Aug. 8, 1950 R. D. MOORE 2,518,048

SEALED PHOTOELECTRIC TUBE

Filed May 1, 1946

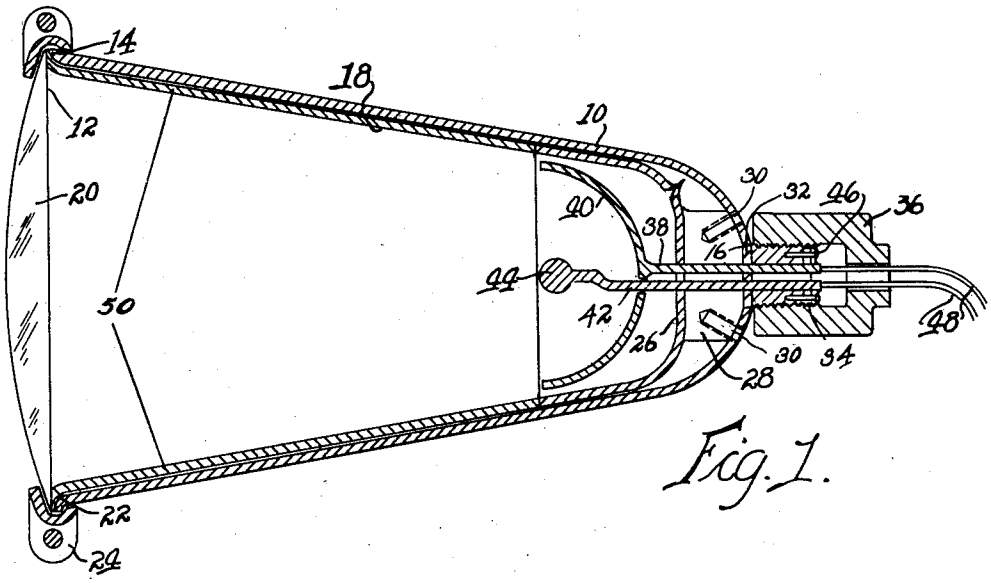


Fig. 1.

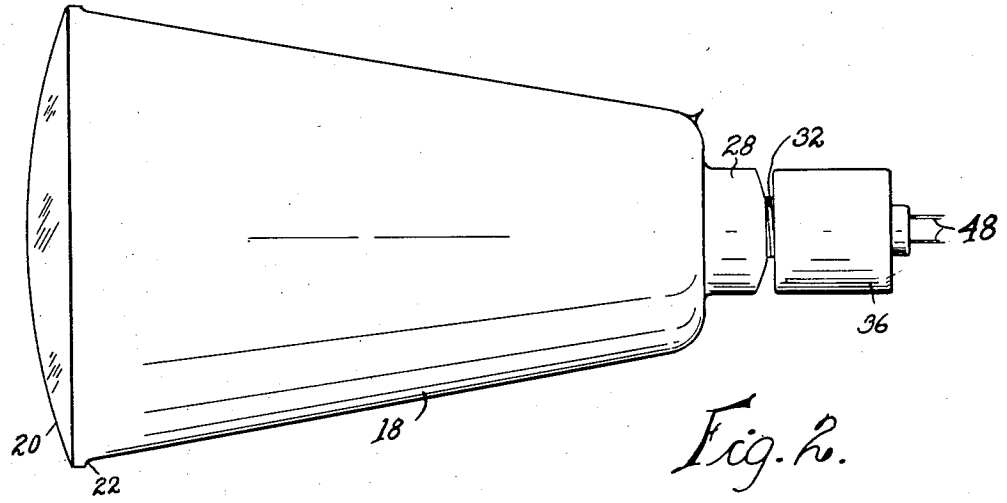


Fig. 2.

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SEALED PHOTOELECTRIC TUBE

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5 Claims. (Cl. 250—165)

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This invention relates to photo-electric tubes and more particularly to hermetically sealed photo-electric tubes for quick and easy installation of the entire unit as a single article, and including the tube, its supporting base, electric contacts, and reflector, completely sealed against dirt and vacuum exhausted.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a sectional view showing the unit installed in a supporting housing; and

Fig. 2 is a view in elevation of the unit.

Referring to Fig. 1, the character 10 indicates a housing of sheet metal or the like and adapted to be disposed where desired. This housing may be part of a permanent installation and is provided with a large forward opening at 12 defined by a flange 14 and a smaller rear opening 16. The removable and replaceable photo-electric unit comprises in general a housing or case 18 having a shape to fit the housing 10 in spaced relation thereto, and having a lens 20 sealed in airtight relation at the larger end thereof. The housing or tube 18 is a vacuum tube, exhausted as by conventional means. The housing 18 is flared at 22 to seat on the flange 14 and a channel clamp 24 is utilized to tightly bind the photo-electric unit to the housing 10 at the forward end.

Tube unit housing 18 converges rearwardly as shown and is closed as at 26 forming a support for a base plug 28 receiving screws 30 through housing 10, and this construction firmly anchors the unit at both ends to the housing 10, the base plug having a portion 32 just received in opening 16. The base plug is threaded as at 34 to receive a cap 36 which clamps the plug to the housing 10 upon being turned up.

Plug 28 receives and holds an electric connection 38 to an anode element 40 of the tube and another connection 42 to the cathode element 44. These connections are secured to contacts 46 receiving leads 48 through the cap 36. Housing 18 may be interiorly silvered between the lens and the photo-electric unit elements 40 and 44. The leads are sealed to and through the closed end wall of housing 18.

To remove the unit it is merely necessary to back off cap 36, detach leads 48, loosen clamp

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24, and extract the unit through the forward end of the housing 10, and it is just as quick and easy to insert and clamp the replacement unit.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than is set forth in the claims, but what I claim is:

1. A vacuum sealed photo-electric unit comprising a housing, an airtight translucent element closing the housing, photo-electric cathode and anode elements in the housing, a supporting plug carrying said elements, said plug being located exteriorly of the housing, and electrical connections through the plug to the elements, said translucent element being a light condensing lens.

2. A vacuum sealed photo-electric tube comprising a housing having a closed end, a supporting plug secured thereto and located exteriorly thereof, a translucent lens closing the housing at the opposite end, cathode and anode elements in the housing adjacent the closed end and facing the said translucent means, electric connections from said elements extending through the plug to the exterior thereof, said plug embodying means solidly supporting the tube elements in fixed relation.

3. A vacuum sealed opaque housing having an opening, a lens closing the opening, a light sensitive cathode and an anode mounted in a wall of the housing, leads to the anode and cathode from the exterior of the housing, clamping means detachably connected to the unit exteriorly thereof, and a second and larger supporting housing, the first housing being received therein and clamped thereto by said clamping means.

4. A vacuum tube comprising a housing open at one end and closed at the other end, a lens closing the open end, a pair of leads sealed into the housing wall at the closed end in fixed relation thereto, an anode and a cathode separately mounted on the leads in the tube, said leads extending exteriorly of the housing, and means preventing entrance of light into the tube except through the lens.

5. A vacuum tube comprising a housing having a closed and an open end, a lens sealed to and closing the open end, an anode and a cathode at the closed end, leads for the anode and cathode sealed into a wall of the housing and extending exteriorly thereof, a plug on the housing

solidly supporting the exteriorly extending leads, a supporting housing for the tube, said supporting housing having an open end receiving the lens end of the first housing and having an apertured closed end, the plug extending through the aperture, and a threaded cap for the plug clamping the two housings together at their closed ends.

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