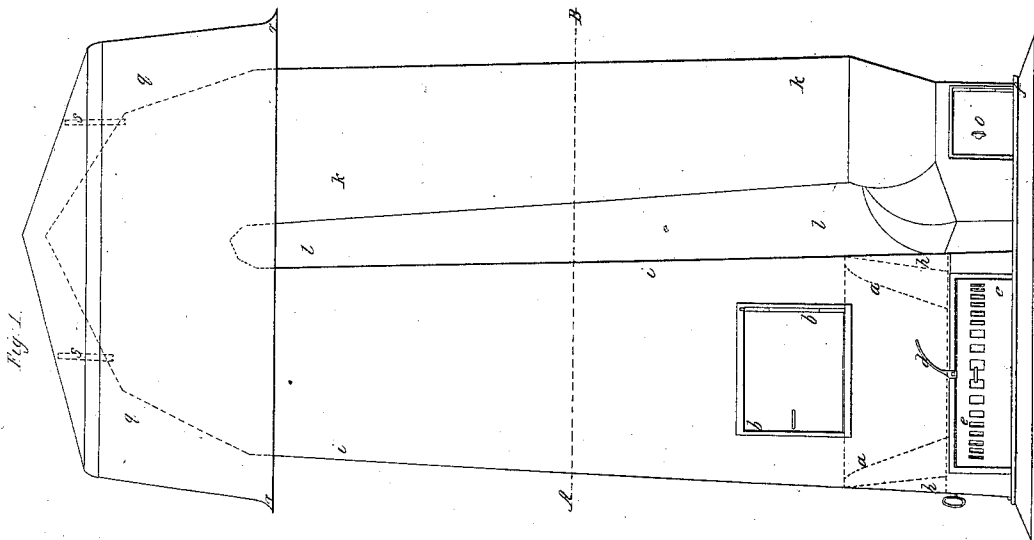
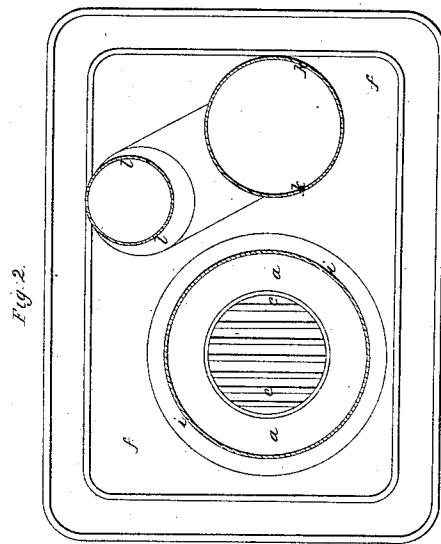
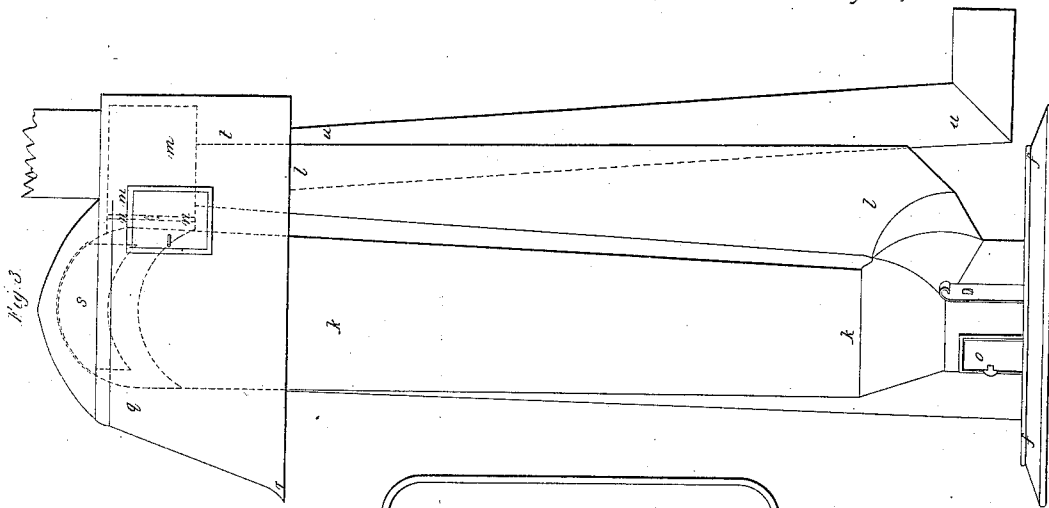


G. C/21/5077.

Heating Stove.

N^o 8,366.

Patented Sept. 16, 1851.



UNITED STATES PATENT OFFICE.

GARDNER CHILSON, OF BOSTON, MASSACHUSETTS.

STOVE.

Specification of Letters Patent No. 8,366, dated September 16, 1851.

