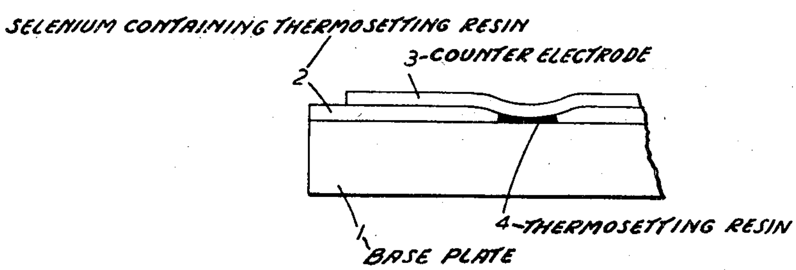
Oct. 25, 1949. F. GRAY 2,485,589

SELENIUM RECTIFIER AND PHOTOCELL

Filed May 9, 1946



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Patented Oct. 25, 1949

2,485,589

UNITED STATES PATENT OFFICE

2,485,589

SELENIUM RECTIFIER AND PHOTOCELL

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Application May 9, 1946, Serial No. 668,361
In Great Britain November 2, 1944

Section 1, Public Law 690, August 8, 1946
Patent expires November 2, 1964

4 Claims. (Cl. 175—366)

1

This invention relates to selenium cells such as electrical dry rectifiers or photo-cells and the term selenium cells as used herein embraces both of these types of apparatus.

One of the most prevalent causes of rejection during the manufacture of such rectifiers or cells is the existence of short circuits between the base plate and the counter electrode due to uneven spreading of the intervening layer of selenium, and to impurities in the selenium.

The best cure is, of course, to ensure a selenium layer of uniform thickness and free from impurities on all plates manufactured.

At present this is a counsel of perfection hard to live up to, and the object of the present invention is to provide a palliative which will largely prevent short circuits occurring even when the conditions which normally produce them are present.

According to the invention, a very small percentage of a thermo-setting resin, such as a phenol formaldehyde is mixed with the selenium before it is applied to the base-plate. The proportion is not critical, but 1–3% gives the best results.

The invention will be clearly understood from the following description taken in conjunction with the accompanying drawing which shows diagrammatically the action of the resin in preventing short circuits.

In the drawing, 1 is the base plate of nickel-plated mild steel, with roughened surface on which a layer of selenium 2 is formed in intimate contact therewith.

A counter-electrode layer 3 of a known alloy is sprayed or otherwise deposited on the selenium layer 2.

The selenium before being deposited on the base plate 1 in powder form is mixed with 1–3% of a thermo-setting resin such as phenol formaldehyde.

It has been found that if there is a thin spot in the selenium layer the resin tends to concentrate at the spot and form an insulating layer

2

as indicated by the reference character 4 in the drawing between the two electrode surfaces thus preventing a short circuit at the spot, but, so long as only a very small proportion of the surface is so insulated, having no deleterious effect on the performance of the rectifiers.

The remainder of the resin will be distributed in grains throughout the selenium as indicated.

It will be seen therefore that the admixture of a little resin powder with the selenium acts to minimise the rejections due to short-circuits.

What is claimed is:

1. In a selenium cell of the type wherein a layer of selenium is provided upon a metallic base element, the improvement that comprises including in the selenium layer a powdered thermosetting synthetic resin distributed throughout the selenium layer.

2. A selenium cell as defined in claim 1 wherein the thermo-setting synthetic resin is of the phenol-formaldehyde type.

3. A selenium cell as defined in claim 1 wherein the thermo-setting synthetic resin is present in an amount of one to three weight percent, based on the selenium.

4. A selenium cell as defined in claim 1 wherein the thermo-setting synthetic resin is of the phenol-formaldehyde type and is present in an amount of one to three weight percent, based on the selenium.

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