2 Sheets—Sheet 1.

J. K. BOSWELL.

Heating, Cooking and Drying Apparatus.

No. 211,693. **Patented Jan. 28, 1879.**

FIG. 1.

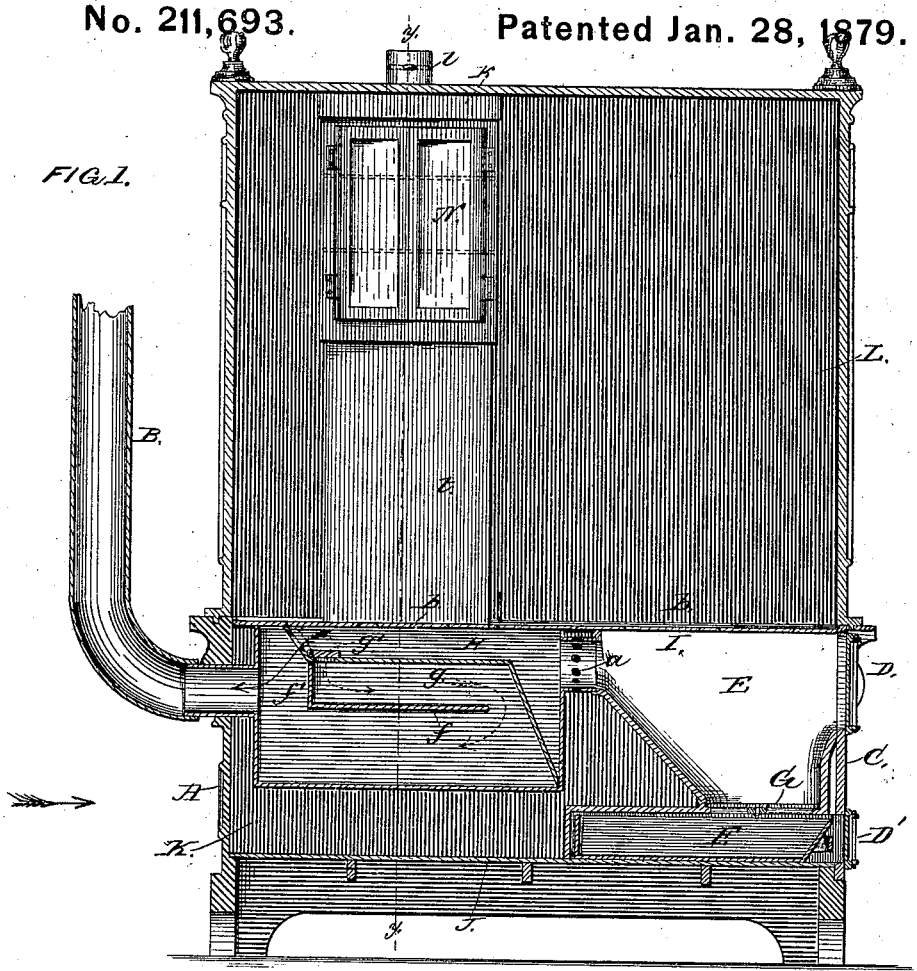
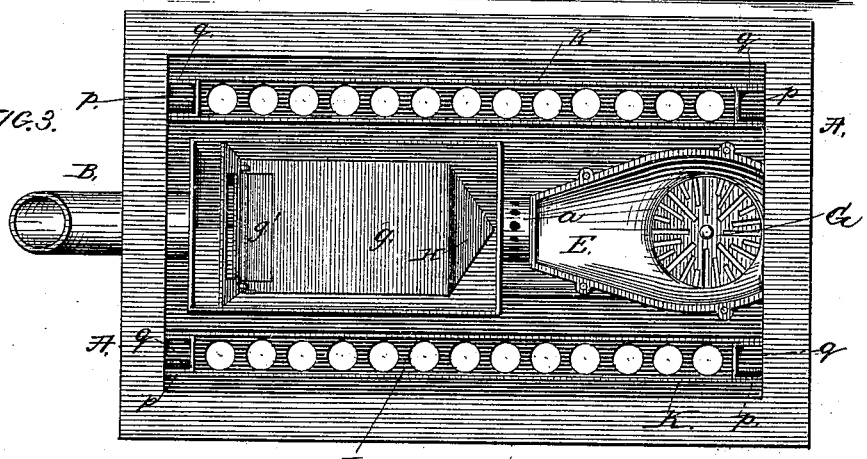


FIG. 3.



