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RADIATION DEVICE

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Fig. 1.

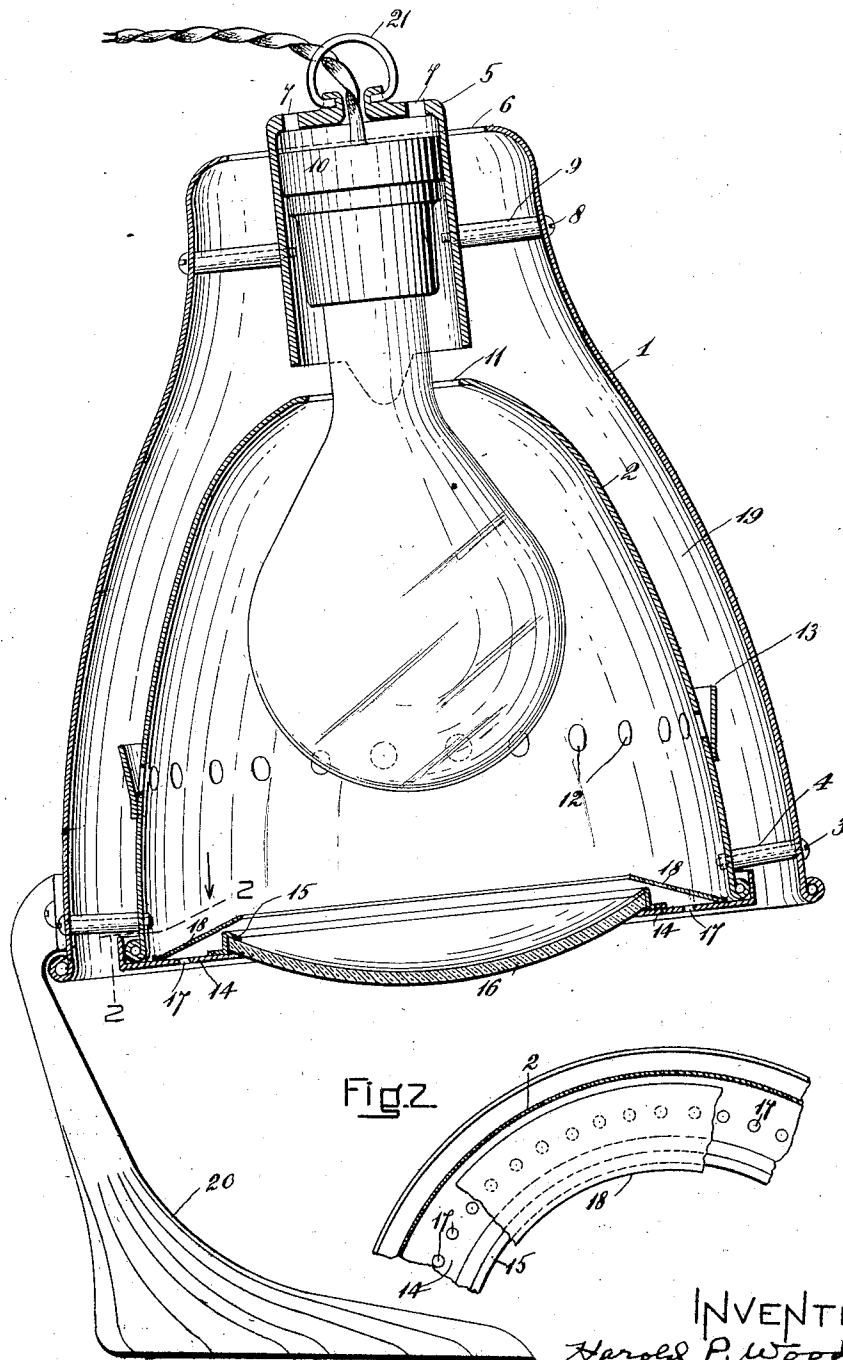


Fig. 2

INVENTOR:
Harold P. Wood
By *Geo. K. Woodworth*
ATTORNEY:

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RADIATION DEVICE

Harold P. Wood, Newton, Mass., assignor to
Inkset Products Inc., a corporation of Massa-
chusetts

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In the use of devices for detecting counterfeit bills, raised checks and the like by short-wave radiation, such as ultraviolet rays, difficulty has been experienced on account of the breaking of the ray filters, due to the excessive heat developed by the source of radiation.

The object of the present invention is to provide a radiation device having ray filter wherein the heat developed by the source will cause a current of fresh air to flow across the filter and preferably around the exterior of the hollow member which houses the source and supports said filter, thereby providing the device with a natural ventilation system and overcoming the difficulty aforesaid.

In the drawing which accompanies and forms a part of this specification,

Figure 1 is a vertical section of a radiation device embodying my invention; and

Fig. 2 is a fragmentary horizontal section taken on the line 2—2 of Fig. 1.

In this particular embodiment of my invention, 1 is a housing of any suitable material, herein shown as bell-shaped and flaring downwardly. Disposed within and spaced from said housing is a hollow member 2, said member being secured to said housing in any suitable manner. In the present instance the securing means are represented as a plurality of bolts 3 which pass through the bushings 4 to space the two members apart. The housing 1 is open at both ends and disposed within the same near the upper end thereof is a lamp-socket holder 5 which in the present instance is shown as projecting through the aperture 6 in the upper end of the housing, the diameter of said holder being less than that of said aperture. The holder, the upper end of which preferably is ventilated at 7, 7, is secured to the housing by the bolts 8 which pass through the bushings 9 to maintain the separation of the holder from the housing.

Preferably the lamp socket holder is formed of aluminum, or other material having a high degree of heat conductivity. Within the holder is disposed a lamp socket 10 in which is inserted a source of short-wave radiation, such as ultraviolet rays.

