No. 799,252. PATENTED SEPT. 12, 1905.

C. E. McPHERSON.

HEATER.

APPLICATION FILED AUG. 19, 1904.

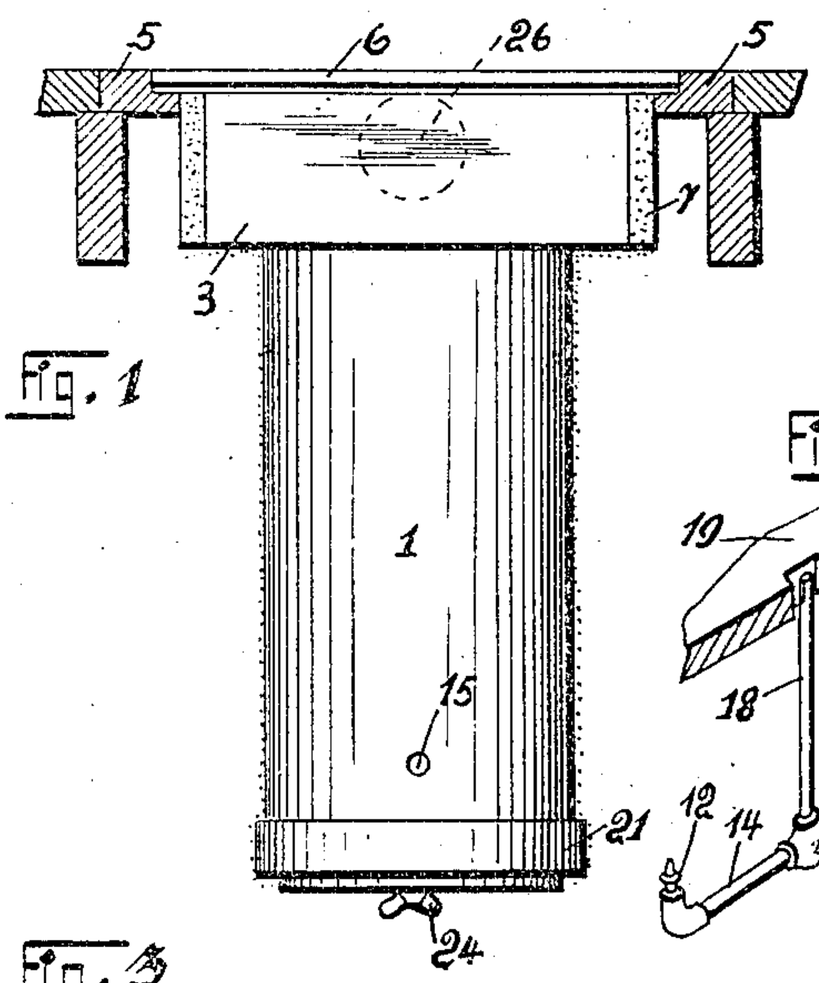

Fig. 1.

