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 [21] Appl. No. **792,914**
 [22] Filed **Jan. 22, 1969**
 [45] Patented **Feb. 2, 1971**
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 [32] Priority **Jan. 22, 1968**
 [33] **Great Britain**
 [31] **3217/68**

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[54] **FINISHING MACHINE FOR USE IN THE
 PRODUCTION OF BATTERY PLATE GRIDS**
1 Claim, 2 Drawing Figs.

[52] U.S. Cl. **83/117,**
83/345, 83/903

[51] Int. Cl. **B26d 7/06**

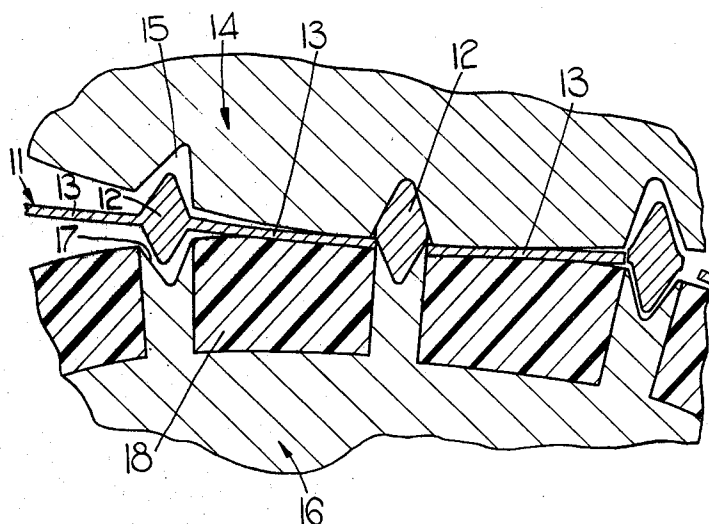
[50] Field of Search **83/903,**
117, 116, 345, 670, 673, 923; 29/2

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ABSTRACT: A finishing machine for use in the production of battery plate grids comprises a pair of rollers between which the grid is passed. One of the rollers contains an impression of the grid which conforms substantially with the face of the grid being presented to that roller, and the other roller contains projections which correspond with the interstices of the grid. The parts of said one roller which correspond to the interstices of the grid are constituted by resilient inserts so that in use as the grid is passed between the rollers the frame and the members of the mesh network of the grid will be received in the impressions of the grid in said one roller and the spaces between the projections of said other roller. The projections of said other roller will enter the interstices of the grid and in so doing will sever fillets of material closing the interstices from the frame and mesh network of the grid.



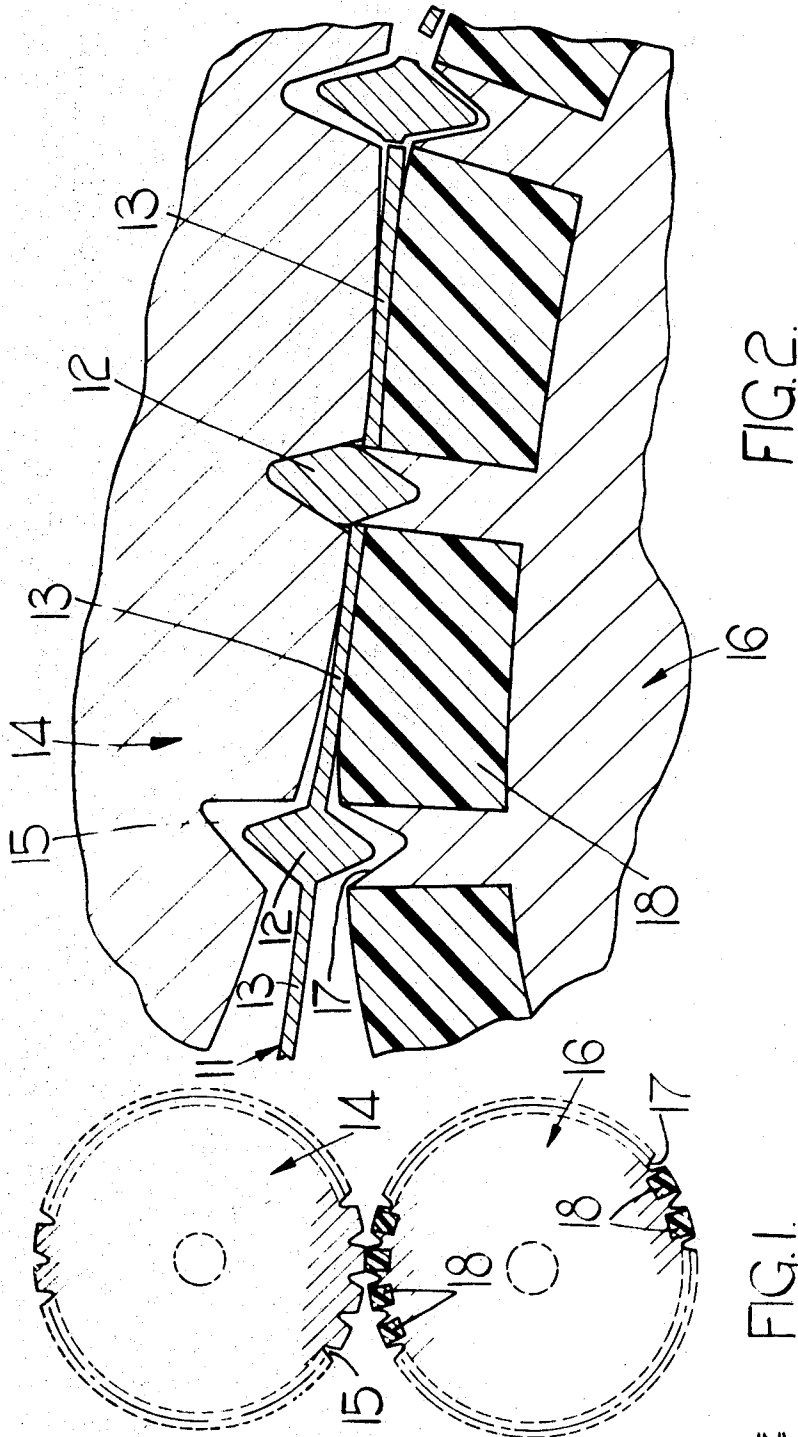


FIG. 1.

