

Aug. 9, 1932.

H. S. LAMB

1,870,577

METHOD OF HEAT TREATING STRIP MATERIAL

Filed March 17, 1930

Fig. 2.

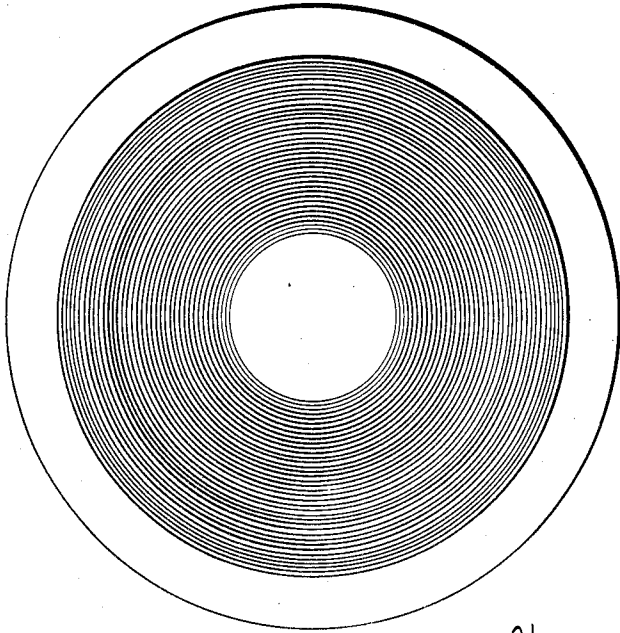


Fig. 1.

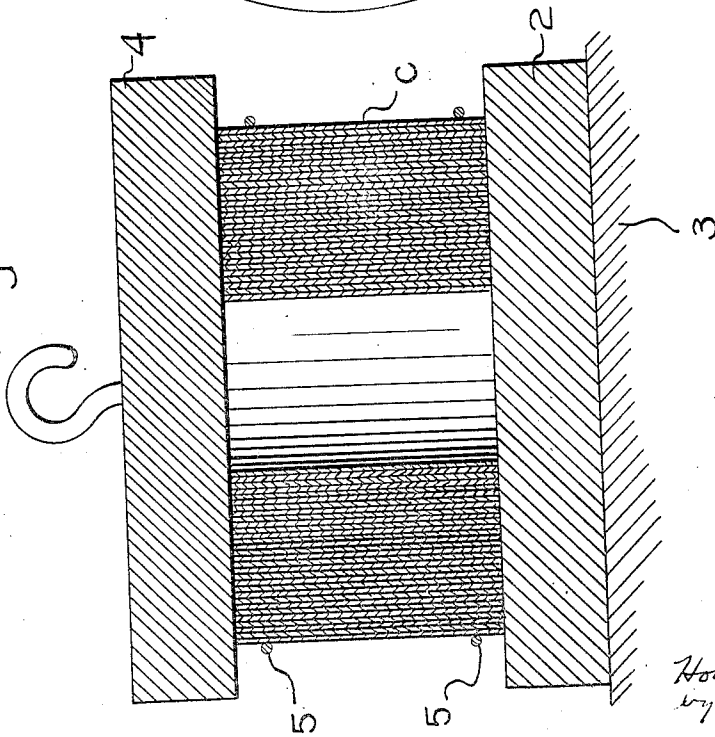
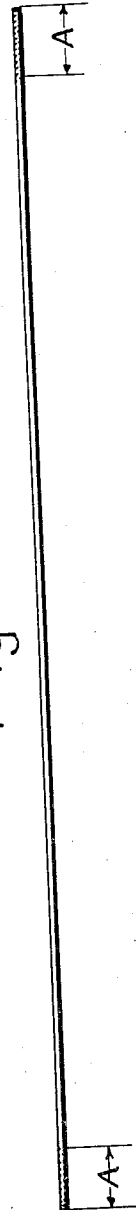


Fig. 3.



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UNITED STATES PATENT OFFICE

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METHOD OF HEAT TREATING STRIP MATERIAL

Application filed March 17, 1930. Serial No. 436,513.

This invention relates to a method of heat treating strip material, and particularly to a method of heat treating the edge portions only thereof.

In certain operations involving sheet metal, it is necessary that the same be relatively soft, but the character of the operation is such that the edge portions only need be softened. For example, in the manufacture of tin cans it may be desirable to soften the edges so as to put the metal in condition suitable for forming the can seams. However, a stronger can be obtained if the body of the metal is not softened.

Where coating operations are performed, difficulty may be encountered in heat treating the article prior to the coating operation proper, or if the metal is bright, it may be and usually is desirable that the heat treatment be effected without causing oxidation of the surface. Various schemes for bright annealing have been proposed but all of them are open to numerous objections, and, in general, are not satisfactory for the purposes intended.

I provide for coiling the material and subjecting the edges to heat while the material is in coiled form. For example, a tightly formed coil of material may be laid upon a heated body, as, for example, a heavy metal plate. The heat from the plate raises the edges of the coiled strip above the annealing temperature, and after cooling, the strip edges will be found to have been annealed without any impairment of the surface quality of the material. By reason of the coiling, the hot metal, except the outer and inner wraps of the coil, is not exposed to the atmosphere. The width of the edge strip which is annealed may be controlled by controlling the amount of heat applied, as, for example, by using hot bodies of different size or temperature.

In the accompanying drawing illustrating

a present preferred embodiment of the invention,

Figure 1 is a transverse section through a coil showing the manner of applying the heated bodies thereto;

Figure 2 is a top plan view with the upper plate or body removed; and

Figure 3 is a diagrammatic view illustrating the product.

Referring to Figures 1 and 2, there is shown a coil "C" of strip metal, the edges of which it is desired to anneal. The coil is laid on edge on a heated metal plate 2 mounted on a non-conducting base 3, and a hot metal plate 4 is also placed on the top of the coil. The heat capacity of the plates 2 and 4 is such that the edges of the coiled strip are raised to the desired annealing temperature. The coil may be maintained tight by means of tie wires 5 so that no parts of the coil, except the inner and outer laps, are exposed to the atmosphere. After the plates have cooled, the top plate is taken off and the coil is removed.

In Figure 3 I have diagrammatically illustrated a piece of my material in end elevation, the annealed edges being indicated at "A".

I have illustrated and described a present preferred embodiment of the invention. It will be understood, however, that it is not limited to the form shown but may be otherwise embodied or practiced within the scope of the following claims.

I claim:

1. In the method of heat treating strip material, the steps consisting in applying a heated body to a face of a coil of material, which face is constituted of an edge of the coiled material.

2. In the method of annealing the edge of strip metal, the steps consisting in forming the same into a coil and subjecting a face of the coil, which face is constituted of an

edge of the coiled material, to an annealing temperature.

3. In the method of heat treating strip material the steps consisting in closely winding the material into a coil and applying to each side face of the coil, which side faces are constituted of the edges of the coil material, heated bodies which raise the temperature of said edges, the heated bodies having a surface closely contacting with the side faces of the coil so as to substantially exclude air from the main body of the coil.

In testimony whereof I have hereunto set my hand.

HOWARD S. LAMB.