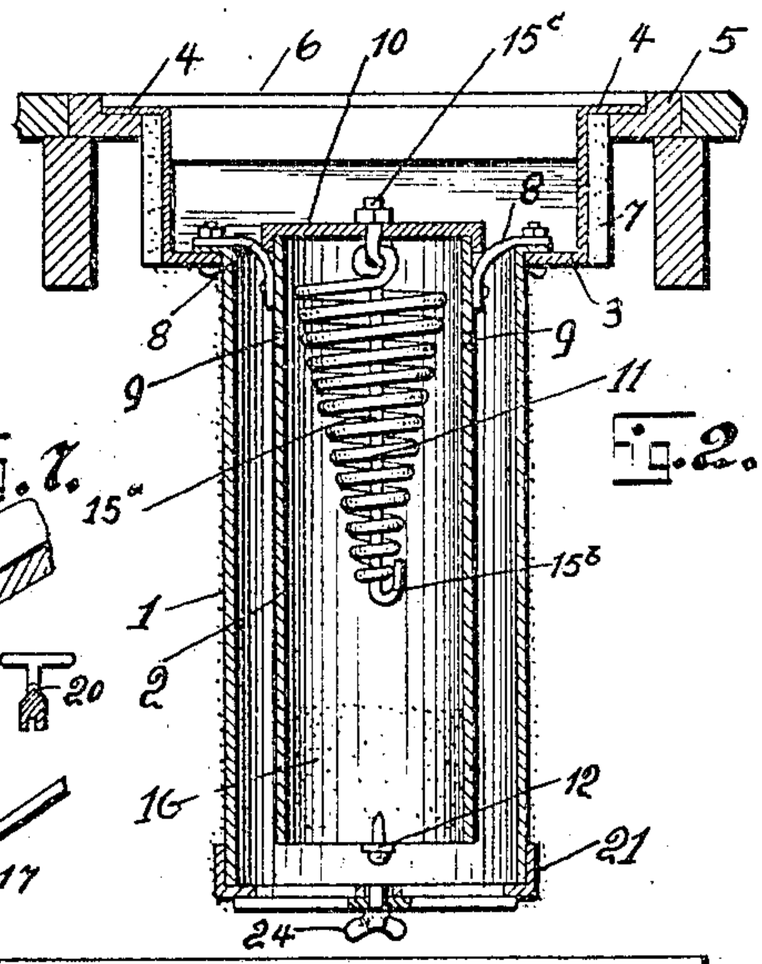

Fig. 2.

Fig. 7.

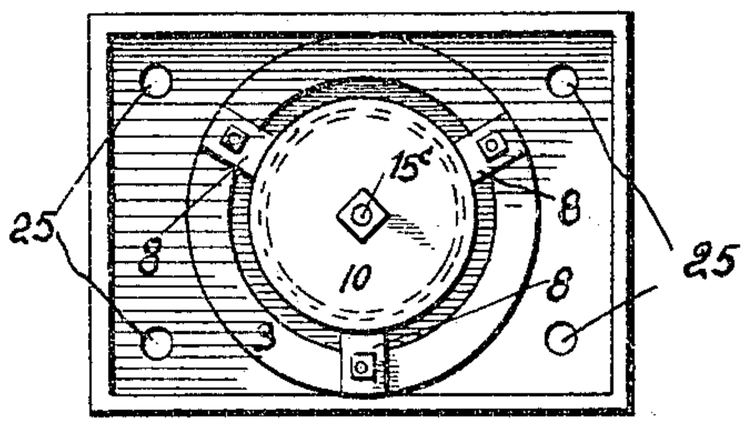

Fig. 3.

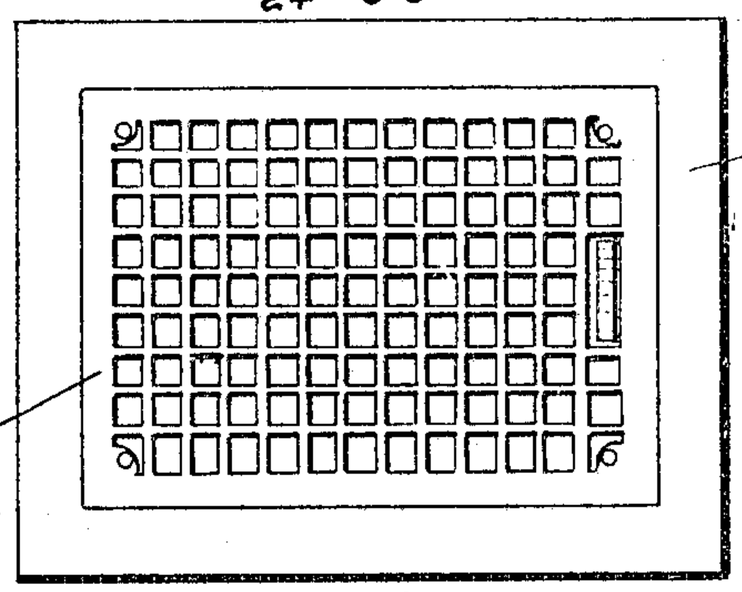

Fig. 5.

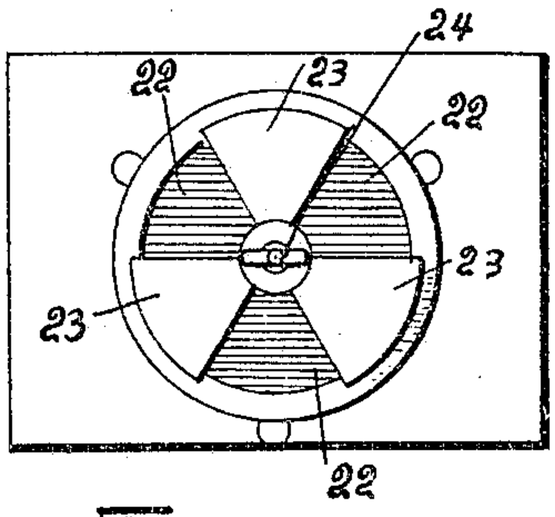

Fig. 4.

