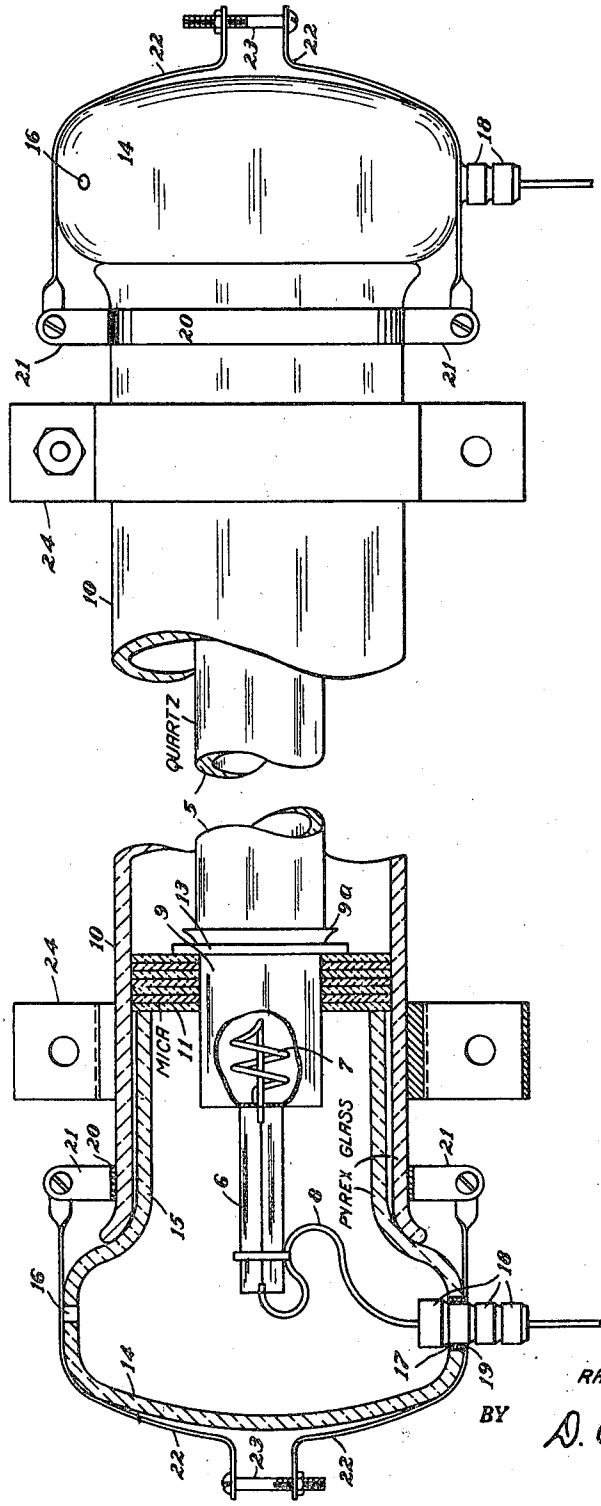
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QUARTZ LAMP ASSEMBLY

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QUARTZ LAMP ASSEMBLY

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This invention relates to a light source for use in machines utilized for the exposure of photosensitive sheets.

In machines of this kind and particularly in machines of the type illustrated in the Sullivan Patent 2,093,785, the photosensitive sheet or paper to be exposed, travels around a rotating cylinder of Pyrex glass having therein a light source extending along its principal axis. This light source in certain machines is preferably in the form of a high pressure mercury quartz lamp. Such a lamp generates harmful ultraviolet light waves and also generates considerable heat which, unless dissipated or diverted tends to shorten the life of the lamp.

The main feature of the present invention relates to a novel quartz lamp assembly in which the lamp is mounted within a transparent enclosure in such a manner as to filter out harmful ultraviolet light waves and in such a manner as not to shorten the life of the lamp.

Another feature of the invention relates to the novel arrangement for mounting of a quartz lamp within a transparent enclosure.

These features and others will appear from the detailed description and claims when taken with the drawing in which the single view is a side elevation of the lamp assembly of the present invention with parts thereof broken away.

In the drawing, the numeral 5 designates a cylindrical quartz tube of a high pressure mercury quartz lamp. This tube terminates at each end in a vacuum seal 6 through each of which seals there extends axially, a starting electrode 7, only the left end electrode being shown. The tube after being carefully evacuated is filled with a starting gas such as argon and with a few mercury droplets. Each electrode is connected to an insulated conductor 8, which conductors are connectable to a suitable electrical energizing source. Each end of the tube is provided with an end cap 9 provided with a peripheral flange 9a.