FIG. 2.

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FINISHING MACHINE FOR USE IN THE PRODUCTION OF BATTERY PLATE GRIDS

This invention relates to a finishing machine for use in the production of battery plate grids.

When a battery plate grid comprising a generally rectangular frame the limbs of which are connected by a mesh network of members integral with the frame, is manufactured by rolling material from which the grid is formed between rollers containing an impression of the grid, it is found that the interstices of the formed grid, between the members of the mesh network, contain thin fillets of material. It will be appreciated that the removal of such fillets is hampered by the number and size of the interstices of the grid and by the fragility of the grid, and it is an object of the present invention to provide a finishing machine whereby the removal of fillets from a formed grid is facilitated.

A finishing machine according to the invention comprises in combination a pair of rollers between which the grid is passed, one of the rollers containing an impression of the grid which conforms substantially with the face of the grid being presented, the other roller containing projections which correspond with the interstices of the grid, and the parts of said one roller which correspond to the interstices of the grid being constituted by resilient inserts so that in use as the grid is passed between the rollers the frame and the members of the mesh network of the grid will be received in the impressions of the grid in said one roller and in the spaces between the projections of said other roller, and the projections on said other roller will enter the interstices of the grid and in so doing will sever said fillets of material from the frame and mesh network of the grid.

In the accompanying drawings FIG. 1 is a sectional view of a finishing machine according to one example of the invention, and FIG. 2 is an enlargement of part of FIG. 1 showing a grid during the finishing process.

Referring to the drawings a battery plate grid 11 having a generally rectangular frame the limbs of which are interconnected by a mesh network of members 12 integral with the limbs of the frame was formed by rolling a sheet of dispersion strengthened lead between a pair of rollers containing an impression of the grid. The interstices of the grid were not left as clean holes by the rolling procedure but were partially or totally filled by thin fillets 13 of dispersion strengthened lead. In order to remove the fillets 13 from the interstices of the grid 11 the grid 11 is passed through a finishing machine including an upper metal roller 14, the periphery of which contains an impression 15 of the grid 11 and a lower metal roller 16 the periphery of which also includes an impression 17 of the grid 11. The depth of the impression 15 in the roller 14 is greater than half the thickness of the grid 11, and the depth of the impression 17 in the roller 16 is less than half the thickness of the grid 11 by an amount equal to that by which the impression 15 is deeper. Moreover, the parts of the periphery of the roller 16 which correspond to the interstices of the grid are constituted by rubber inserts 18 which are bonded into depressions in the

periphery of the roller 16.

The rollers 14, 16 are driven at the same speed in opposite directions with their peripheries touching, and the impressions 15, 17 in phase so that a grid 11 can pass between the rollers. As the grid 11 passes between the rollers 14, 16 the frame and the member 12 of the grid are received in the impressions 15, 17 in the rollers. However, owing to the differing depths of the impressions 15, 17 the projecting parts of the periphery of the roller 14 defined by the impression 15 and corresponding to the interstices of the grid will enter the interstices of the grid and will sever the fillets 13 from the members 12 and the frame of the grid 11. The rubber inserts 18 serve to support the fillets 13 during the severing operation and serve to expel the severed fillets from the roller, moreover their resilient deformation during the severing operation ensures that a clean cut is produced.

The roller 14 need not of course contain an exact impression of the grid, but must have projecting parts which correspond, to and which will enter the interstices of the grid. Moreover the depth of the impression 17 in the roller 16 is dependent only on the positioning of the fillets 13 relative to the center plane of the grid. Thus if the fillets 13 are near one face of the grid the depth of the impression 17 will only be sufficient to support the grid so that the fillets 13 are in engagement with the inserts 18 while the frame and members 12 of the grid are engaged with the base of the depression 17. As stated above the rollers 14, 16 are driven with their peripheries touching. However, if desired the dimensions of the rollers 14, 16 can be such that the rollers mesh, the projecting parts of the roller 14 deforming the inserts 18.

It will be appreciated that a finishing machine as described above can be used to finish other grids that those formed by rolling dispersion strengthened lead sheet.

The inserts 18 are preferably formed from the hard rubber sold under the trade name Avothane.

We claim:

1. A finishing machine for use in the production of lead battery plate grids comprising in combination a pair of rollers between which the grid is passed, one of the rollers containing an impression of the grid which conforms substantially with the face of the grid being presented, the other roller containing projections which correspond with the interstices of the grid, and the parts of said one roller which correspond to the interstices of the grid being constituted by resilient inserts which conform precisely with the interstices of the grid so that in use as the grid is passed between the rollers the frame and the members of the mesh network of the grid will be received in the impressions of the grid in said one roller and in the spaces between the projections of said other roller, and the projections on said other roller will enter the interstices of the grid so that the fillets of material in the interstices of the grid will be supported over the whole area of the fillets between the projections on said other roller and said resilient inserts, and said fillets will be completely severed from the frame and mesh network of the grid.