Feb. 3, 1925. 1,524,897

E. H. WEIL

TABLE TOP AND METHOD OF MANUFACTURING SAME

Filed March 2, 1922

Fig. 1.

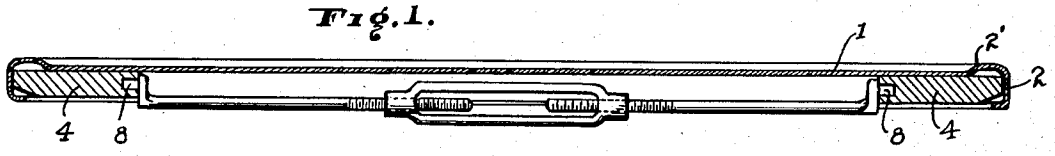


Fig. 2.

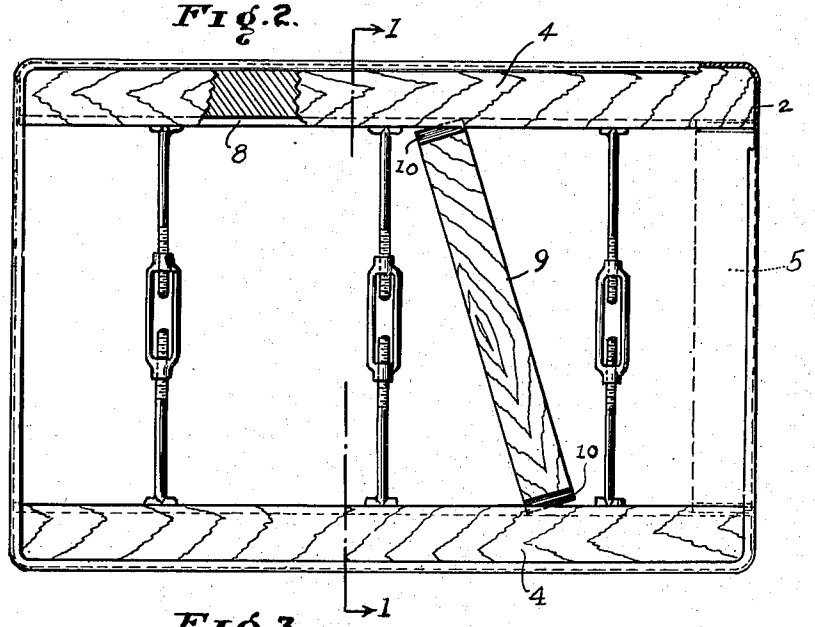


Fig. 3.

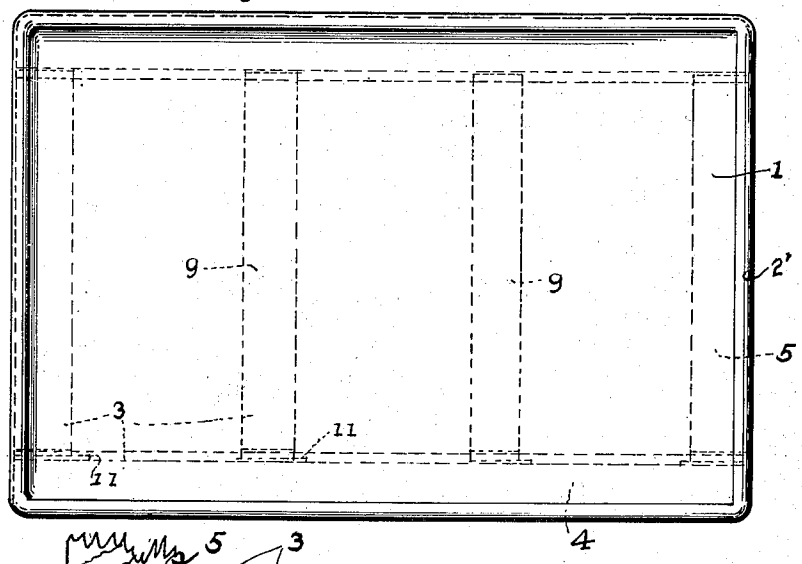
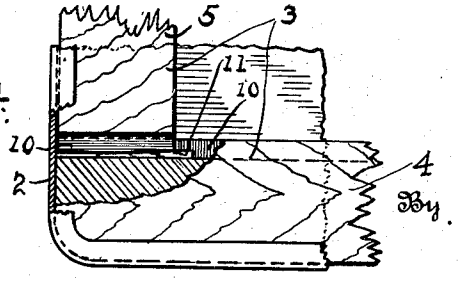


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDGAR H. WEIL, OF CLEVELAND, OHIO, ASSIGNOR TO VITREOUS STEEL PRODUCTS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF DELAWARE.

