt. By this time the billets in the front are burning, firſt at the bottom, and the rest in ſucceſſion as they sink down on the embers and come oppo­ſite to the wicket. The room does not yet feel any effect from the fire, the heat of which has not yet reach­ed its external ſurface ; but in about half an hour this grows warm. The upper door is ſhut again, that no heat may now be wasted. The pietchnik by and by ſpreads the embers and allies over the whole bottom of the fire-place with a rake, by which the bottom is great­ly heated, and heats the air contiguous to it externally (for it ſtands on little pillars) very powerfully. He takes care to bring up to the top of the aſhes every bit of wood or coal that is not yet conſumed, that all may be completely expended. He does this as briskly as poſſible, that the room may not loſe much warmed air by keeping open the fire-place door. At his laſt viſit, when he obſerves no more glowing embers, he ſhuts the fire-place door and wicket, and puts the damper on the paſſage above, and ſhuts its door.—All this is over in about an hour and a half after kindling the fire. All current of air is now at an end within the ſtove, and it is now a great maſs of brick-work, heated to a great degree within, but only about blood-warm externally. The heat gradually ſpreads outwards, and the external ſurface of the ſtove acquires its greateſt heat about three o’clock in the afternoon; after which it gradually cools till next morning.

This heat ſeldom is so great that one cannot bear to touch the ſtove with his cheek, and to keep it there. In conſequence of this it can burn none of the dust which unavoidably falls on the ſtove, and we are never troubled with the ſickening ſmells that are unavoidable when we employ the ſmall caſt iron ſtoves much heated. The great expence of heat in a room ariſes from the glaſs windows. The pane is ſo thin that the external air keeps it continually cold, and thus the windows are continu­ally robbing the air of the room of its heat. This ex­pence of heat is reduced to leſs than one third by double caſements. The inner caſement is about as much cold­er than the room as the outer caſement is warmer than the air of the fields; and we have the singular advantage of having no ice formed on the glaſſes. But to enſure this laſt advantage, the seams of the inner caſement muſt be pasted with paper, and thoſe of the outer caſement muſt be left unpaſted. If we do the contrary, we ſhall certainly have ice on the outer caſement ; the reaſon of which is eaſily ſeen.

We have been thus particular in our deſcription of the management, becauſe the reaſons of ſome particulars are not very obvious, and the practice would not readily occur to us in this country; so that a person who, on the