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2 Sheets—Sheet 2.

J. K. BOSWELL.

Heating, Cooking and Drying Apparatus.

No. 211,693. **Patented Jan. 28, 1879.**

FIG. 2.

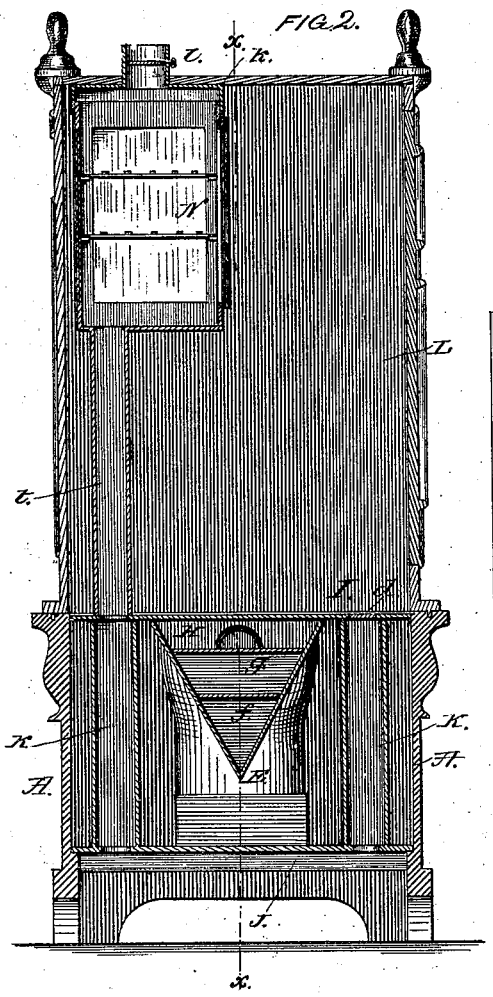


FIG. 4.

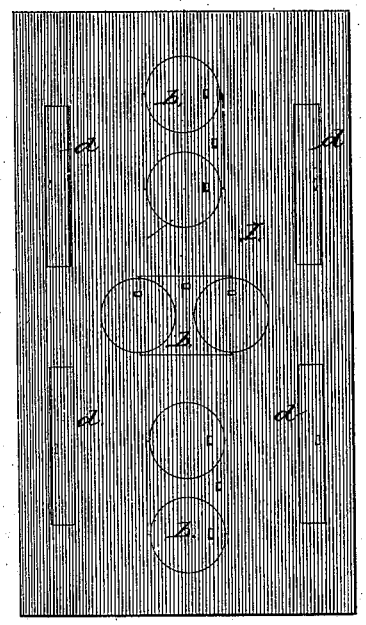
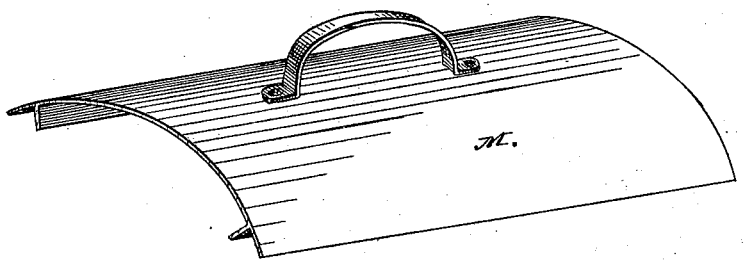


FIG. 5.



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JOHN K. BOSWELL, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN HEATING, COOKING, AND DRYING APPARATUS.

Specification forming part of Letters Patent No. **211,693,** dated January 28, 1879; application filed December 20, 1878.