The quartz lamp is supported coaxially within a cylindrical Pyrex glass envelope 10 which is open at each of its flared ends. The Pyrex glass enveloped is provided primarily to assure the proper operating temperature for the quartz lamp since it has been found that with such proper operating temperature, the life of the lamp is greatly prolonged. The glass envelope also serves to confine objectionable ozone fumes since Pyrex glass, while it is highly transmittent to long ultraviolet rays important to printing, completely absorbs the short ultra-violet waves which generate ozone from the air.

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The lamp at each of its ends is supported within the enveloped by a set of annular supports 11 of mica or the like, the center openings through which are of a size to receive the end cap 9 mounted on the end of the quartz lamp. The diameters of these supports are such that they engage the inner surface of the envelope 10.

Each end of the envelope is closed by a Pyrex glass end cover comprising a head 14 and a reduced neck 15. The neck 15 is of such length that the mica supports 11 and washer 13 are snugly held against the flange 9a on the cap when the head 14 of the cover engages its related flared end of the envelope. Each head is provided with a ventilating hole 16 and with an aperture 17. Insulating beads 18 with suitable asbestos string 19 close the aperture 17, and provide protective insulation for each conductor 8.

Each end cover is held in place by clamping means. This clamping means comprises a split ring 20 embracing a flared end of the envelope. The ring is provided with diametrically located ears 21, each of which has pivotally supported thereon, a metal strip 22 shaped to extend over the head 14 where the perforated free ends of the adjacent pair of strips, receive a bolt 23 to clamp the strips together.

The lamp assembly is preferably mounted within the printing machine on spaced brackets 24.

The assembly of the present invention provides an arrangement wherein a glass envelope filters out the harmful short ultraviolet light waves generated by the quartz lamp and wherein the lamp is supported in a way to greatly prolong the life thereof.

What I claim is:

1. In a quartz lamp assembly, a lamp comprising a closed quartz tube having an ionizible medium therein, each end of said tube being provided with a vacuum seal having an electrode sealed therein to project into the tube, a conductor connected to each electrode externally of said tube, a shield comprising a cylinder of material having the property of passing long ultraviolet rays therethrough and of preventing the passage therethrough of short ultraviolet rays such as generate ozone from the air, said cylinder being open at both of its ends, said shield also comprising removable ventilating covers closing the open ends of said cylinder, and mica-like supporting means engaging the inner surface of each end of the cylinder, said supporting means also engaging each end of the tube.

2. In a quartz lamp assembly, a lamp comprising a closed quartz tube having an ionizible me-

dium therein, each end of said tube being provided with a vacuum seal having an electrode sealed therein to project into the tube, a conductor connected to each electrode externally of said tube, a shield comprising a cylinder of material having the property of passing long ultraviolet rays therethrough and of preventing the passage therethrough of short ultraviolet rays such as generate ozone from the air, said cylinder being open at both of its ends, said shield also comprising covers having necks fitting into the respective open ends of said cylinder to close the same, and supporting means having the periphery thereof engaging each end of the cylinder, said supporting means being held in position by the respective ends of said covers and engaging the periphery of each end of the tube.

3. In a quartz lamp assembly, a lamp comprising a closed quartz tube having an ionizable medium therein, each end of said tube being provided with a vacuum seal having an electrode sealed therein to project into the tube, a conductor connected to each electrode externally of said tube, a flange cap carried by the tube and encircling each electrode adjacent its seal, a shield comprising a cylinder of material having the

property of passing long ultraviolet rays therethrough and of preventing the passage therethrough of short ultraviolet rays such as generate ozone from the air, said cylinder being open at both of its ends, said shield also comprising covers having necks fitting into the respective open ends of said cylinder to close the same, and supporting means having portions thereof engaging each end of the cylinder, said supporting means engaging portions of each end of the tube and being held by the respective ends of said covers and by the respective flanges.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,951,124	Bol	Mar. 13, 1934
2,061,892	Burns	Nov. 24, 1936
2,103,085	McKeag	Dec. 21, 1937
2,258,765	James	Oct. 14, 1941
2,363,109	Keiffer	Nov. 21, 1944
2,404,002	Smith	July 16, 1946