No. 876,909. PATENTED JAN. 14, 1908.

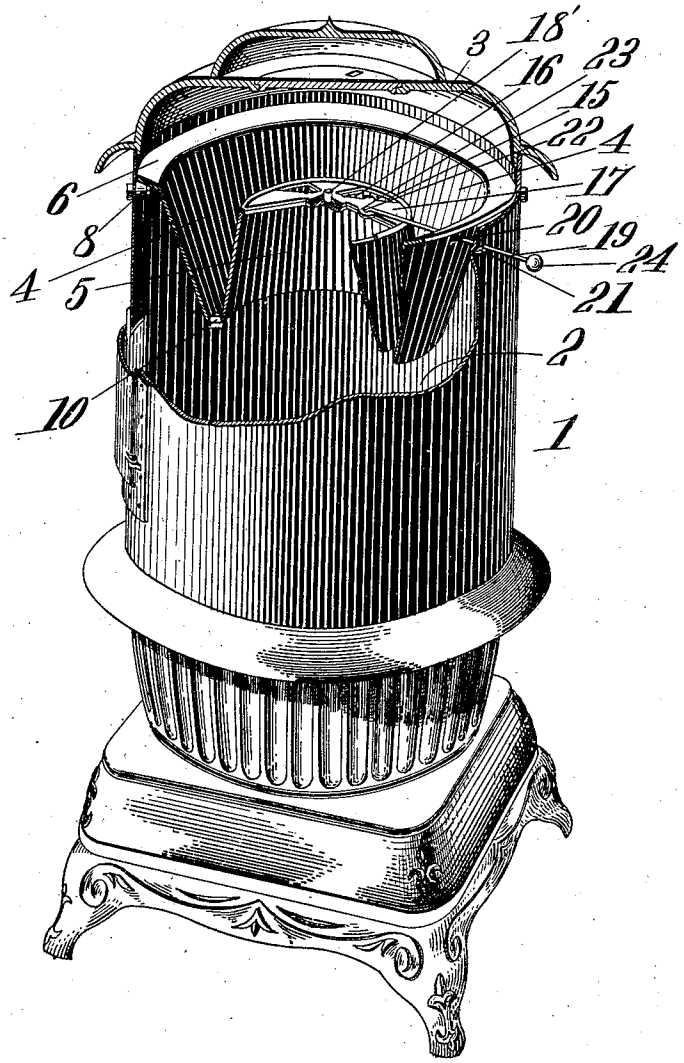
B. C. OBLINGER.

HEAT REFLECTOR.

APPLICATION FILED OCT. 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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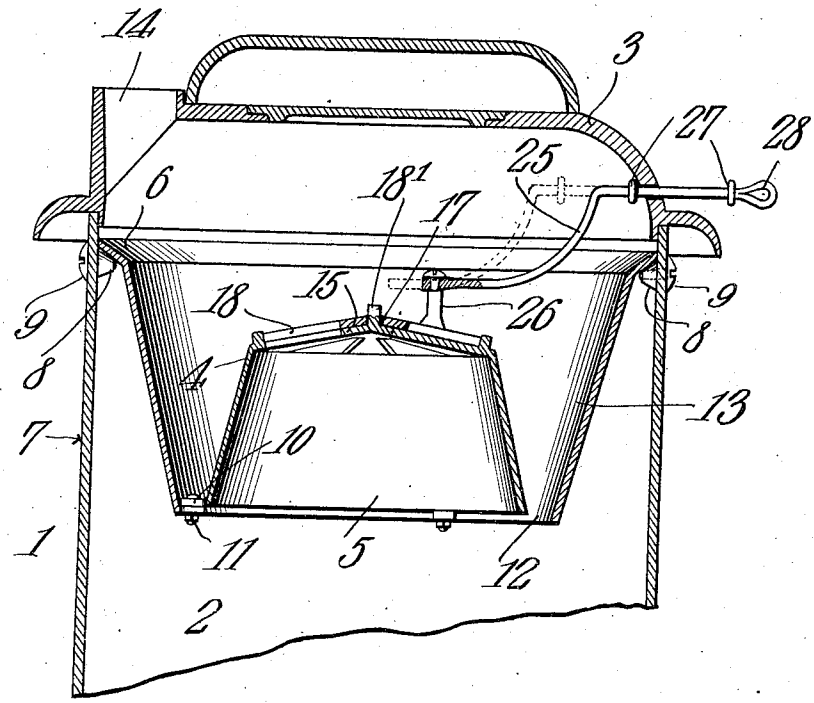
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APPLICATION FILED OCT. 3, 1906.