To all whom it may concern:

Be it known that I, JOHN K. BOSWELL, of the city and county of St. Louis, and State of Missouri, have invented a new and Improved Heating, Cooking, and Drying Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section through the line *x x* of Fig. 2. Fig. 2 is a vertical transverse section through the line *y y*, Fig. 1, looking in the direction of the short straight arrow. Fig. 3 is a plan or top view of the heating-case with the cooking-table removed. Fig. 4 is a top view of the cooking-table. Fig. 5 is a perspective view of the shield.

My invention relates to a device for heating the air of a room, for cooking food, and for drying clothes or fruit, the same being in the nature of an ornamental piece of cabinet furniture, whose internal parts are made of metal and its exterior made of finished wood, and the purpose and object of which is, as compared to the use of stoves, to secure greater cleanliness in cooking, a purer atmosphere in the heated apartment, and an economy of fuel.

My invention is an improvement upon the devices of analogous character patented by me September 4, 1866, and April 23, 1867, and the improvement covers several novel features of construction and arrangement designed to better carry out my plans, as hereinafter more fully described.

In the drawings, A represents the outer heating-case, which is made rectangular in shape, and constructed, as now proposed, of finished wood wrought into moldings, panels, &c. This case, however, I may make of metal, if desired. At one end of this case I locate a furnace, from which the smoke and products of combustion pass first into a combustion-chamber at the other end, and thence out into the smoke-pipe B. This furnace (see Fig. 1) is provided with a face-plate, C, attached to the exterior of the case, and to which face-plate two doors, D D′, are hinged. Of these doors the upper one, D, opens into the fire-box E, and the lower opens below the grate into the ash-pit, in which is contained a removable ash-pan, F. The fire-box E is made with a circular bottom, in which is fitted a centrally-pivoted and rotary shaking grate, G, while the upper portion of said fire-box is constructed much in the shape of a coal-hod, tapering and flaring upwardly, and contracting upon one side into a spout, which constitutes the discharge-opening. This form of fire-box secures important advantages in connection with an elongated heating device of this character, since it gives a large surface of live coal for heating above, and yet it concentrates and delivers all ashes and cinders at the front part of the case, where it can be conveniently shaken out and removed.

H is the combustion chamber. This is constructed in prismatic shape, (see Figs. 2 and 3,) of a top plate and two side plates connected at the bottom and diverging at the top, so that the radiated heat from each will be thrown up against the top plate. This combustion-chamber is connected to the rounded discharge-spout of the fire-box by a collar, *a*, Figs. 1 and 3, which is perforated with a ring of holes. As the smoke and unconsumed particles of fuel pass into this combustion-chamber a proportion of heated air enters the combustion-chamber through the holes in the collar *a*, and there mixing with the smoke contributes to a more thorough combustion and more perfect utilization of the fuel with less deposit of soot, &c. Just above the fire-box E and combustion-chamber H, and closing in the top of the same, is detachably fastened the top plate, I, (shown in detail in Fig. 4,) which constitutes the cooking-table of the heater, and which is provided with pot-holes *b* for the reception of the kitchen utensils, which are located in direct contact with the fire. This top plate or table, I, is also provided with air-inlets upon each side governed by regulating dampers or covers *d*, the object of which will be described further along.

When it is desired to concentrate and hold the heat in the combustion-chamber for a greater length of time, two detachable plates, *f g*, of either sheet or cast metal, are fitted in said combustion-chamber and about the entrance to the smoke-pipe, so as to form in said combustion-chamber a return-flue. Of these two plates *f* has a right-angular bend, *f′*, and is fitted in the trough of the prismatic chamber short of the length, or at a little distance from each end of said chamber, as shown in Fig. 1. The plate *g* has a triangular end piece, which extends to the bottom of the combustion-cham-

ber and continues or returns a flue around the end of the lower plate, *f*. The rear end of this plate *g* extends over the upward bend of plate *f*, and is provided with a damper, *g'*, which may be turned down to allow the immediate escape of the gases from the combustion-chamber to the smoke-flue, as shown by the curved arrow on the left, or may be turned up to close the opening in the vertical bend of the upper plate and uncover an opening in the horizontal portion of said plate. This latter adjustment allows the heat and gases to pass from the combustion-chamber down between the plates *g* and *f* to the front, where it turns about the end of plate *f* and returns directly to the smoke-pipe, as shown by the two dotted arrows. This detention of the heat and gases allows the more complete radiation of heat.

