July 25, 1950 H. E. WINKLER ET AL 2,516,285

SPACE HEATER HAVING HEAT-REFLECTING AND AIR-HEATING DEFLECTORS

Filed Sept. 13, 1947

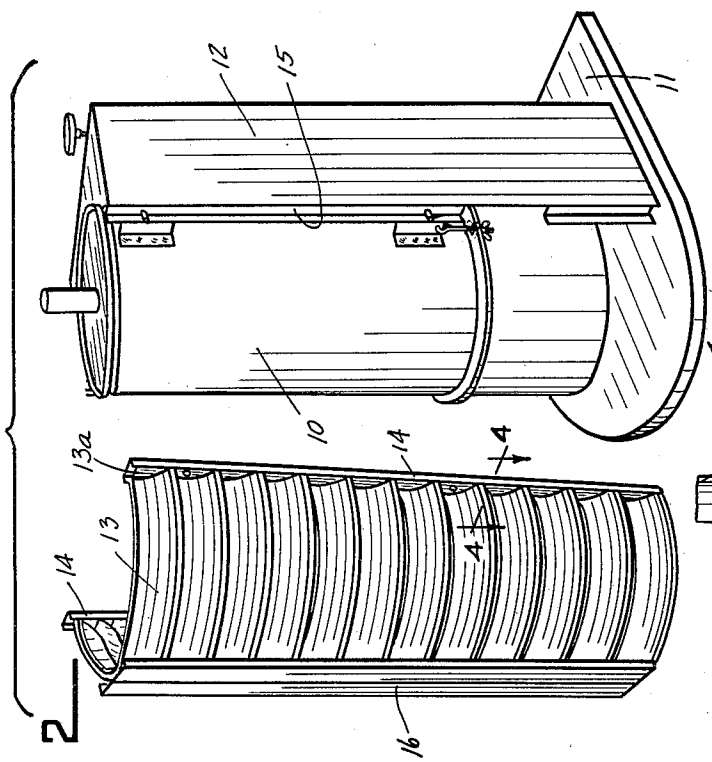



FIG. 2

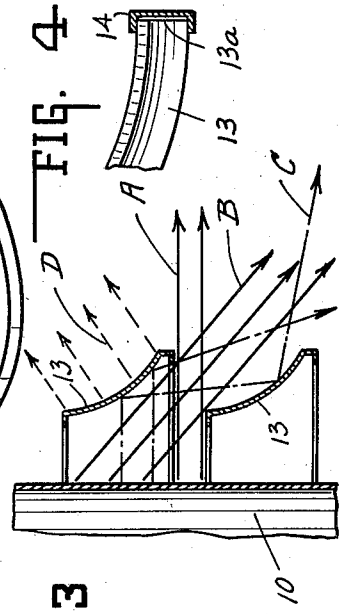



FIG. 4

FIG. 3

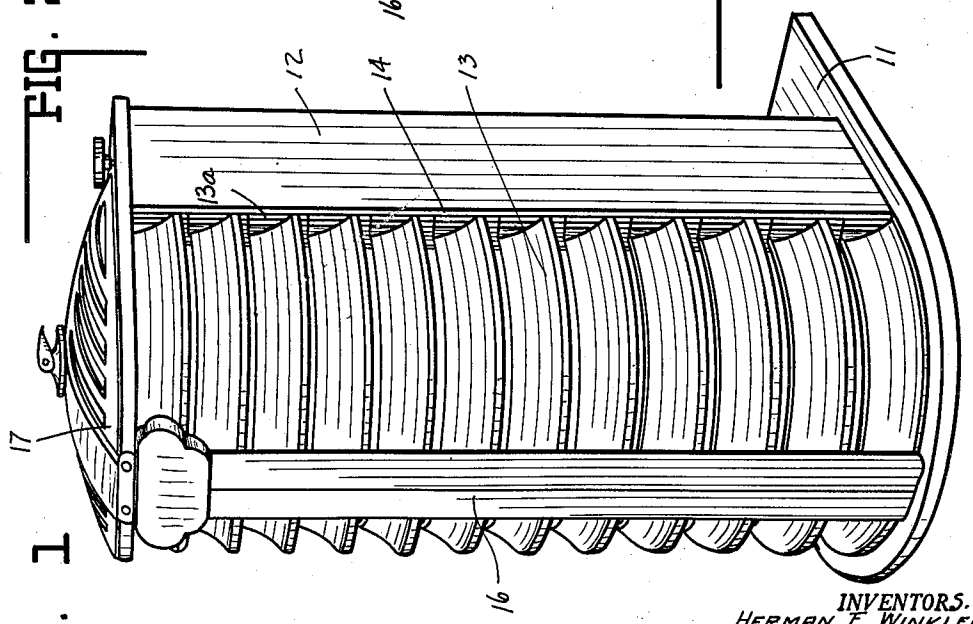



FIG. 1

INVENTORS.
HERMAN E. WINKLER.
CARL J. WINKLER.

BY

Lockwood, Goldsmith & Galt.

ATTORNEYS.

Patented July 25, 1950 2,516,285

# UNITED STATES PATENT OFFICE

2,516,285

## SPACE HEATER HAVING HEAT-REFLECTING AND AIR-HEATING DEFLECTORS

Herman E. Winkler and Carl J. Winkler, Lebanon, Ind., assignors to U. S. Machine Corporation, Lebanon, Ind., a corporation

Application September 13, 1947, Serial No. 773,850

4 Claims. (Cl. 126—67)

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This invention relates to a heat diffusing panel for space heaters in the form of a series of heat deflectors designed to increase the heating efficiency in the lower regions such as the floor of a room or the like through a combination of radiation and convection.

Space heaters having the usual louvers provided in the casing do not efficiently distribute the heat, particularly downward; but on the other hand they have the effect of directing the heated air upwardly without any appreciable radiation downwardly, so that the upper strata of air in a room is highly heated whereas the lower strata and along the floor of the room where heat is most needed remains relatively cool.

It is, therefore, the purpose of this invention to provide a heat diffusing panel mounted in front of the hot air drum of a space heater formed with a series of superimposed and spaced deflectors of substantially circular form adapted to direct the major portion of the radiant heat downwardly toward the floor with a minimum of upwardly and outwardly directed radiation. Thus, through the combination of radiant and convection heating the lower strata of the room receives a substantial portion of heat where it is most needed.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