2 SHEETS—SHEET 2.

Fig. 2.



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BARRETT CLAUD OBLINGER, OF INDEPENDENCE, MISSOURI, ASSIGNOR OF ONE-HALF TO ALBERT HENRY CLAY BEATTY, OF INDEPENDENCE, MISSOURI.

HEAT-REFLECTOR.

No. 876,909. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed October 3, 1906. Serial No. 337,261.

To all whom it may concern:

Be it known that I, BARRETT CLAUD OBLINGER, a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented a new and useful Heat-Reflector, of which the following is a specification.

This invention relates to stoves and furnaces, and relates more particularly to heat reflectors for use in this connection, whereby either hard or soft coal can be economically and efficiently burned, the gases and unburned products of combustion rising from the fire being consumed within the combustion chamber of the stove, so that practically little or no waste energy passes off through the chimney.

As to certain of the features of the invention, the latter may be considered as improvements on heat reflectors of the type disclosed in the Letters Patent No. 706,996 of August 12, 1902, and No. 794,041, of July 4, 1905, granted to me jointly with Albert H. C. Beatty.

The invention has for one of its objects to simplify and improve the construction and operation of devices of the character referred to, so that they can be cheaply and simply manufactured and assembled in the stove and be made of a minimum number of parts.

A further object of the invention is to provide a heat reflector device which is so designed as to permit of its being readily applied as an attachment to stoves in common use without requiring any substantial change to be made in the stove, and without much difficulty and expense.

Another object of the invention is to arrange and proportion the parts so that the damper controlled draft outlet of the device may be of large area and located directly above the fire at the center of the device so as to provide a straight and short path for the products of combustion during the starting of the fire, thereby greatly facilitating the latter and preventing overheating of the wall of the stove casing as usually occurs with those stoves wherein the direct draft damper is arranged adjacent to one of the walls of the casing. Furthermore, the location of the damper is such that when the same is closed, it acts, in conjunction with the other parts of the reflector, for promoting the consumption of the gases and unburned products of combustion.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate certain of the embodiments of the invention, Figure 1 is a perspective view of a stove equipped with the heat reflector, the upper portion of the stove being partly broken away so as to better illustrate the structural features. Fig. 2 is a central vertical section of the upper end of a stove showing a reflector similar to that shown in Fig. 1, except that the actuator rod is of the longitudinally movable, or push and pull, type, instead of the lever form shown in Fig. 1.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawings, and more particularly to Figs. 1 and 2, 1 designates a stove of ordinary construction such as is commonly used for household heating, and 2 the combustion chamber thereof. Located in the upper part of the combustion chamber, and at a slight distance below the cover or top 3 of the stove, is the heat reflector. The reflector device comprises an outer hollow frusto-conical casting 4 and an inner hollow frusto-conical casting 5 supported on the outer member 4 and disposed with its taper extending upwardly and in the direction opposite to the taper of the outer member. At the top end of the outer member 4 is formed an upwardly flaring peripheral flange 6, whose periphery is shaped to fit the internal surface of the stove wall or casing 7. The flange or rim 6 closes the top end of the annular space between the member 4 and casing 7 and also serves as a means for supporting the reflector device in the stove. The reflector device is carried by a plurality of removable abutments arranged on the interior of the wall 7 at a suitable angle apart for the rim 6 of the outer member 4 to rest upon. These abutments are in the nature of tapering nuts 8 threaded on round headed bolts 9 that extend through openings in the casing 7 with their heads on the outside. These nuts afford a simple means for sup-

