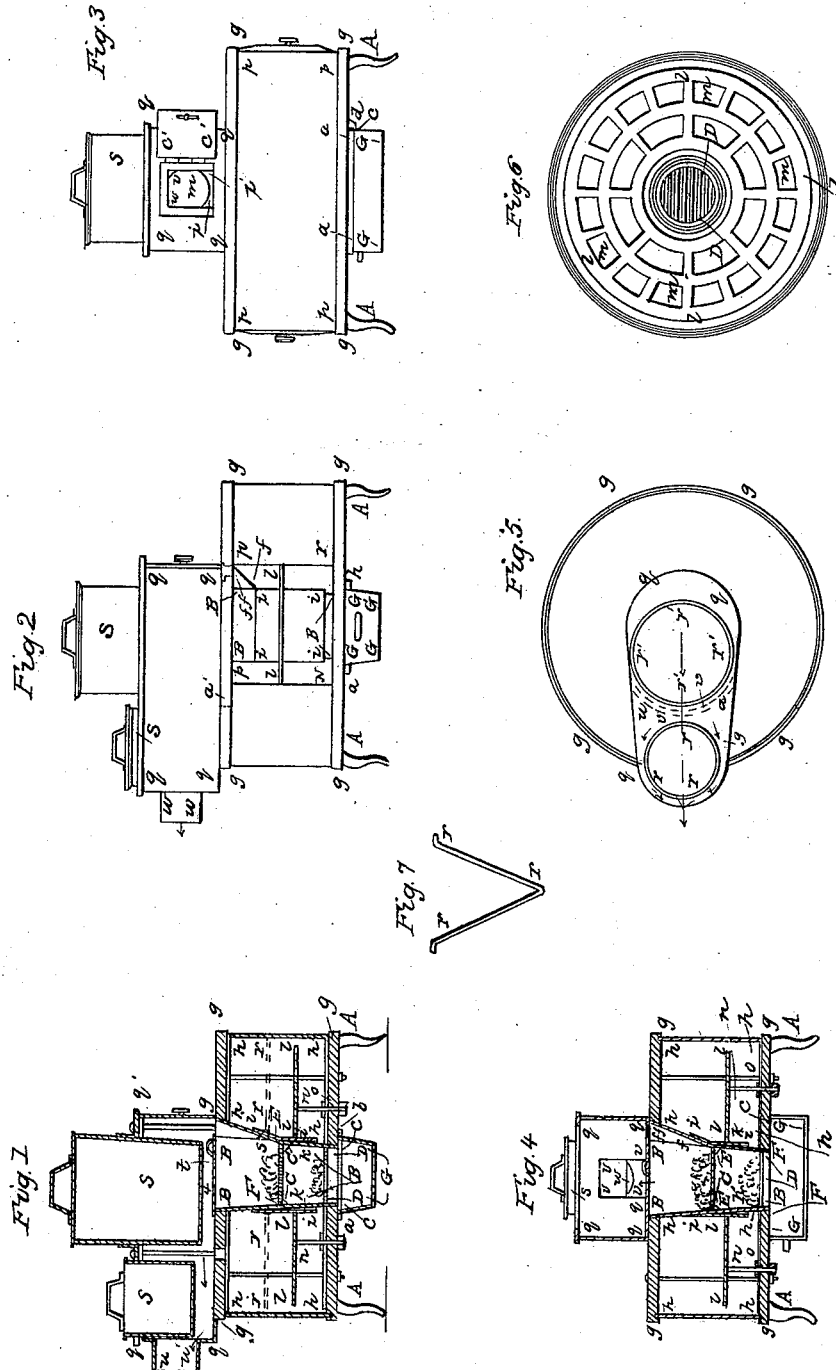


S. W. COLE.
Cooking Stove.

No. 1,730.

Patented Aug. 25, 1840.



UNITED STATES PATENT OFFICE.

SAMUEL W. COLE, OF CHELSEA, MASSACHUSETTS.

COOKING-STOVE.

Specification of Letters Patent No. 1,730, dated August 25, 1840.

To all whom it may concern:

Be it known that I, SAMUEL W. COLE, of Chelsea, in the county of Suffolk and State of Massachusetts, have invented new and
5 useful Improvements in Stoves.

The said improvements the principles thereof and manner in which I have contemplated the application of the same by which they may be distinguished from other inven-
10 tions of a like character, together with such parts or combinations I claim as my invention and consider original and new, I have herein set forth and described.