Fig. 1 is a perspective view of a space heater showing the diffusing panel mounted thereon.

Fig. 2 is a view of a space heater and heating drum with the diffusing panel removed therefrom.

Fig. 3 is a diagrammatical illustration showing the deflectors of the panel in cross section and their relation to each other and the heating drum.

Fig. 4 is a section taken on line 4—4 of Fig. 2 with parts broken away.

In the drawings there is illustrated a space heater comprising a heating drum 10 in which heat is generated by the combustion of any suitable fuel, preferably fuel oil. Said drum is mounted upon a base 11 and is surrounded on one side by a back casing 12 spaced therefrom to provide an air circulating chamber. The usual oil burner feed is mounted at the rear of the casing 12 upon the base 11 feeding fuel oil to the burner within the drum 10.

Removably supported upon the base 11 and in interlocking relation with the casing 12 there is a diffusing panel formed of a series of superimposed and spaced deflectors 13. Said deflectors are each preferably semicircular and of substantially circular contour in cross section. They are each secured at their opposite ends to a sheet metal channel strip 14 adapted to engage and interlock with a flange 15 extending forwardly from each side of the casing 12. They are further supported intermediate their ends by a vertically extending decorative plate 16. The shields 13 have their ends flanged outwardly to provide wings 13a which abut against the inner surface of the channel strip 14 nesting between the side flanges thereof.