To all whom it may concern:

Be it known that I, GARDNER CHILSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Heating Apparatus Applicable to Stoves, Furnaces, &c., and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The distinguishing features of my improvements consist in elongating tapering and bending the fire chamber, so as to have three or more parallel or nearly parallel branches thereof, the tapering being gradual from the top of the fire pot or from the bottom of the stove to the point of exit which is at the end of the last branch of said fire chamber. The effect of this arrangement is such, that as the heat and other products of combustion become exhausted, the surface through which the heat is to be radiated is diminished accordingly, while the tapering of the fire chamber, keeps the products of combustion from escaping, until all the heat is extracted therefrom. I also, as a second improvement, combine with the arrangement above described, an attachment or cap, on the top of the same, which operates as a distributor and diffuser of the heat, by which the heat is prevented from being immediately concentrated in the upper part of the room, and a more even temperature is kept therein, cold air being supplied to this distributor, by a pipe conducting from the vicinity of the floor.

The figures of the accompanying plate of drawings represent my improvements.

Figure 1 is a front elevation of the apparatus. Fig. 2 is a horizontal section taken in the plane of the line A B Fig. 1 and Fig. 3 is a side elevation

a a a a is the fire pot which extends as high as the bottom of the door *b b* through which the fuel is fed. Said fire pot has at its bottom a circular grate *c c* eccentrically hung, the ashes being sifted through the spaces in the grate, by the bent lever *d*, in the way well understood where the lever grates are used. The ash pit *e e* is beneath

said grate *c c* and rests on the base or hearth plate *f f*. The fire pot is broad and shallow, having a smaller diameter at the bottom than at the top, and rests on an annular bed plate above the ash pit *e e*, which extends to the outer casing. This arrangement, which is shown by dotted lines in Fig. 1, leaves a space *h h* around the fire pot, which prevents the external air from coming in contact with the exterior of said pot, and keeps the fuel evenly ignited, causing slow combustion. The exterior casing *i i*, *k k*, and *l l* rests on the hearth plates, and, as above suggested, is formed into three branches, denoted by *i i*, *k k*, and *l l*, the branch *i i* being an ascending flue, the branch *k k* a descending flue, and that denoted at *l l* being again an ascending flue, and the whole casing, above the top of the fire pot, forming a radiator, which has a regular taper from the base plate *f f* to the mouth of the third branch *l l*, which should be large enough to allow the smallest escape of smoke to keep the fuel ignited. The three branches should be of about an equal length, and may have the relative position shown in Fig. 2, or any other desired arrangement, being joined together by arches which have a regular curve, or with joints in them, as shown in the drawings.

Out of or near the center of the first arched bend, projects the smoke pipe *m m*, shown by dotted lines in Fig. 2, for the direct draft in kindling, in which a damper is fitted at *n n*, so as to be very tight to be closed when the fire is kindled, and then the smoke, &c., is compelled to traverse the whole length of the radiator.

In or near the lower bend or arch, just above the base plate, is a door *o* Fig. 3, the object of which is, to remove the soot and ashes that may accumulate in the bend. This door also serves to ventilate the room when it becomes too warm or the air is impure, as by opening said door the air of the room will pass up through the branch *l l* and escape through its end or through the smoke pipe. The cap or distributor, above referred to, is represented at *q q*, and is of the shape of an inverted dish cover with a flaring edge *r r*, and extending down some 15 inches or more. It rests, by means of the supporters *s s*, shown by dotted lines in Figs. 1 and 3, on the top of the arch which connects the branches *i i* and *k k* of the radiator, and has a rectangular projection *t*, Fig. 3

in its rear which fits over the smoke pipe
m m. Cold air is supplied to this distributor
 by means of the long pipe *u u*, which ex-
 tends to a point near the bottom of the ap-
 5 paratus, its top opening into the distributor,
 about half way up the same. This current
 of cold air, thus introduced, expels the heat
 that is radiated and collected under the cap,
 causing it to descend and mingle with the
 10 currents in the lower part of the room, in
 other words, the cap catches the heat, and
 the current of cold air expels it, and diffuses
 the heat, making it mingle with the currents
 near the floor, in lieu of escaping immedi-
 15 ately after being radiated, to the ceiling.

It will be seen that the discharging mouth
 of the radiator at the end of the branch *l l*
 thereof, enters into the smoke pipe *m m*
 through which the smoke, &c., in the direct
 20 draft for kindling passes, by which arrange-
 ment, it will be seen, that the cold air will
 be exhausted from the radiator into the
 smoke pipe while the fire is being kindled,
 and the long draft through the radiator, be
 25 made more certain when the direct draft is
 closed.

The distinguishing peculiarity, herein-
 above described, of my improvements, viz.,
 the tapering of the radiator and forming it
 in branches as set forth, produces an effect 30
 of consuming entirely the gases, &c., without
 increasing the combustion of the fuel. This
 has been deemed a great desideratum in
 heating apparatus, and hitherto the consum-
 ing of the gas has been only effected by 35
 introducing jets of cold air to ignite the
 gases, but this increases the combustion and
 consumption of the fuel.

Having thus described my improvements
 I shall state my claims as follows. 40

What I claim as my invention and desire
 to have secured to me by Letters Patent, is—

Forming the tapering radiator produced
 by extending the fire chamber, as above set
 forth, in branches arranged with their center 45
 lines parallel to each other or nearly so and
 connected by arches, substantially in the
 manner above set forth.

GARDNER CHILSON.

Witnesses:

EZRA LINCOLN,
 HENRY F. CONANT.