TABLE TOP AND METHOD OF MANUFACTURING SAME.

Application filed March 2, 1922. Serial No. 540,609.

To all whom it may concern:

Be it known that I, EDGAR H. WEIL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Table Tops and Methods of Manufacturing Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to improvements in sheet metal objects and their manufacture and more particularly it relates to table tops of the enameled sheet metal type such as used in kitchen cabinets, tables and the like.

An object of my invention is the provision of a sheet metal table top which has a plane or flat surface and does not have bulges or buckles therein, and comprises a novel method of removing such bulges or buckles and holding such table tops flat, so that any bulges or buckles that may have been therein are permanently removed.

Another object of the invention is the provision of a simple, cheap and efficient method of removing bulges and holding flat the table tops in which buckles have appeared during the course of manufacture.

These and other objects of the invention which will be readily apparent to those skilled in the art are obtained by the method and construction illustrated in the drawings.

In the accompanying drawings forming a part of this specification,

Figure 1 is a section on line 1—1 Fig. 2.

Fig. 2 is a view of the top inverted with the spreading means in place.

Fig. 3 is a plan view of the table top.

Fig. 4 is an enlarged view partly in section showing one of the wedges.

In the manufacture of sheet metal table tops, particularly those to receive an enamel coating, the tops are first formed in a press with a flat surface surrounded by a down turned flange or channel which may form a continuous bead or rib higher than the top proper around the periphery of the top, thus giving the effect of a depressed top. This flange or channel greatly strengthens the top as well as giving the appearance of thickness and avoids presenting sharp meal edges on the outside. Such stampings are then heated and enameled in the usual way until sufficient coatings of enamel have been applied. It is during the enameling operation that table tops are frequently warped and buckled, so that they do not have a flat surface.

For enameling it is necessary to heat the stampings to a relatively high temperature, which causes expansion of the metal. As coats of enamel are built up on the top, it seems that strains are set up in the metal, perhaps due to the unequal coefficients of expansion of the enamel and metal, so that when the top cools bulging or warping occurs, and the table top does not have a flat surface.

It has been suggested that this bulging or warping is due to strains set up between the enamel and metal, caused by the enamel not contracting as much as the metal upon cooling. This would seen to be true, for otherwise a slight stretching of the metal would cause the enamel to crack or scale.

Unless the finished top be flat, the user of the table is caused annoyance by having articles placed on the table slide around, or even slide off the table when it is wet and the bulge extends upwardly. This is because the smooth enamel surface has a very low angle of repose, and articles, particularly wet ones, such as wet dishes, are very apt to slide off the table to the floor and break.

It is customary to insert a wooden frame in the top and against the flange or channel to somewhat strengthen this edge or flange, and also to enable the top to be secured to its support, whether it be a kitchen cabinet, table legs, or other supporting means.

My invention consists in forcing apart opposite flanges of the enameled top, or preferably the opposite members of such a frame as above described if one is used, and holding such members or flanges spread by suitable cross braces placed between them. In the preferred form the sides of the frame are first inserted against their respective flanges and forced apart, and then the ends and intermediate cross pieces are inserted. It is obvious though that the ends can be spread and the cross pieces subsequently interposed. It is also obvious that this invention applies to round or other shaped table tops, as well as those of the rectangular type.

When the bulges or buckles are not uni-

formly distributed across the top it sometimes occurs that different pressures on portions of the peripheral flanges are required to remove them. I have found, however, that the bead or rib 2′ will compensate for such different requirements in pressure, so that when pressure is applied against the opposite sides of the frame the parts of the metal not badly warped will not be unduly stretched, and yet even the largest bulges or buckles will be removed. The bead or rib is able to compensate for this by reason of the fact that it will tend to straighten or have its height decreased slightly before the metal at that portion of the top will be unduly stretched. Such reduction in the bead, however, does not disfigure the top as it is not apparent to the eye.

