Patented Aug. 3, 1943 2,326,063

UNITED STATES PATENT OFFICE

2,326,063

MANUFACTURE OF ALTERNATING CURRENT RECTIFIERS

Leslie Hurst Peter, King's Cross, London, England, assignor, by mesne assignments, to The Union Switch & Signal Company, Swissvale, Pa., a corporation of Pennsylvania

No Drawing. Application March 17, 1942, Serial No. 435,085. In Great Britain February 21, 1941

2 Claims. (Cl. 175—366)

This invention relates to the manufacture of alternating current rectifiers of the selenium and like type comprising a base plate of sheet metal coated with a layer of a semi-conductor material the upper surface of which is provided with a counter-electrode layer of metal usually applied by a spraying operation.

In order to reduce the cost of manufacture it has previously been proposed to apply the semi-conductor material coating to a sheet metal base plate of sufficiently large area to provide a number of individual rectifier elements which are formed by cutting or stamping from the coated stock thus produced. The counter-electrode coating is either similarly applied to the whole surface of the coated stock or to selected portions only of this surface the remaining portions at which the separation of the stock into its component elements is effected being protected by a suitable mask during the application of the counter-electrode layer.

In the former case the component elements after sub-division are suitably treated to remove the counter-electrode coating from their edges, the object in both cases being to prevent any possibility of this coating from coming into electrical contact with the base plate.

In both processes of manufacture the elimination of the counter-electrode coating at the edges of the rectifier elements for the purpose above indicated evidently involves additional cost and the present invention has for its object to enable this to be avoided and satisfactory rectifier elements to be produced from a stock sheet of relatively large area in a simple and economical manner.

According to the present invention the coating of semi-conductor material is arranged to be of considerably greater thickness than has hitherto been usually adopted and the sheet stock thus coated with the material and after the contact or counter-electrode layer has been applied over the whole surface is merely separated into the desired individual rectifier elements by a cutting, punching or stamping operation it being unnecessary to remove the contact layer from these elements at their edges.

The rectifier elements can thus be formed from the sheet stock by a single operation and the cost and time occupied in manufacture is thus materially reduced.

In carrying the invention into practice the thickness of the layer of semi-conductor material is arranged to be greater than .005 inch as compared with the usual thickness of .003 to .004 inch and is preferably between .005 inch and .008 inch.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A process for the manufacture of alternating current rectifiers of the kind described comprising a base plate of sheet metal coated with a layer of a semi-conductor material the upper surface of which is provided with a counter-electrode applied by a spraying operation or otherwise in which the coating of semi-conductor material is arranged to be of considerably greater thickness than has hitherto been usually adopted and the sheet stock thus coated with the material and after the counter-electrode has been applied over the whole surface is separated into the desired individual rectifier elements by a cutting, punching or stamping operation, substantially as and for the purpose specified.

2. A process as claimed in claim 1 in which the thickness of the layer of semi-conductor material exceeds .005 inch, for the purpose specified.

LESLIE HURST PETER.