The said description taken in connection with the accompanying drawings herein referred to composes my specification.

Figure 1, is a cross section taken vertically through the stove. Fig. 2 is an elevation. Fig. 3, is an end view. Fig. 4 is a
20 vertical cross section taken at right angles to that exhibited in Fig. 1. Fig. 5 is a plan or top view. Fig. 6 is a horizontal section. Fig. 7 is a detailed view of a temporary grating.

The object of my improvements is by a small expenditure of fuel to perform the several culinary operations of boiling baking &c., to heat the apartment in which the stove is placed or if necessary to divest the
30 heat from the room, and cause it, after having performed the required operations, to pass with the smoke &c., into the chimney or atmosphere.

Economy, in the use of fuel, and causing the same to perform its several offices with expedition are, I am aware the useful effects generally proposed to be attained by this class of inventions, but I consider that they are more effectually secured by my peculiar
40 arrangement than in the stoves now in use.

A A, &c., in the different figures, are the standards or legs which support the body of the stove.

B B B B, Figs. 1, 2 and 4 represent the
45 fire chamber or furnace, in which the fuel for producing the heat is placed. This furnace is shaped like an inverted hollow frustum of a cone, the diameter of the same at the top being greater than at the bottom.
50 This furnace is arranged with two grates or gratings C C, D D, supported on suitable pins E E, F F, Figs. 1 and 4, the former of which I denominate the stationary or permanent grate as it is the one which is com-
55 monly used, the latter being one which can be used or removed at pleasure; the object

of its use being to bring the heat from a small quantity of fuel more directly in contact with the parts in the upper portion of the stove to be hereafter described.

Directly underneath the furnace is an ash
60 pan G G G G (Figs. 1, 2 3 and 4) for receiving the ashes which fall through the grates; it has suitable ledges on its sides arranged with the slides *a a*, *b b*, on which it can be
65 moved forward and back.

The draft is furnished to the fire in the furnace by means of an opening *c c* in the back part of the ash pan (as seen in Figs. 3 and 4) working with a ledge *d* behind the
70 same so that the draft (as will readily be seen) is increased or diminished, by moving forward or back the ash pan, by its handle and is entirely shut off when the back of
75 said pan is against the ledge *d*. The direction of the draft may be more plainly indicated by the blue arrows in Figs. 1 and 4. On the side of the furnace and opening into
80 the same is the slide or mouth *f f f* (Figs. 1, 2 and 4) shaped like half a hollow inverted cone, through which the fuel is fed to the furnace.

The furnace B B B B is set in or near the center of a large cylinder *g g g g*, (Figs. 1, 2, 3, 4 and 5), the diameter of which is
85 greater than its perpendicular height, the periphery of the cylinder being formed of any suitable metal, the interior surface of which should be properly polished. The space between the sides of the furnace and
90 those of the cylinder, or that denoted by *h h h h* &c., in the several figures forms the oven or baking chamber of the stove, the heat being diffused throughout the same by radiation from the furnace B B B B, and
95 reflection from the inner surface of the large cylinder *g g g g*, &c. In order to produce a more equal distribution of the heat throughout the baking apartment, I arrange a cylinder *i i i i*, Figs. 1 2 and 4 extending nearly
100 to the bottom of the baking apartment around the furnace B B B B. The top of this cylinder is in close contact with the surface of the furnace, but as the furnace tapers (as has been described) toward the
105 bottom, it will readily be perceived, that there will be a space or opening *k*, Figs. 1 and 4, between the same and the cylinder, and the air in this space becoming rarefied to a great degree and having no means of es-
110 cape upward between the said cylinder and the furnace, would of course, pass from the

mouth of the space $\frac{1}{2}$ near the bottom of the baker and then spreading and rising, would thereby cause a constant current or circulation of the heated air in the baking apartment.

A suitable grating $l l l l$ (Figs. 1 2 4 and 6) is arranged in the baking apartment, so as to allow the heated air to pass between its inner edge and the furnace, and also between its outer edge and the periphery of the large cylinder, proper spaces being also made in the grating as seen in Fig. 6 at $m m m$ &c., so that the heat may be in contact with all sides of any vessel or vessels, which may be placed thereon, in which the article or articles are to be baked. This grating is supported on any proper number of rods or standards $n n n n$ and may be adjusted to any height in the oven by means of screws cut on said rods, working with corresponding screws in the stationary nuts as seen at $o o$, Figs. 1 and 4, the operation of which will be readily understood. The object of this adjustment is to take every possible advantage of the heat in the baking apartment, and to accommodate deep or shallow vessels. Two temporary gratings $r r r r$ Fig. 1 of triangular shape as seen in Fig. 7, may be placed on each side of the furnace, the corners being supported on suitable hooks, arranged on the cylinder $i i i$ and periphery of the baking apartment to accommodate an additional number of vessels, when the grating $l l l$ is entirely covered. These gratings will likewise be found to be very convenient for baking expeditiously when the fire is on the upper grate in the furnace.