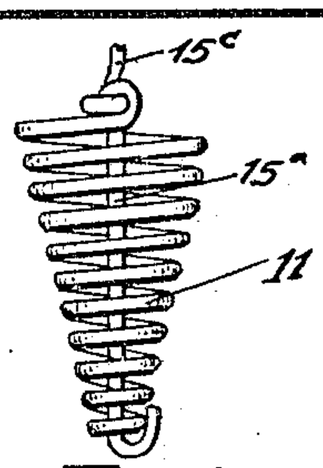

Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES E. McPHERSON, OF ALLEGHENY, PENNSYLVANIA.

HEATER.

No. 799,252. Specification of Letters Patent. Patented Sept. 12, 1905.

Application filed August 19, 1904. Serial No. 221,380.

To all whom it may concern:

Be it known that I, CHARLES E. McPHERSON, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to certain new and useful improvements in heaters, and more especially to that class in which gas is employed as a fuel; and the invention has for its object the provision of a heater adapted to receive its fuel from a gas-jet extending into the same and which may be advantageously used for the heating of halls or rooms by the disposal of the heater below the floor of a room or hallway to be heated.

Another object of this invention is to provide novel means for controlling the combustion of the fuel and for manipulating the heater, the construction employed to accomplish these results being of a simple nature and comparatively inexpensive to manufacture.

Briefly described, the invention comprises an inner and outer shell or casing, the inner shell or casing suitably supported in the outer one and having a closed upper end which carries a heating-coil, preferably in the form of a spiral cone. The outer casing is suspended from the box that is supported from the floor and is covered with the radiator-cover of the usual type or form of construction. The lower end of the outer casing is provided with a cap having openings formed therein, and upon this cap are mounted rotary shutters, whereby the combustion of the fuel within the heater may be controlled. A gas-jet extends through the outer casing and feeds into the lower end of the inner casing, and means may be provided whereby the controlling valve or cock of the gas-supply line may be operated from above the heater. Means is also provided for protecting the floor from the heat generated by the heater.

All of the above construction will be hereinafter more specifically described and then particularly pointed out in the claims, and in describing the invention in detail reference will be had to the accompanying drawings, forming a part of this application, wherein like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation of my improved heater, showing a portion of the floor in section. Fig. 2 is a central vertical sectional view. Fig. 3 is a top plan view of the heater with the radiator covering or grating removed. Fig. 4 is a bottom plan view of my improved heater. Fig. 5 is a top plan view of the floor-plate and a radiator covering or grating. Fig. 6 is a detached detail side elevation of the heating-coil, and Fig. 7 is a perspective view illustrating how the controlling valve or cock in the gas-supply line may be operated from above the heater.

To put my invention into practice, I provide an outer casing or shell 1, generally made cylindrical, though not necessarily so, and an inner shell 2, conforming in contour to the outer shell 1. The shell 1 at its upper end extends into a substantially rectangular box or frame 3, the side walls of which are turned over at their upper edges to form flanges 4, which rest upon shoulders provided therefor in the rectangular floor-plate 5, which floor-plate is also recessed or shouldered to receive the radiator covering or grating 6, which may be of the ordinary form having a shut-off or dampers so arranged as to be turned to permit the heat to escape into the room or shut off the heat from the room in the well-known manner. I preferably surround the box 3 with an asbestos covering 7, whereby to protect the adjacent wood from the heat. The inner shell or casing 2 is preferably of a less length than the outer shell or casing 1 and is suitably supported therein by the curved brackets 8, this inner shell or casing being provided with one or more openings 9 near the upper end to permit the escape of the products of combustion. On the upper end of the inner shell or casing 2 is fitted a cap or covering 10. This cap or covering has secured thereto a heating-coil 11, which in practice I have generally made of a copper rod wound in a spiral-cone form, the apex of the cone being downward and lying at a point directly above the mixer and burner 12, carried on the gas-supply line 14, which supply-line extends through an opening 15, provided therefor in the outer shell or casing 1. The heating-coil is supported by a rod 15^a, which passes vertically through the same and has its lower end provided with the hook 15^b, which