The hollow member 2 is provided with an aperture 11 at its upper end, said aperture being larger in diameter than the neck of the lamp to be inserted in the lamp socket.

Intermediate the ends of the member 2 are a plurality of circumferentially spaced openings 12, and an annular baffle 13 preferably upwardly flaring, is secured to the inner member immedi-

ately below said openings and terminates slightly above the plane thereof.

A flat ring 14 is secured in any suitable manner to the lower end of the inner member and supports the filter socket 15 in which is disposed the ray filter 16. The ray filter holder may be provided with more than one filter compartment for the reception of ray filters passing ultraviolet rays only and ultra violet rays with a variable amount of visible light, respectively, in accordance with the desired use of the radiation device.

Preferably the member 2 is constructed and arranged to act as a reflector for the rays radiated by the source.

The ring 14 is provided with a series of circumferentially spaced openings 17 and an annular baffle 18 inclined inwardly toward the filter and terminating above and spaced upwardly from the holder 15 is suitably secured to the ring 14.

The heat developed by the source of radiation would soon destroy the filters were it not for the arrangements above described whereby such heat itself automatically creates a flow of fresh air across the filter and around the exterior of the inner member 2. The heat of the lamp speedily raises the temperature of both the outer and inner bell-shaped members and thus induces a flow of fresh air upwardly through the passageway 19 and out through the opening 6, and such current is augmented by heat given off by the aluminum socket holder 5. The heated air within the member 2 is sucked by said air flow through the openings 12 and the aperture 11 into said passageway 19, thereby reducing the temperature within the hollow member 2.

The elevation of the temperature within the member 2 induces a flow of fresh air thereinto by way of the openings 17 and this current is directed to the peripheral portion of the filter and deflected across the latter by the baffle 18, thereby preventing the temperature of said filter from rising sufficiently to injure the same.

It will be noted that the baffles 12 and 18 are so constructed and arranged as to prevent the escape of light rays from the lamp chamber and still not impede the air movements above indicated.

It has been found in practice that with the arrangement above described it is feasible to employ a long-life, high-power lamp with the necessary ray filters without injury to the latter.

The provision of the inner member 2 with the openings 12 is not absolutely essential.

In use the radiation device may be secured to a stand 20 or suspended by the ring 21.

Having thus described an illustrative embodiment of my invention, without however limiting the same thereto, what I claim and desire to secure by Letters Patent is:

1. A radiation device comprising in combination two spaced bell-shaped members, a lamp socket holder secured to the outer bell-shaped member near the upper end thereof, the top of said outer bell-shaped member having an aperture larger in diameter than that of said lamp socket holder and said lamp socket holder projecting through said aperture, a lamp socket disposed in said lamp socket holder, the top of said inner bell-shaped member terminating below said lamp socket and having an aperture larger in diameter than the neck of the lamp to be inserted in said socket, a closure for the bottom of said inner bell-shaped member, said closure being provided with an aperture, a ray filter holder secured to said closure and covering the aperture therein, the inner bell-shaped member being provided with a plurality of circumferentially-spaced openings intermediate the ends thereof and an annular upwardly flaring baffle secured to the outer wall of said inner bell-shaped member immediately below said openings and terminating above the plane thereof.
2. A radiation device comprising in combination a housing provided with an aperture at its upper end, a lamp socket disposed within said housing near the upper end thereof, a lamp inserted in said socket, a hollow member disposed within said housing and spaced therefrom, said hollow member having an aperture at its upper end and terminating below said socket, the aperture in the upper end of said hollow member being larger in diameter than the neck of said lamp, a ray filter secured to and closing the lower end of said hollow member, said hollow member being provided with a plurality of circumferentially spaced openings intermediate the ends thereof and an annular baffle secured to the outer wall of said hollow member immediately below said openings and terminating above the plane thereof.
3. A radiation device comprising a hollow member constructed and arranged to house a source of radiation, a flat, annular member secured to the lower end of said hollow member, a filter holder secured to said annular member, said annular member being provided with a series

of circumferentially spaced openings and an inwardly inclined baffle secured to said annular member and terminating above said filter holder.

4. A radiation device comprising a housing, a hollow member disposed within and spaced away from said housing, the space between said housing and member being open at both ends and constituting a free and unobstructed passageway for air, a filter disposed at the lower end of said hollow member, and a baffle secured to the lower end of said hollow member and inclined toward said filter and spaced away from the periphery thereof, said hollow member being provided with a series of circumferentially spaced openings intermediate the ends thereof and the bottom of said hollow member having a series of circumferentially spaced apertures disposed below said baffle.

5. A radiation device comprising a hollow member, a source of radiation disposed therein, a filter disposed at the lower end of said hollow member, an air intake adjacent to said filter, and means for deflecting across said filter an influx of fresh air thermally induced by said source of radiation, said means comprising a baffle extending toward said filter and spaced away from the periphery thereof.

6. A radiation device comprising in combination a hollow member, a source of radiation disposed therein, a filter disposed at the lower end of said hollow member, means defining with said hollow member an unobstructed passageway for guiding around the exterior of said hollow member an influx of fresh air thermally induced by said source of radiation, an air intake adjacent to said filter, and means for deflecting across said filter another influx of fresh air thermally induced by said source of radiation, the means last mentioned comprising a baffle extending toward said filter and spaced away from the periphery thereof.

7. A radiation device comprising a hollow member, a source of radiation disposed therein, a filter disposed at the lower end of said hollow member, the lower portion of said hollow member having a series of apertures, and an inwardly-extending baffle disposed with respect to said apertures to direct to the peripheral portion of said filter an influx of fresh air thermally induced by said source of radiation, said baffle being spaced away from the periphery of said filter.

HAROLD P. WOOD.