

April 21, 1931.

J. C. READ

1,802,185

MERCURY ARC RECTIFIER

Filed June 10, 1929

Fig. 1.

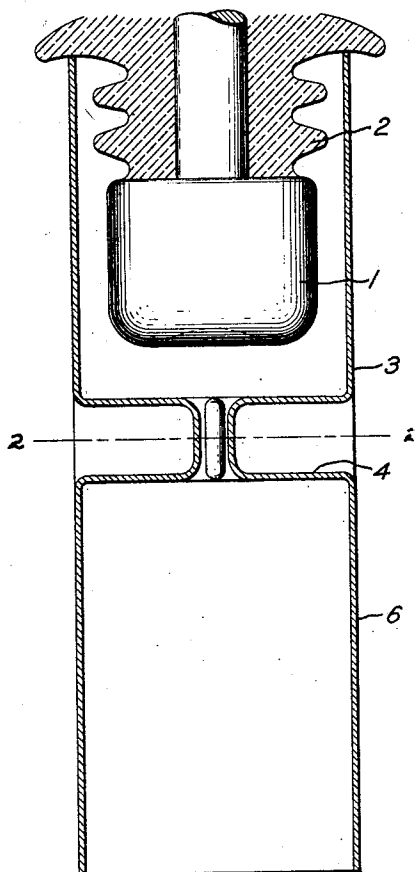
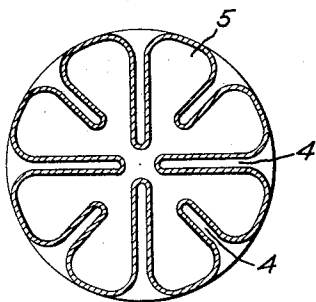


Fig. 2.



Inventor:  
John C. Read,  
by *Charles E. Fuller*  
His Attorney.

## UNITED STATES PATENT OFFICE

JOHN CARLEY READ, OF RUGBY, ENGLAND, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

## MERCURY-ARC RECTIFIER

Application filed June 10, 1929, Serial No. 369,874, and in Great Britain June 21, 1928.

My invention relates to mercury arc rectifiers and the like, and more particularly to apparatus for the prevention of arc-backs in such rectifiers. The invention consists of a special form of anode shield.

In carrying the invention into effect the anode is surrounded by an insulated anode shield which is of substantially cylindrical shape where it contains the anode. Below the anode, where the arc passes up along the shield to reach the anode, the shield is corrugated inwardly with corrugations substantially parallel to the direction of the arc. Below the corrugated portion the shield may be of cylindrical or conical cross-section.

With such an arrangement the tendency to arc-back is reduced.

The accompanying drawing illustrates, in Figs. 1 and 2, a typical form of my invention. Fig. 1 illustrates a vertical cross-section through the center of an anode shield built in accordance with my invention, and Fig. 2 illustrates a horizontal cross-section thereof taken on line 2—2.

In the drawing, 1 is the anode, which is introduced through the wall of the vacuum chamber of the rectifier through the insulator 2. The anode shield which may be carried on the insulator 2 is of cylindrical shape where it surrounds the anode, and surrounds the latter closely. Below the bottom of the anode the shield 3 is corrugated internally with radial corrugations 4, which are substantially parallel to the direction of the arc. As shown in the plan view, these corrugations leave spaces 5, through which the arc has access to the face of the anode. The depth of the corrugations in the direction parallel to the arc is only a few inches, and below this the anode shield may return to its original cylindrical form and extend downwards, as shown at 6. In some cases it may be advantageous to taper in the portion 6 at the bottom, slightly.

The best proportions may be found by experiment in any given case, but generally the distance from the bottom of the anode to the top of the corrugations will be about one inch, and the average width of the spaces 5 will also be of the general order of one inch.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An anode shield for vapor discharge devices provided with a plurality of corrugations arranged to extend inwardly from the walls of said shield and longitudinally thereof.

2. In a mercury arc rectifier, an anode, a cylindrical shield arranged to surround said anode and provided with a plurality of radial projections arranged below said anode to extend inwardly from the wall of said shield, said wall being corrugated longitudinally of said shield to form said projections.

3. In a mercury arc rectifier, an anode, a cylindrical shield arranged to surround said anode and provided with a plurality of inward projections arranged below said anode and above the open end of said shield, said shield being corrugated parallel to the direction of the arc flow in said rectifier to form said projections.

4. An anode shield for mercury arc rectifiers comprising a substantially cylindrical member provided with radial corrugations extending longitudinally of said shield and arranged to provide a plurality of spaces through a portion of said member for passage of the arc therethrough from the lower extremity of said member, the length of said spaces being substantially greater than their average width.

In witness whereof, I have hereunto set my hand this 22nd day of May, 1929.

JOHN CARLEY READ.