

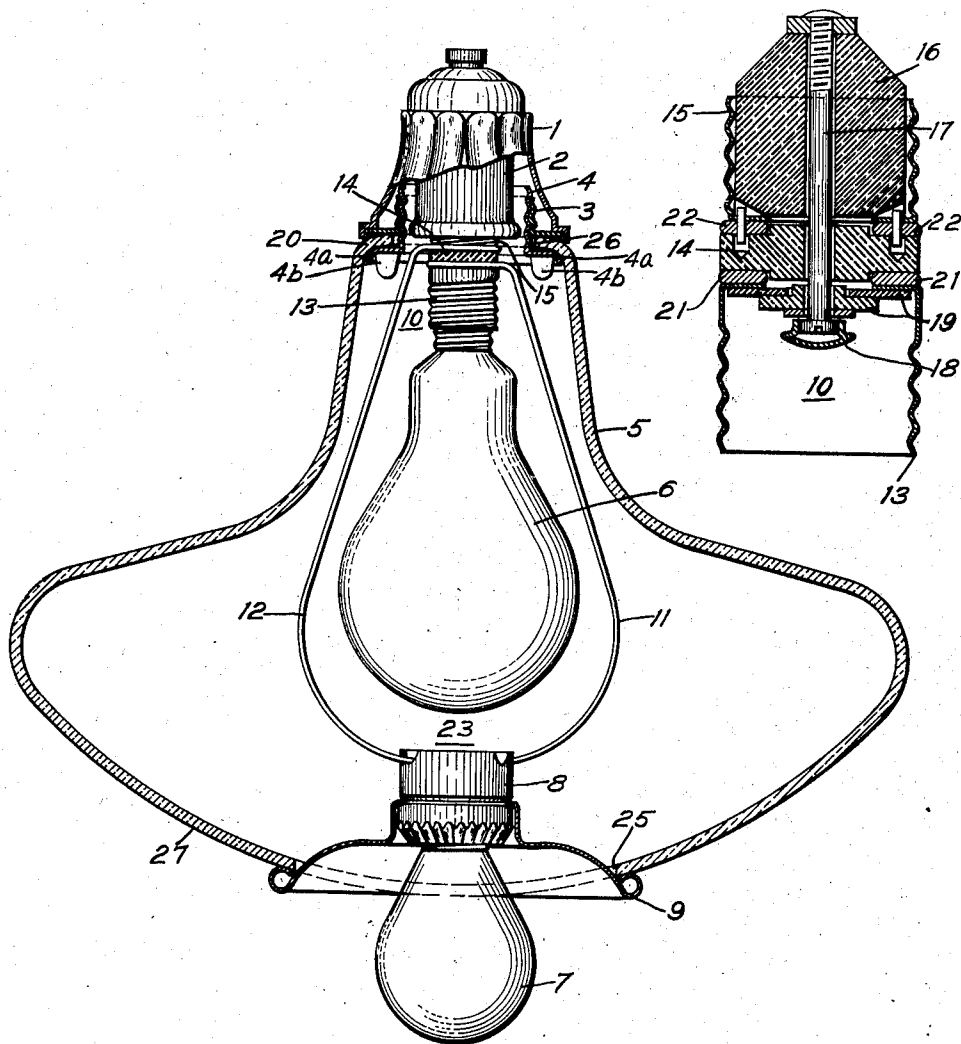
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ILLUMINATION APPARATUS
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Fig. 1.

Fig. 2.



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ILLUMINATION APPARATUS

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My invention relates to illuminating apparatus, and particularly to illuminating apparatus providing a combined source of incandescent illumination and invisible radiations, such as ultra violet or infra-red rays.

In order to avoid glare, any high intensity source of light must be enclosed in some diffusing medium or must diffuse the light by reflection. If the source of visible light is also a source of invisible radiations, it is necessarily either inefficient or expensive to provide proper diffusing means as practically all of the translucent diffusing media ordinarily employed are opaque to ultra violet and infra-red radiations and the common reflecting media for diffusing light by reflection; i. e. "indirect lights" are extremely poor reflectors of invisible radiation.

It is, therefore advantageous to separate the source of visible light from the source of invisible radiation, but it is desirable that these two sources should be mounted in one fixture which should preferably be of a type which may readily be used for illumination purposes only, or as a combined source of illumination and invisible radiations.

