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SELF LOCKING GRID PLATE

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Fig. 1

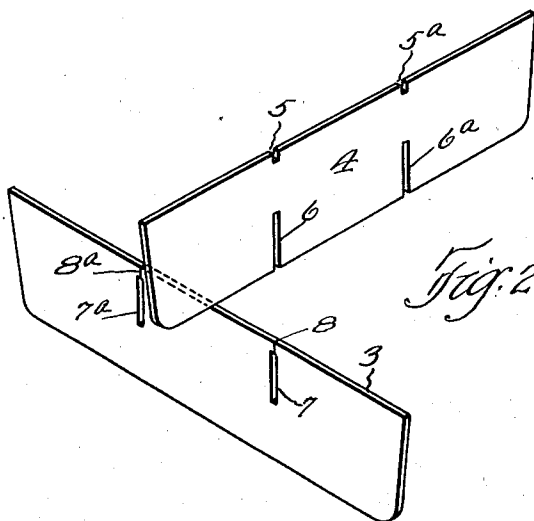
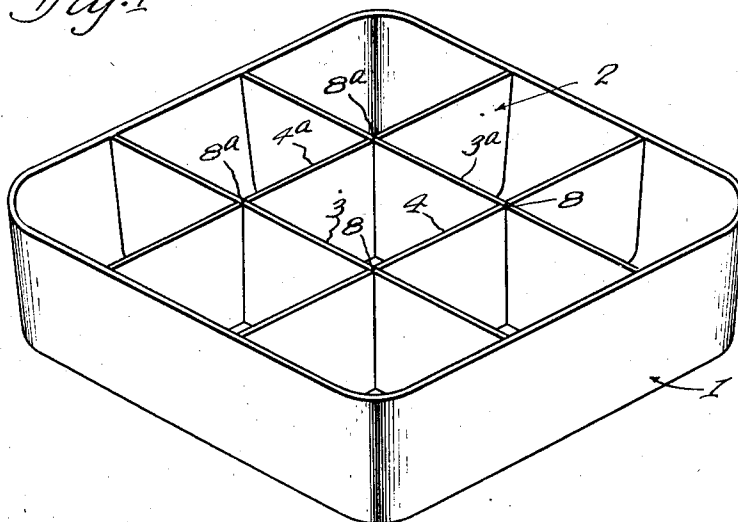


Fig. 2

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SELF-LOCKING GRID PLATE

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This invention relates to the production of grids made up of two or more intersecting plates set on edge, and more particularly to the means for fixedly connecting at their points of intersection the plates used to make up such grids.

In the production of grids to be used in ice forming trays for refrigeration apparatus, it is desirable that the finished grids should have surfaces of silver or other suitable metal which will not rust or corrode and which will not have any harmful effect upon the food with which they may come in contact. In the preparation of such grids it is the usual practice to tin plate or silver plate a base metal in order to produce the desired surfaces.

The usual method for making up such grids has been to cut notches in the lower edge of one plate and in the upper edge of the intersecting plate, each notch extending to the middle of the plate. The plates are then assembled so that the notch in one plate will receive the portion of the intersecting plate which is between the notch in the latter plate and the other edge of this plate. The plates are then held in position by upsetting the metal at the intersection with a hammer or punch in order to cause the two pieces to bind. Such a connection has been found unsatisfactory since subsequent handling of the grid is liable to loosen the connection and cause the plates to come apart. To avoid this difficulty, it has often been the practice to solder the plates at their intersections in order to insure a permanent connection between them. Such soldering is, however, objectionable, not only in that it entails additional costs but in that a smooth joint, free from projections which would interfere with the removal of the contents of the pocket, cannot be easily obtained.

It has been the customary practice to assemble the plates as above described and to then subject the assembled grid to the electro-

plating process. It is apparent that by such a procedure the edges of the slots which are not exposed to the plating solution would not be plated and so would soon rust or corrode under the conditions to which they are subjected while in use. If, in order to avoid this difficulty, the plates were to be plated before assembly the upsetting of the metal at the intersections would break the surface of the protecting deposited plate and would leave an exposed or insufficiently protected area which would quickly rust or corrode.

It is the general object of my invention to avoid these difficulties and to produce a completely plated grid which will be fixedly connected at its intersections, and to do so without disturbing the protective plated surface and without soldering.

Further advantages will be apparent from the following description and from the use of the article shown in the drawings and described and claimed in the specification.

In the drawings Fig. 1 shows a view in perspective of an assembled grid in use in a suitable tray; Fig. 2 shows a detailed perspective view of sections of two unassembled intersecting plates.

Describing by reference characters the various elements shown in the drawings, 1 denotes a tray which may be of any suitable construction and of the desired dimensions. The grid 2 is made up of parallel plates 3 and 3^a and parallel plates 4 and 4^a running at right angles to the first mentioned plates. All of the plates are set on edge and suitably spaced to give the desired number, and sizes, of pockets. In Fig. 2 is shown the means for fixedly connecting the intersecting plates at their points of intersection. In the plate 4 there are slots 5 and 5^a extending a short distance from the upper edge of the plate and slots 6 and 6^a immediately below the slots 5 and 5^a and extending to about the middle of the plate from the lower edge. In the plate 3 there are slots 7 and 7^a at right

angles to the edge of the plate and spaced from the top and bottom of the plate distances about equal to the depth of the slots 5, 5^a and 6, 6^a, respectively. The metal between the top of the slots 7 and 7^a and the upper edge of the plate 3 is cut so as to form the slits 8 and 8^a.

The plates after being plated are assembled as follows: The edges of the slits 8 are sprung or bent in opposite directions to allow room for the passage of the metal connecting the slots 5 and 6. The plates are then turned at an acute angle to each other and the plate 4 is slipped down until the slit 8 falls within the slot 5. The edges of the slit 8 are then allowed to spring, or are bent, back until they fall within the slot 5. The two plates are then locked together and can only be separated by a reversal of the operations described.

It is preferred that the slots be of such dimension as to fit snugly on the metal they are to enclose in their assembled positions, although it is apparent that the slots may be wider than the intersecting plates and so allow a relative movement of the plates in a horizontal plane and a resulting folding movement of the grid. It is also apparent that the length of the slots 5 and 6 may be varied so as to change the position of the slots 7 or to allow a limited relative movement of the plates in a vertical plane. The slits 8 and 8^a may be wider than shown in the drawings, but it is essential that the metal at the end of the slots 7 and 7^a projects into the slots 5 and 5^a in order that the plates may be securely locked in place.

Grids made up of plates covered by my invention may of course be used in other connections than that referred to herein, and it is not intended to limit their use to that described herein. A grid made up of plates locked together by the means I have described would be superior to grids constructed by methods heretofore known, whether such grids were plated before assembly or after assembly, or even though they were not plated at all.

It is also apparent that the intersecting plates need not be at right angles to each other in either the horizontal or the vertical plane, it only being necessary to change the position or the slope of the slots to accomplish such a result. It is further apparent that this means for locking the plates at their points of intersection may be applied to plates having curved cross sections instead of the flat plates shown in the drawings. And it is apparent that the slots may be curved in order to accommodate such bent or otherwise curved plates.

Having thus described my invention, what I claim is:

A grid for use in refrigeration apparatus, said grid including a metal plate having a

slot at each edge thereof adapted to receive and be substantially filled by a portion of an intersecting plate, an intersecting metal plate having a slot intermediate its edges adapted to enclose the metal between the slots in the first mentioned plate and a slit between this slot and an edge of the plate, said plates being completely covered with a protecting metal deposit.

In testimony whereof, I hereunto affix my signature.

JOHN A. HANLEY.