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Each of the deflectors 13 has its upper edge spaced substantially inwardly from the lower edge of the next adjacent superimposed deflector and slightly therebelow as best shown in Fig. 3. Thus spaced, the series of deflectors mounted one above the other form a semicircular diffusing panel which is held in proper spaced relation to and conforms with the curvature of the heating drum 10.

This arrangement of the deflectors is such that radiant heat from a small section of the drum is directed radially and outwardly between the upper and lower edges of adjacent deflectors as indicated by the arrows "A." From the major portion of the heating drum the direction of radiation may be downwardly between the upper and lower edges of adjacent deflectors in the direction indicated by the arrows "B." Such radiation from the major portion of the heating drum as may be directed substantially outwardly is intercepted by the convex curvature of the reflecting back surface of the deflectors which causes downward radiation onto the outer concave reflective surface of the deflector immediately below from which there is an outward and downward radiation by reflection as indicated by the arrows "C." The only upward radiation as indicated by the arrows "D" results from the heat imparted directly to the respective deflectors by horizontal radiation from the wall of the heating drum. Thus, substantially the greater portion of the heat generated by direct or reflected radiation will be downwardly and outwardly as indicated by the arrows "A," "B," and "C," and there will be relatively little heat transferred upwardly by the heat conduction through the respective deflectors as indicated by the arrows "D."

Mounted above the heating drum 10 there is provided a suitable dome 17 formed with a series of slotted openings which may be controlled by any suitable damper construction. Thus, the heater is effective for generating hot air by the

natural travel of air upwardly from between the deflectors 13 about the surface of the heating drum for discharge through the dome 17.

Therefore, it will be observed by reason of the heat diffusing panel having circular spaced deflectors 13, not only will the usual hot air be generated, but the major portion of the radiated heat will be directed outwardly and downwardly for effectively heating the lower spaces of the room.

The invention claimed is:

1. A space heater comprising a heating drum for the combustion of fuel, a back casing spaced therefrom to provide an air circulating chamber and a base therefor, the combination therewith of a heat diffusing panel surrounding the front portion of said drum in spaced relation thereto and secured at each side to said back casing, said panel including a series of superimposed deflectors spaced one above the other, each deflector being of substantially circular curvature in horizontal cross section and having a convex reflecting surface exposed to said drum for receiving radiant heat waves therefrom and directing them downwardly and outwardly.

2. A space heater comprising a heating drum for the combustion of fuel, a back casing spaced therefrom to provide an air circulating chamber and a base therefor, the combination therewith of a heat diffusing panel surrounding the front portion of said drum in spaced relation thereto and means for removably securing said panel to said back casing adjacent the vertical sides of said drum whereby said drum will be partially embraced thereby, said panel including a series of superimposed semicircular deflectors spaced one above the other, each of said deflectors being substantially circular in horizontal cross section and having a convex reflecting surface exposed to said drum for receiving radiant heat waves therefrom and directing them downwardly and outwardly.

3. A space heater comprising a heating drum for the combustion of fuel, a back casing spaced



therefrom to provide an air circulating chamber and a base therefor, the combination therewith of a series of superimposed deflectors secured to said back casing to extend over the forward portion of said heating drum in spaced relation thereto, said deflectors being spaced one above the other and each being substantially circular in horizontal cross section, the convex surface of each deflector being exposed to said drum for receiving radiant heat waves therefrom to direct them downwardly and outwardly.

4. A space heater comprising a heating drum for the combustion of fuel, the combination therewith of a surrounding casing spaced therefrom to provide an air circulating chamber, a portion of said casing including a series of superimposed deflectors spaced one above the other, each of said deflectors being substantially of circular curvature in horizontal cross section with its inner surface convex and its outer surface concave, said deflectors being so related as to emit horizontal radiant heat waves therebetween from said drum and deflect the heat waves received from said drum on their convex surface downwardly, a portion of said downwardly deflected heat waves being deflected downwardly from the outer concave surface of the next lower deflector.

HERMAN E. WINKLER.
CARL J. WINKLER.


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