Feb. 18, 1930. G. GLAUDEL 1,747,704

METHOD OF AND APPARATUS FOR SILVERING GLASS KNOBS

Filed Jan. 23, 1928

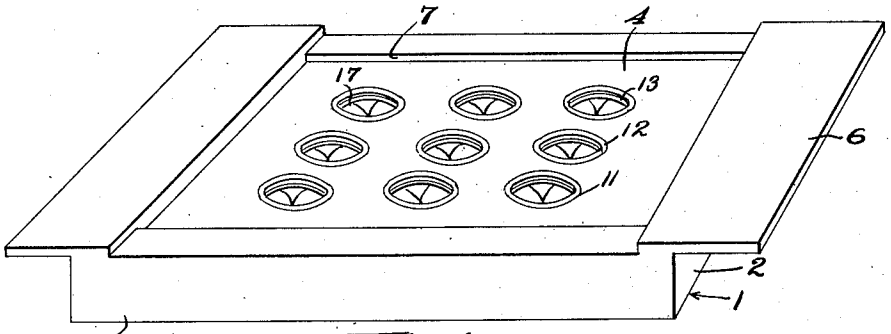


Fig. 1.

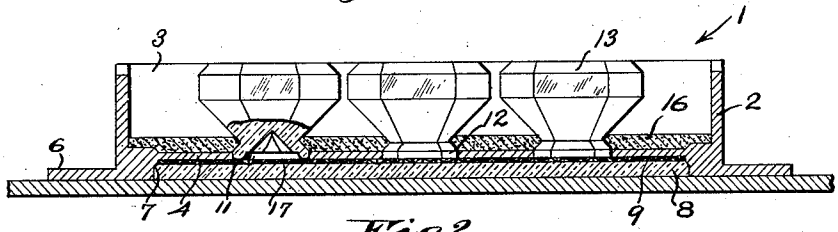


Fig. 2.

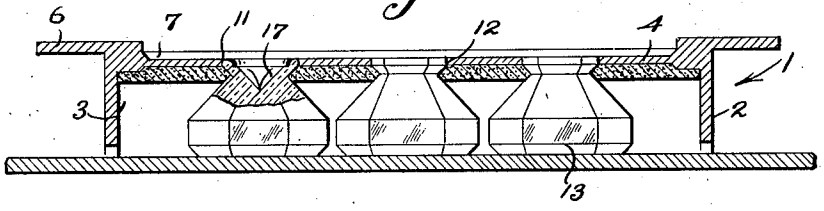


Fig. 3.

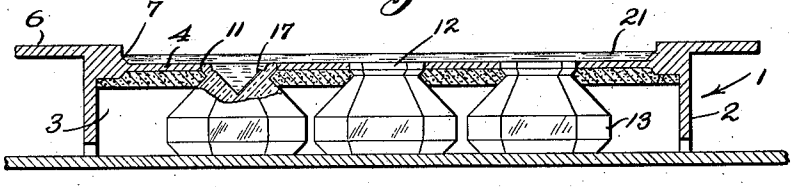


Fig. 4.

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UNITED STATES PATENT OFFICE

GEORGE GLAUDEL, OF REDONDO BEACH, CALIFORNIA, ASSIGNOR OF TWENTY PER CENT TO HERMAN MILLER, OF SOUTH PASADENA, CALIFORNIA

METHOD OF AND APPARATUS FOR SILVERING GLASS KNOBS

Application filed January 23, 1928. Serial No. 248,733.

My invention contemplates means for and method of silvering glass knobs.

In the manufacture of glass door knobs it is customary to silver the inner end of the knobs, which is generally concave and sometimes provided with radiating convolutions or other decorative markings to add to the attractiveness of the knob when viewed from the outside. A brass cap is then secured to the knob by being crimped about a shoulder in its inner end to enable securing the knob to a latch shank.

Accordingly, it is an object of my invention to provide a method of applying the silvering to the inner end of such glass door knobs capable of considerably expediting the operation.