Devices have been developed for producing ultra violet radiation with an output of visible light so low that no glare exists. These may either be of low voltage or for ordinary circuit voltages.

It is obviously advantageous to construct a lighting unit for housing the two light sources which may be readily changed from a combined source of incandescent illumination and invisible radiation to a source of visible illumination without rewiring or detracting from the general appearance of the unit. Conditions of space utilization may change so that a room in which it was originally desired to have invisible radiations might be used for some purpose for which such radiations would be unnecessary or undesirable, but the lighting unit should be capable of meeting either requirement.

A further advantage is to provide a combined source of invisible radiations and incandescent illumination which may be used in conjunction with existing lighting units, without in any way changing the construction of the unit.

It is an object of my invention to provide a combined source of illumination and invisible radiations in a single lighting unit.

It is another object of my invention to provide a lighting unit which may be quickly and easily converted to provide incandescent illumina-

tion, or a combination of visible and invisible radiation.

It is another object of my invention to provide a unit combining incandescent and invisible radiations which may be adapted to many existing incandescent lighting units.

In the following description and drawing, a device is described suitable for use with a low voltage source of ultra violet radiation which is intended to be operated in series with an ordinary incandescent lamp from a normal house circuit. It will, however, be obvious to one skilled in the art that by simple modifications of the device hereinafter described, the incandescent lamp and the ultra violet source could be operated in parallel, or, if desired, the incandescent lamp could be operated on full voltage and a small transformer of suitable design could be mounted in a suitable location in the fixture, as for example, immediately above the reflector for the ultra violet unit. The primary of this transformer being connected to the supply circuit by separate leads or supports, and a low voltage ultra violet source could be operated from the secondary of this transformer. It is also apparent that a source of infra-red radiation may be substituted for the ultra-violet source.

Other objects and advantages of the invention will become apparent from the following description and drawing, wherein,

Figure 1 is a view partly in section and partly in side elevation of a lighting unit for use as a combined source of incandescent and invisible radiations, and

Fig. 2 is a detailed sectional view of a socket utilized in my invention.

Referring to the drawing for a detailed description of one embodiment of the invention, there is provided a husk 1 to which is attached a conventional screw-socket 2. Mounted interiorly of the husk and rigidly attached thereto is a screw-threaded shell 3 with which cooperates a threaded shell member 4 provided with an outwardly extending flange 4a. The globe or light diffusing member 5 may be of the shape shown, and is provided at its upper end with an aperture 26 and on its lower surface 27 with an aperture 25. The lower aperture is of a diameter sufficient to permit the insertion of a hand.

The globe is held rigidly in place by inserting the threaded member 4 through the upper aperture 26 with the flange 20 of the globe resting on the flange 4a of member 4. This member is then screwed into the shell 3, suitable ears 4b being provided on the shell member 4 for this

purpose, so that the flange 20 of the globe 5 is rigidly clamped between the flange 4a and the shell 3 as shown. It is understood that the globe is constructed of a light diffusing material of such a nature as to transmit only visible light rays while acting as a barrier to the beneficial but invisible ultra violet or infra-red rays.

In order to utilize such a lighting fixture as a source of both visible radiation and invisible radiation, it is necessary that the invisible radiation source be disposed outside the light-diffusing globe. I, therefore, provide a unit which may be readily attached to and detached from the fixture, and so constructed that the source of visible radiation is inside the globe and the source of invisible radiation outside the globe. This unit comprises generally a plug-and-socket 10 for receiving the incandescent lamp 6 and which fits into the socket 2 of the lighting fixture, and has suspended therefrom a socket 8 for receiving the ultra-violet or infra-red lamp 7 and supporting the same outside the globe 5.

The plug-and-socket 10, shown in detail in Fig. 2, comprises a plug 15 which screws into the socket 2, and a female threaded socket member 13 for receiving the incandescent lamp 6. A suitable material 16 insulates the male member 15 and the unit is fastened together by a bolt 17, the head 18 of which acts as the center contact for the lamp 6. The head 18 is insulated from the female member 13 by insulating pieces 19.

For series connections the elongated bars 11 and 12 are connected to the unit 10 as shown at 21 and 22, and make electrical contact with the male or female members 13 and 15. It is understood that these resilient bars may merely support the ultra violet or infra-red source assembly 23, and that other means may be used to energize the lamps 6 and 7 in parallel, series or multiple connections.