is adapted to engage the lower convolution of the heating-coil, while the other end thereof is engaged by the bolt 15°, which passes through the cap or cover 10 and has a nut secured upon its end. The supply-line 14 is beneath the lower end of the inner shell or casing 2, while the mixer and burner 12 project upwardly into said casing; but in order to prevent the inner casing from the direct action of the flames I provide the same with an interior covering 16 of asbestos or other heat-resisting material, and I preferably protect the periphery of the outer casing 1 and the lower edges of the box or frame 3 with a similar material. As the heater is generally lowered beneath the room or hallway which it is desired to heat, it is preferable to provide means whereby the same may be operated from above the heater, and to this end I attach to the stem of the valve 17 of the supply-pipe 14 a rod 18, adapted to project into the floor 19, whereby to be engaged and operated by a key 20 of a suitable form. When so operated, the controlling-valve 17 will be so arranged that when turned to close the same the valve will not be entirely seated, permitting sufficient gas to burn as a pilot-light in the mixer and burner 12. The lower end of the outer casing 1 is provided with a cap or cover 21, which is provided with a plurality of radiating triangular-shaped openings 22, and rotatably mounted on the cap or cover 21 are the shutters 23, which are operated by a winged screw 24. By the provision of this cap or cover 21 the amount of fresh air admitted to the casing may be governed by the position of the shutters in respect to the openings 22 22. The provision of a heating-coil 11 enables me to obtain a considerably greater amount of heat than would be possible with the shells or casings alone, this copper coil throwing off its heat, which passes upwardly through the radiator cover or grating.

The provision of the asbestos cover around the box 3 and around the casing prevents any danger of the wood adjacent to the heater becoming overheated. The bottom of the box 3 is generally provided with one or more openings 25. The gas-supply 14 is provided with a combined mixer and burner-top 12 upon its end, the mixer being so constructed as to effect a perfect mixing of the air and gas prior to its reaching the point of ignition to assist in effecting a perfect combustion, which is further assisted by the heat-producing coil 11.

In Fig. 1 I have shown, as at 26, how the connection may be made with the box 3 of a flue (not shown) should it be desired in any particular case.

While I have shown and described a practical embodiment of my invention as it is practiced by me, it will be noted that various changes may be made in the details of construction without departing with the spirit thereof.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a heater of the type described, the combination with a floor-plate countersunk in a floor, and a supporting-frame countersunk in the floor-plate and depending below the floor, of an outer shell or casing suspended from said frame, means on the lower end of said shell or casing for regulating the quantity of air fed to the shell or casing, an inner shell or casing suitably supported within the outer shell or casing and of less length than the latter, said inner shell or casing having a closed upper end and open lower end, a heat-resisting material on the inner face of the inner shell or casing adjacent the lower end thereof, and a fuel-supply extending through the outer casing and terminating at the lower end of the inner shell or casing centrally thereof.

2. In a heater of the type described, the combination of a suspended supporting-frame, two heating shells or casings arranged one within the other and supported by said frame, a conical heat-retaining coil arranged within the inner shell or casing, a fuel-supply leading to the lower end of the inner shell or casing, a burner and mixer thereon and projecting into the inner shell or casing, and means on the lower end of the outer shell or casing for regulating the quantity of air admitted thereto.

3. In a heater of the type described, a frame suitably supported, an outer shell fitting in said frame, a cover or lid secured to the lower end of said outer shell, said lid having openings formed therein, means for closing said openings, an inner shell supported by said outer shell, a lid for said inner shell, a heating-coil carried by said lid, and a fuel-supply communicating with the lower end of the inner shell, substantially as described.

4. A heater of the type described, comprising a frame suitably supported, an outer shell fitted in said frame, a cover secured to the lower end of said outer shell, said cover having openings formed therein, shutters rotatably mounted adjacent to said openings, an inner shell supported by the outer shell, a lid for said inner shell, a heating-coil carried by said lid, a fuel-supply communicating with the lower end of said inner shell, substantially as described and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES E. McPHERSON.

Witnesses:
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K. H. BUTLER.