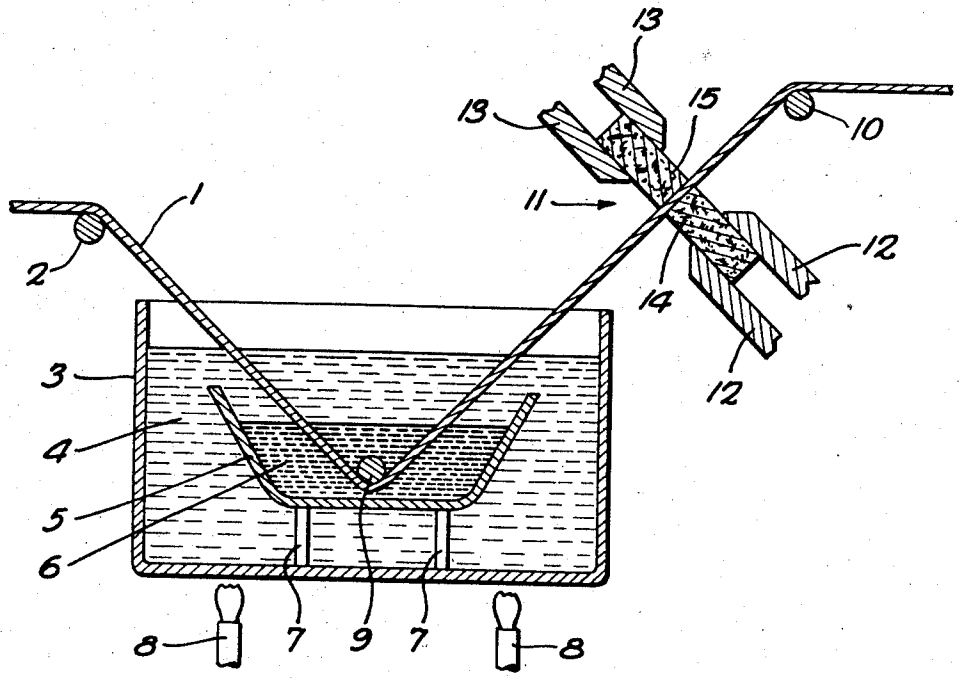
Feb. 10, 1948. J. J. BALEY 2,435,766

WIPER FOR USE IN METAL PLATING APPARATUS

Filed April 11, 1944



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Patented Feb. 10, 1948

2,435,766

UNITED STATES PATENT OFFICE

2,435,766

WIPER FOR USE IN METAL PLATING APPARATUS

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Application April 11, 1944, Serial No. 530,443

2 Claims. (Cl. 91—59.4)

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This invention relates to metal plating apparatus and more particularly to a wiper for use in a tinning apparatus.

In the tin plating of thin strips, the strip, in passing through the bath of tin, does not always leave the tin evenly dispersed over its surface and, in the past, wiping devices of various materials and in various constructions have been provided. For example, wiper strips made of brass wire and asbestos compacted into strip form have proven useful on heavy strip material, but when the material being plated is relatively thin, the coating shows undesirable streaks or lines. Similarly, soft asbestos rope pressed against the strip will, for a short time, effectively wipe off excessive tin from thin strips and produce a satisfactory product, but tin and flux from the bath penetrate the asbestos fibers and harden therein and, in a short time, its usefulness is destroyed.

It is an object of the present invention to provide a simple and effective apparatus for applying a smooth metallic plating on strip material.

In accordance with one embodiment of the present invention, an apparatus is provided for applying a smooth coating of tin on a thin metallic strip by passing the strip through a bath of tin in a container completely enclosed in a bath of molten fluxing material and then passing the strip through a wiper comprising two strips of asbestos impregnated with graphite positioned to engage opposite sides of the strip as it emerges from the fluxing material.

In the accompanying drawing, the single figure illustrates diagrammatically a wiping device embodying the present invention as applied to a tinning apparatus.

A strip of material 1, to which a plating of tin is to be applied, may be fed over a roller or other suitable guide member 2 into a container 3 containing a supply of fluxing material 4. The container 3 has positioned in it a smaller container 5, which is completely submerged in the bath of fluxing material 4 and which contains a supply of molten tin 6. Any suitable means may be provided for supporting the tin container 5 in the container 3. For example, it may be mounted upon legs 7—7 resting on the bottom of the container 3. The container 3 may be heated by any suitable means, for example, by gas flames 8 impinging on the container 3 to maintain the flux bath in a molten state and also to maintain the tinning bath in a molten state. Suitably positioned adjacent the bottom of the container 5 is

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a guide member 9, under which the strip of material 1 to be plated may be passed.

Mounted in any suitable manner and positioned intermediate the guide member 9 and a suitably supported guide member 10 is a wiper 11 for preventing an excess of tin from accumulating on the strip of material. The wiper 11 is so formed and positioned that opposed portions of it will engage the opposite surfaces of the sheet material which has been passed through the tin bath and which is drawn through the tin bath and over the guide member 10 by any suitable takeup device. The wiper 11 comprises two pairs of clamping jaws 12—12 and 13—13, which may be of any suitable construction to hold the wiper elements 14 and 15, respectively, in engagement with the lower and upper sides of the strip of material 1.

In the preferred form of the invention, the wiper elements 14 and 15 are of the same construction and are composed of asbestos impregnated with graphite formed into a block or strip which may be held in the clamping jaws 12—12 and 13—13 and positioned to bear against the opposed surfaces of the strip of material. Any suitable vehicle may be employed in impregnating the asbestos with the graphite and, preferably, a material is used which will not be deleterious to the tin coating. A highly suitable form of vehicle for carrying the graphite into the fibers of the asbestos comprises a mixture of petrolatum, a low melting point wax, having a melting point of approximately 51° C. It has been found that by impregnating asbestos with a mixture of finely divided graphite in a vehicle as described hereinbefore, a wiper is provided which will wipe excess tin from the strip and the tin will be prevented from penetrating the asbestos wiper. By means of the just described apparatus, a smooth plating may be applied to very thin strip material which, unlike heavier strip material, will not retain sufficient heat after passing the wiper 11 to maintain the tin plating fluid enough to flow and smooth out scratches or streaks made by ordinary wipers.

What is claimed is:

1. In a plating apparatus, a wiper assembly for removing excess molten metal from a plated strip comprising cooperating blocks of graphite impregnated asbestos, and means for supporting said blocks in engagement with opposite surfaces of the strip.

2. In a tin plating apparatus, a wiper assembly for removing excess tin from the material

being plated comprising a block of asbestos impregnated with graphite disposed to effect wiping engagement with a surface being plated, and block engaging members for supporting the block in wiping engagement with a surface being plated.

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