To insert the entire assembly, including the lamps 6 and 7, in the globe 5, the unit 10 is inserted first through the aperture 25 in the globe 5, and pushed upwardly. The male member 15 is then screwed into the socket 2. A means for giving turning moment to the assembly 10 is to mount the reflector 9 rigidly in the socket 8, and then turn the reflector until electrical contact of the male member 15 and the socket 2 is made. The reflector 9 will fit snugly against the globe 5, as the bars 11 and 12 are preferably bent so that they will act as a spring and pull the reflector upwardly. Changes in the size of the bars due to expansion when they are heated by the incandescent lamp are also taken up by their resiliency.

It will be readily seen that, in order to convert the unit shown in Fig. 1 from a source of combined incandescent and invisible radiation, the assembly 10 may be unscrewed and an incandescent lamp placed in the socket 2.

It will be seen from the foregoing description that I have invented a means for combining sources of incandescent and invisible radiations in an ornamental lighting unit which may be quickly and easily converted to a source of incandescent illumination only, or vice versa.

Although I have shown and described a specific embodiment of my invention, it is understood that modifications and changes may be made by those skilled in the art without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. A source of combined visible and ultra violet radiations comprising, a main socket, an in-

candescent lamp, a socket therefor, a male plug member attached to said socket to connect said socket to the main socket, a source of ultra violet radiation, means comprising elongated bars of current conducting material for supporting the ultra violet radiation source from the male plug member and for conducting current to the ultra violet source, and a globe supported by the main socket and enclosing the incandescent lamp and the supporting means for the ultra violet source, thereby to provide an enclosed source of visible radiations and an unenclosed source of ultra violet radiations.

2. In a lighting unit, in combination, an incandescent lamp, a main socket adapted to be connected to a source of current, a connector unit comprising plug and socket portions for connecting the incandescent lamp to the main socket, a globe having an opening in the bottom thereof and supported by the main socket for enclosing the incandescent lamp, an ultra violet lamp, a socket therefor, elongated bars of current conducting material for supporting the ultra violet lamp and its socket from the connector unit directly beneath the incandescent lamp in such manner that the ultra violet lamp extends through the opening in the globe, said elongated bars being disposed to conduct current to said ultra violet lamp, and means supported by said bars adapted to cover the opening in the globe and direct the radiations from the ultra violet lamp.

3. In a lighting unit, in combination, an incandescent lamp, a main socket, a light-diffusing medium supported by the socket and enclosing the incandescent lamp, an ultra-violet lamp, a socket for the ultra-violet lamp, and means disposed to engage the main socket for supporting the socket for the ultra-violet lamp in such position with respect to the light-diffusing element that the ultra-violet lamp is disposed externally thereof, said means including a socket for supporting the incandescent lamp and adapted to also connect the lamps electrically to the main socket.

4. In a lighting unit, in combination, an incandescent lamp, an ultra-violet lamp, a supporting socket disposed for connection to a source of current, a light-diffusing medium enclosing the incandescent lamp for directing the light radiations from said incandescent lamp, and means including spring-like supporting elements for connecting the lamps together, both mechanically and electrically, said means being adapted to cooperate with the supporting socket to connect the lamps to a source of current and to retain the incandescent lamp within the light-diffusing medium and the ultra violet lamp on the outside thereof.

5. In a lighting unit, in combination, an incandescent lamp, an ultra-violet lamp, a supporting socket disposed for connection to a source of current, a light-diffusing globe for directing the light radiations from the incandescent lamp and having an opening in the bottom thereof, a socket for the ultra-violet lamp, a reflector carried by said socket, a plurality of resilient members for supporting the socket for the ultra-violet lamp, and means for connecting the incandescent lamp to the supporting socket and for supporting said lamp within the globe, said resilient supporting members being secured to said connecting means, thereby to function as an electrical connection for the ultra-violet lamp and to support the ultra-violet lamp, its socket

and reflector in such manner as to position the ultra-violet lamp on the outside of the globe and to cause the reflector to close the opening in the globe.

5 6. In a lighting unit, in combination, an incandescent lamp, an ultra-violet lamp, a supporting socket disposed for connection to a source of current, a light-diffusing medium for directing

the light radiations from the incandescent lamp, and means including resilient supporting elements for connecting the lamps electrically in series circuit relation to the supporting socket and for supporting the incandescent lamp within the light-diffusing medium and the ultra violet lamp on the outside thereof. 5

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