This operation does not add materially to the cost of manufacture. Moreover, it actually accomplishes quite a saving by enabling one to use relatively thin gauge material for making an equally good and sufficiently strong table top, having a flat surface. The present use of much heavier gauge material is not for the additional strength, but to prevent as far as possible the warping that occurs when the top is heated and enameled.

In the drawings, 1 indicates the enameled table top with its depending flange 2, which may be of any suitable shape, but which is preferably channel shape as shown in the drawing. Formed in the top is an expansible or compensating bead 2′. The frame 3 consists of sides 4 and ends 5 fitted to the flange 2 and retained thereby, and they are more easily retained when the flange is turned in so that it becomes channel shaped. The sides of the frame which are the members usually forced apart are preferably grooved at 8 to receive cross members 9 which carry at their ends tongues 10. The spreading is done by one or more turnbuckles, or other suitable spreading means such as cams or wedges (not shown), and may be carried on until the table top is perfectly flat. The other members, that is the ends and cross pieces, are then inserted between the opposite sides of the frame members. Preferably small wedges 11 are inserted between the ends of the cross braces and the frame members, after the spreading means has been operated and the table top made flat. This insures that the braces will be sufficiently long to hold the entire spread that is obtained and enables the operator to quickly adjust the braces to any such length, rather than to carry a large stock of cross braces of different lengths to be precisely fitted between the side members.

The frame members may be securely fastened to each other after the cross braces are inserted, by any suitable fastening means such as screws, dowel pins, straps, etc.

Furthermore, it is to be understood that the particular forms of apparatus shown and described, and the particular procedure set forth, are presented for purposes of explanation and illustration and that various modifications of said apparatus and procedure can be made without departing from my invention as defined in the appended claims.

What I claim is:

1. The process of removing bulges from enameled sheet metal objects having a body portion of substantial area which consists in forcing opposite sides of the periphery of such object apart and inserting means to hold such opposite sides in spread position.

2. The process of manufacturing enameled sheet metal objects having a body portion, a curved peripheral bead and a depending flange, which consists in forcing apart portions of the flange at opposite sides of the object and inserting means to permanently hold them in spread position, whereby said body portion is substantially flat.

3. The process of manufacturing sheet metal objects which consists in enameling a sheet of metal, positioning parts of a frame adjacent to opposite portions of the periphery of such sheet, forcing such opposite portions apart and inserting means to hold them in spread position, thereby tensioning the metal and removing such bulges as may have been present after the enameling operation.

4. The process of manufacturing sheet metal objects having a peripheral curved bead and depending flange, which consists in enameling such an object with a vitreous enamel and inserting parts of a frame against the flange at opposite portions of the sheet, forcing such opposite portions apart and inserting means to hold them in spread position.

5. The process of removing bulges from enameled sheet metal table tops which consists in positioning members adjacent to opposite portions of the periphery of such tops, forcing the members apart and inserting additional members to hold them in spread position and complete an inner frame for supporting the top, thereby tensioning the metal and removing such bulges as may have been present after the enameling operation.

6. The process of manufacturing enameled table tops which consists in coating a top member having a curved peripheral rib and a flange with enamel, baking the top, placing parts of a frame against the inner walls of such flange at opposite sides of the top, forcing away from each other such

frame parts and inserting additional frame parts to permanently hold them in spread position.

7. The process of manufacturing sheet metal table tops which consists in forming a stamping having a body portion, a peripheral expansible bead and a peripheral flange, enameling it, inserting frame members therein which correspond to the shape of the peripheral flange, forcing opposite frame members apart, inserting cross braces and wedges to hold the opposite members in spread position, and removing the spreading means.

8. An enameled sheet metal object having a body portion, frame members positioned adjacent to opposite sides of such body portion, and means permanently under compression to hold such frame members apart, whereby said body portion is held substantially flat.

9. An enameled sheet metal object having a body portion, a peripheral expansible bead and a peripheral flange, frame members oppositely situated and fitting within said flange, and additional frame members permanently under compression to hold said first mentioned frame members apart, whereby the body portion of the sheet is held substantially flat.

10. A rectangular enameled sheet metal table top having a continuous peripheral flange with a turned in extremity, opposite frame members fitting in said flange, frame members and cross pieces permanently held under compression between said opposite frame members to hold them apart, whereby the body portion of said table top is held substantially flat.

In testimony whereof, I hereunto affix my signature.

EDGAR H. WEIL.