

UNITED STATES PATENT OFFICE.

HERBERT H. STIMPSON, OF BOSTON, MASSACHUSETTS.

STOVE.

Specification of Letters Patent No. 2,916, dated January 20, 1843.

To all whom it may concern:

Be it known that I, HERBERT H. STIMPSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Stoves for Heating Buildings, and that the following specification, taken in connection with the accompanying drawings, constitutes a full and exact description of the same, the nature and principle of my improvement, by which it may be distinguished from others of a similar character, being duly represented therein.

Figure 1 of the above mentioned drawings exhibits a front elevation of my improved stove. Fig. 2 is a side elevation of the same. Fig. 3 is a top view thereof. Fig. 4 is a horizontal section taken at about half the height, or through the middle, of the stove. Fig. 5 is a vertical and central section, while Fig. 6 is another vertical and central section taken in a plane at right angles to that in which Fig. 5 is delineated.

The chamber of combustion consists of a vertical hollow cylinder A, Figs. 4, 5, 6, mounted upon the top plate of a square or other suitable shaped base or box B, into which an ash receptacle C constructed in all respects like an ordinary drawer slides and fits closely.

D is the grate which sustains the coal or fuel, the same being situated in the lower part of the fire chamber or in a circular aperture formed through the top plate of the base B, the said grate being supported upon bearings or journals *a*, *b*, so as to be readily turned upward in a vertical plane whenever it may be desirable to discharge the contents of the fire pot or chamber into the ash drawer, the same being accomplished by a small crank or lever E, or other proper contrivance applied to the end of the journal *b*, which projects entirely through the stove for this purpose.

The vertical cylindrical fire chamber may be constructed in two parts, that is to say of two cylinders *c*, *d*, Figs. 5, 6, the bottom of the upper of which viz. *c*, may shut over or overlap the top of the lower as seen in the drawings. In this case the periphery of the lower cylinder should be somewhat thicker than that of the upper, it being calculated that the lower cylinder shall be of sufficient height to contain the requisite quantity of fuel, and as it is the part of the fuel chamber most exposed to the action of the burning coals

it is more liable to destruction by the fire than the upper part. This method of constructing the cylinder prevents the injury usually incurred in cylindrical stoves by expansion of the metal when heated to redness, the said expansion causing the cylinder of the stove to gradually increase in diameter at the part most exposed to the fuel, until finally it bursts or breaks open and is rendered useless.

The chamber of combustion A, has a square or rectangular opening F cut through the front part of its periphery at or near its top as seen in Fig. 5, the smoke and gases passing through said opening into a flue space G G surrounding the fuel cylinder A, and formed by an outer cylinder or casing H extending entirely around the fuel chamber as seen in the drawings. This flue space thus formed has two vertical partitions I, I, arranged on opposite sides of the cylinder A and extending between the same and the exterior casing H and downward from the top of the cylinder about two-thirds of its height as seen in Fig. 5. The upper part of the flue space is suitably covered over by a plate *d d*, see Figs. 5, 6, and at or near the rear part of the top of the flue space G G a pipe K is inserted therein, extending therefrom to the discharge flue or chimney L. The chamber of combustion is supplied with fuel through its top, which extends somewhat above the plate *d d* and is covered over by a movable lid M. In some cases it may be desirable to place the orifice for the supply of fuel in the front side of the stove, instead of the same being on the top of the stove as above described. In this case a door frame should be inserted between the cylinder A and exterior case H or so as to extend from one to the other and open into the fuel chamber. In this door frame there may be two sets of doors if desirable, one being in the front part of the opening and the other in its rear part, and both sets opening outward.

A vertical rim N extends around upon the upper surface of the plate *d d* and concentric or parallel with the upper part of the fuel cylinder, or that part thereof which projects above the plate *d d*. By inspection of Figs. 5, 6, it will be observed that the plate *d d* is depressed immediately around or where it is in contact with the cylinder, so as to form a circular groove about the same, this depression being denoted by the

letters *e e*, and the object of the same being to contain a quantity of sand into which the vertical sides or periphery *f f* of the cover or lid *M* enters when said cover is placed on the cylinder. This arrangement of the sand about the cover prevents the escape of any smoke or noxious gases from the stove.

The peculiar features of novelty and utility in the stove above described, consist in causing the combustible products which escape from the fire in the chamber *A* to pass through the opening *F* into the space *G G* thence downward or throughout that part of the said space in front of the partitions *I, I*, thence under said partitions and into the rear half of the space *G* or that in rear of the partitions, through which they circulate and from thence escape into the chimney through the discharge pipe *K*. By this arrangement of the parts, the atmosphere of the apartment is warmed only by the radiation of heat from the exterior casing *H* or by direct contact therewith, the said casing from its distance from the fuel never becoming heated to redness or to such a degree as to burn or injure the atmosphere of the apartment.

While other stoves which are now or have heretofore been in common use are so constructed as to expose the air of the room, in which they are placed, to contact with the fuel chamber, or the exterior surface of that part thereof in which the fuel is burnt, by which the air is rendered unfit for respiration, it has been my particular object in the arrangement of my stove to avoid such defect. The air of the room is protected from access to any part of the exterior surface of the fuel chamber with the exception of that of the cover thereof, which can by reason of its distance from the fire and from other circumstances seldom or never become heated to an injurious degree. Instead of the space *G G* being divided by two partitions *I, I*, it may have six or any greater number which may be requisite to cause a more complete circulation or descent and ascent of the smoke and gases therein before escaping into the chimney.

I do not intend to be understood that I consider my invention to consist in sur-

rounding a vertical fuel cylinder with an exterior and concentric case, as this has existed in stoves where the atmosphere of the room is admitted into the space between said cylinder and casing and is brought into direct contact with the outer surface of the fuel cylinder; or in dividing the space between two concentric cylinders by vertical partitions, as this has been accomplished in what is termed Olmstead's radiator, the products of combustion being received into said space from a fuel chamber situated by the side of the radiator, the air of the apartment having access to the heated external surface of said fuel chamber, but

That which I claim is the hereinbefore specified improvement thereon, viz:

I claim the vertical elongated chamber of combustion *A* (having a grate in its lower part, and an orifice for the supply of fuel at its upper end or top and an air passage *F* at or near its top or otherwise suitably and similarly arranged), in combination with a concentric flue space *G G* surrounding the same and having partitions *I, I*, by which the smoke and gases, proceeding from the fuel, are caused, after passing through the hole *F*, to descend on the front or one side of the vertical chamber of combustion, and ascend on the rear or other side, or to circulate upward and downward in said space as herein before described, and from thence escape from the stove, through a pipe *K* extending from the outer case to the discharge flue or chimney, the said arrangement of the parts being substantially as above set forth and for the purpose of protecting the atmosphere of the apartment, in which the stove is situated from the burning effect of the red hot surface of the fuel chamber as herein before described.

In testimony that the foregoing is a true description of my said invention and improvements I have hereto set my signature this ninth day of December in the year eighteen hundred and forty two.

HERBERT H. STIMPSON.

Witnesses:

R. H. EDDY,
E. LINCOLN, Jr.