The baking apartment is arranged with two doors $p p$, $p p$ Figs. 2 and 3, the door being removed in Fig. 2. These doors afford convenient access to every part of the oven, and when open allow the heated air to escape into the apartment and effectually warm the same. On the top of the baking apartment, and extending over the top and mouth of the furnace, the boiling chamber $q q q q$ is suitably arranged and attached. The sides of this boiling apartment converge so as to make the chamber of less width near the discharge pipe than in front as seen in Fig. 5. In the top of this chamber circular hole or apertures ($r r r r$ Fig. 5), are formed in which any suitable boiling vessels s, s may be placed, the larger being in front. The smoke, &c., from the furnace serves to heat the chamber. A cover t, t , Figs. 1 and 4, on the top of the furnace besides answering the usual purpose of such parts, likewise serves to regulate the passage, and control the direction of smoke and heat, and also to retain the same in the furnace when required, which creates a greater radiation of heat in the oven. Between the boilers s, s , the curved partition u, u Fig. 5 is placed,

which has a proper opening $v v v v$, Figs. 3, 4 and 5, for the passage of the heat, smoke, &c., to the second boiler. By this arrangement the heated air, &c., passing from the mouth $f f f$ of the furnace, (when the cover $t t$ is placed in the position represented in Fig. 1), would, as will readily be perceived, be caused to circulate around all the surface of the front boiler in the chamber, and having no means of escape excepting through the opening $v v v v$ will pass in a volume through the same and impinge on the second boiler, and thus be broken and caused to pass around said boiler to the discharge pipe $w w$, Figs. 1, 2, 3, 4. The sides of the boiling apartment, as has been seen, converge so as to make the chamber of less width near the discharge pipe, than in front, thereby bringing and keeping the heat and smoke in close contact with the second boiler. When it is desirable to bring the heat directly to the second boiler, it is only necessary to slide the cover $t t$ forward and the smoke and heat will pass from behind the same and escape through the opening $v v v v$, and accomplish the desired end.

When the heated air in the oven is not wanted for baking, it may be introduced into the boiling chamber, by means of the valves $a' b'$; Fig. 2, which may be opened or closed at pleasure, by opening which the heat is prevented from passing into the apartment.

A door $c' c'$ is fixed in the front of the boiling chamber $q q q q$, to allow convenient access to the mouth of the furnace, to feed the same with fuel.

The parts of the above stove are composed of tinned, sheet or cast-iron or any other suitable metal or material, the same being secured together by rods, screws and nuts as shown in the drawings or in any other proper manner.

The advantages of this arrangement, are many of them so apparent as to require no mention after describing the apparatus. It might however be observed with regard to the method of regulating the draft, in addition to what has been above stated, that when the draft is entirely stopped (which this arrangement provides for), the smoke is prevented from passing into the room, when it is desirable to move either boilers, such inconvenience frequently occurring in stoves of ordinary construction.

Having thus described my improvements I shall now specifically point out those parts I claim as my invention.

1. I claim, the particular mode of adapting the circular shelf to the oven, and adjusting the same by means of screws passing up through the bottom plate; also the furnace constructed with an exterior casing or cylinder for the purpose of causing the heat radiating from the outer surface of the furnace to pass downward and escape near the

bottom of the oven, thereby causing it to be
first distributed under the rising shelf at
whatever height the same may be in the
oven, the whole being arranged and operat-
5 ing substantially in the manner and for the
purposes above described.

2. I claim the combination of the circular
shelf with the oven and furnace, the furnace
being so arranged in the oven that the shelf
10 shall entirely surround it.

In testimony that the above is a true de-
scription of my said invention and improve-
ment I have hereto set my signature this
thirtieth day of June in the year of our
Lord eighteen hundred and forty.

S. W. COLE.

Witnesses:

R. H. EDDY,
EZRA LINCOLN, Jr.