porting the reflector device in the stove and, furthermore, they can be readily applied to stoves in common use, so that the reflector device can be supplied as an attachment. When the reflector device is to be applied to a stove already in use, all that is necessary is to make holes in the wall of the stove to receive the bolt 9 for the supporting nuts 8. A reflector device having a rim 6 suitable for the shape and design of the stove is then assembled in the latter and held in place by the nuts. The reflector device is placed in the stove through the upper ends thereof, the cover 3 being, of course, first removed. The two concentric members 4 and 5 of the reflector device are preferably made as separate castings, although, if desired, they can be constructed of one piece. At their lower ends, the members 4 and 5 are provided with transversely extending lugs 10, the lugs on the member 4 extending inwardly and those on the member 5 extending outwardly, so that the latter may overlap those of the member 4. The lugs are provided with apertures through which pass the bolts or fastening members 11. These lugs thus serve to support the inner member on the outer, to hold them spaced apart and removably connect the members, so that the renewal of either one of the latter can be made without affecting the other. The lower ends of the members 4 and 5 are separated by an annular opening 12 that forms a throat that connects the combustion chamber with the annular space 13 between the members 4 and 5. The throat 12 is permanently opened, so as to constitute a natural draft outlet for the burned gases to normally pass through the device to the chimney opening 14 provided in the cover. The upper end of the inner member 5 is closed by a transverse wall or crown 15 which is preferably, though not necessarily, made integral with the said member. The wall or crown 15 is provided with a plurality of segmental ports 16 that are adapted to be opened or closed by a damper 17 of the register type having ports 18 adapted to be moved into or out of register with the ports 16 in the crown. The damper or valve 17 is slightly dished or crowned to fit the wall 15 and is provided with a central opening for receiving the pivot post 18′ extending upwardly from the center of the wall 15. The damper loosely rests on the wall 15 and is adapted to be oscillated about the post 18′ to open and close the ports 16. The ports of the damper mechanism constitute an auxiliary draft outlet whereby a larger draft can be afforded during the period from the lighting of the fire to the time when combustion is sufficiently under way that the damper may be closed without seriously checking the fire. When the damper is closed, the throat 12 forms the sole outlet, and before the gases and unburned products of combustion can pass through the throat, they are completely consumed.

The damper actuators shown in Figs. 1 and 2 are of different constructions, that of Fig. 1 being a lever, while that in Fig. 2 is a push and pull rod. Referring to Fig. 1, the actuator rod or lever 19 extends inwardly through the casing 7 and member 4 to the damper 17, the rod being of such a length that the outer end affords sufficient leverage to enable the damper to be actuated with ease. The member 4 of the reflector device is provided with an opening 20 through which the actuator rod extends and which forms a fulcrum for the latter. The opening 21 in the casing 7 is elongated to allow for the movement of the rod. The inner end of the rod extends over the damper and is hinged thereto by having its extremity 22 bent downwardly at right angles and loosely engaged in an apertured ear 23. Thus, by taking hold of the hand-hold 24 on the outer end of the actuator rod, and swinging the rod in one direction, the damper will be opened, and then, by swinging it in the opposite direction, the damper will be closed. The means for preventing the damper from moving too far during each of these movements will be described hereinafter in connection with Figs. 3 and 4.

The actuator shown in Fig. 2 comprises a longitudinally movable rod 25 that extends inwardly through an opening in the cover 3 and then curves downwardly and horizontally to a point over the damper where its inner end is connected with the upper end of the post 26 next to the damper. The connection between the rod 25 and the post 26 is such as to permit of the necessary freedom of movement for accomplishing the partial rotary motion of the damper by the inward and outward movement of the actuator rod. The actuator rod is provided with a means for limiting the opening and closing movement of the damper, which means may take the form of enlargements 27 arranged to abut the cover, one being located on the rod on the inside of the cover, and the other on the movable handhold 28 on the outside of the cover. Obviously, any other suitable stop device may be employed for limiting the movement of the damper.

From the foregoing description, taken in connection with the accompanying drawings, the operation and the advantages thereof and of the construction will be readily understood by those skilled in the art to which the invention appertains, so that further description is deemed unnecessary.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the apparatus shown is merely illustrative, and that various changes may

be made, when desired, as are within the scope of the invention.

What is claimed is:—

The combination with a stove, of a reflector device comprising a structure having a permanently open draft outlet and a ported wall arranged above the plane of the latter, a damper supported on the wall and rotatable on the vertical axis thereof for opening and closing the ports, stops on the wall, an actuating rod connected with the damper and having means for engaging the stops to limit the movement of the damper, a support having an opening through which the rod extends and in which the latter is fulcrumed at a point intermediate its ends, and a handhold on the rod at a point exterior of the stove.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BARRETT CLAUD OBLINGER.

Witnesses:
J. F. BUCHANAN,
L. T. DRYDEN.