Beneath the case is arranged a metal bottom, J, having upon each side of the fire-pot and combustion-chamber a row of holes for the entrance of air. These holes open into air-spaces upon each side, which air-spaces are formed in removable hollow sheet-metal casings K, having recesses *p* at their ends, which fit over and seat themselves upon projections *q* at the ends of the case. These hollow casings receive fresh air from the holes below, which becomes heated without direct contact with the fire-heated surface, and passes through the holes *d* in the upper plate or table, I, into either the room, the drying-case above, or the baking-case, as may be desired, the supply being regulated by the covers or registers *d*. These hollow casings K, it will be seen, not only serve to heat the air without vitiation by direct contact with the fire-heated surface, but also serve to protect the wooden walls of the case from the radiated heat.

Just above the heating-case A, I form a cabinet, L, which is in the nature of an ornamental inclosure provided with doors for access to the interior, and fitted up inside with hooks, racks, partitions, and trays, for drying clothes or fruit, as the case may be.

M, Fig. 5, is a curved screen. This is made of a size to correspond to the dimensions of the cooking-table, and is arched so as to cover the greater portion of the said table, and protect clothes or other articles hanging above from the direct radiated heat.

In one or both ends of the cabinet above the heating-case I arrange a baking-case, N. This consists of several removable parts, which may be set up and used together or taken down and dispensed with. The top *k* of the baking-case is fixed permanently in the top of the cabinet or inclosure, and its escape-pipe for heated air projects through the top of said cabinet and is provided with a damper, *l*. The body portion is made of a suitable framing having preferably glass sides and doors, and fitted interiorly with shelves, racks, or gratings for supporting the pans. This baking-case has a flattened inlet-flue, *t*, for hot air, which opens into the bottom of the case, and sets above and covers one of the openings in the cooking-table, through which the hot pure air rises from the hollow casings K. By regulating the damper *l* of the baking-case, and by closing more or less of the openings at *d* in the cooking-table, any desired degree of heat may be maintained in the baking-case for baking bread, roasting meats, or for other purpose for which an oven is ordinarily employed. Of the parts of the baking-case the top or cover only is a fixture, the case proper and its hot-air inlet-flue being separately removable to give greater room for drying clothes or fruit when it is desired to employ the device for these uses.

With respect to the introduction of air between the fire-pot and combustion-chamber, I would state that I am aware that this has been resorted to in heating apparatus of various kinds for the purpose of effecting a more thorough combustion of the smoke and gases; and this feature, therefore, I do not claim, broadly.

Having thus described my invention, what I claim as new is—

1. The fire-box having a circular bottom diverging upwardly and contracted into a lateral exit-flue, in combination with an elongated case having a flat upper surface or cooking-table, as described.

2. The combination, with the outer case, of the prismatic combustion-chamber, the fire-box opening into the same, and the cooking-table I, forming the top of said fire-box and combustion-chamber, substantially as described.

3. The prismatic combustion-chamber provided with the plates *f* and *g*, arranged as described, to form a return-flue.

4. The combination, with the outer case and the central heating device, of the hollow casings interposed between the two and communicating with the outside air beneath the device and with the air in the cabinet above the cooking-table.

5. The combination, with the fire-box E and communicating combustion-chamber H, of an intermediate collar provided with air-inlets, substantially as described.

6. The combination, with the fire-box and the combustion-chamber, of the hollow casings K K and cooking-table I, arranged to close in said fire-box and combustion-chamber, and extending over said hollow casings, and provided with outlets with registers for the same, as described.

7. The combination, with a heating-case having a hot-air flue and an inclosing cabinet above, of a baking-case, N, the roof of which is a fixture in the top of the cabinet, and the flue and chamber of which are adapted to be fitted to the heating-flue of the case below or removed, as set forth.

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