Another object is the provision of apparatus for carrying out the method of my invention.

The invention possesses other objects and advantageous features, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming a part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims. In fact, the method and apparatus of my invention, with minor alterations, might be utilized to apply coatings of various natures to many different articles. For example, my invention would materially expedite the manufacture of small mirrors, such as those used in vanity cases, and various types of scientific instruments; or it would assist in the operation of applying enamel or similar coatings to many kinds of small objects. For the present purpose, however, it will suffice to describe my improved method and apparatus as it is employed in the silvering of glass door knobs.

Referring to the drawings wherein similar parts are indicated by similar reference numerals throughout:

Figure 1 is a perspective view of the knob holding tray of my invention in position to have the silvering solution applied to the knobs.

Figure 2 is a transverse, vertical, sectional view of the tray showing knobs secured therein and in position upon the guide which forms a part of my invention.

Figure 3 is a transverse, vertical, sectional view of the tray and knobs inverted in position to have the silvering solution applied to the knobs.

Figure 4 is a transverse, vertical, sectional view similar to Figure 3, after the silvering solution has been applied.

The present modification of the apparatus for carrying out the process of my invention comprises a tray 1 having sides 2 and ends 3 extending upwards from a bottom 4 which preferably extends beyond the sides 2 to provide supporting flanges 6 and which is recessed as at 7 for the reception of the guide 8. This guide is composed of any suitable material adapted to provide a relatively smooth surface, such as metal or glass, and is preferably provided upon its upper surface with a layer of absorbent cushioning material 9 such as felt. A plurality of apertures 11 are provided in spaced relationship in the bottom 4, each of which is shaped to fit closely about the inner end 12 of one of the glass door knobs 13.

The process of silvering knobs, which employs the above described apparatus, comprises placing the tray 1 in position upon the guide 8 so that the cushioned surface 9 of the guide is parallel to and closely adjacent the bottom 4 of the tray 1. Then a knob 13 is placed with its inner end 12 in each of the apertures 11 and pressed therethrough until contact is established with the cushioned surface 9 of the guide 8 which is thus adapted to accurately position the knobs in their respective apertures by limiting the distance the knobs extend through the bottom of the tray. Then a quantity of molten paraffin 16, or other suitable material adapted to solidify after pouring, is poured into the tray about the knobs, it being understood that the apertures 11 are so sized that leakage of the molten paraffin between the knobs and the bottom 4 of the tray is practically prevented. How-

ever, if it be so desired, the felt 9 on the guide 8 may be moistened so that any paraffin that does leak through the apertures will be quickly solidified, preventing further leakage.

After the paraffin has solidified it will be found that a strong bond will be set up between the knobs and the tray, preventing their displacement therefrom. The tray is then inverted, as shown in Figure 3, and the thus exposed inner surfaces 17 of the knobs subjected to a cleaning operation.

One manner of doing this is by pouring into the recess 7 recently vacated by the guide 8 a cleansing solution of stannous chloride. After the cleansing solution has been poured off the knobs are then in condition to have the silvering solution 21 applied. The silvering solution commonly employed comprises a solution of silver nitrate, ammonium hydroxide, and Rochelle salts. The knobs are permitted to stand with the silvering solution upon them for approximately an hour, after which the excess solution is poured off and the knobs thoroughly dried, either by chamois or an air brush, then a protective coating such as shellac or lacquer is applied to the silvered surface in any convenient manner such as by air brush or pouring a quantity of the protective coating onto the inner ends 12 of the knobs and then pouring off the excess. After the protection coating has hardened, the knobs are removed from the tray by lifting off the paraffin, at which time they are ready to have the brass retaining caps crimped thereupon.

The advantages gained by employing this process of silvering knobs are manifold, and among them might be mentioned the relatively high number of knobs which may be silvered by a single operator within a unit of time. With my improved process one man can silver between 1500 and 2000 knobs per day, whereas heretofore it has not been possible for a man to silver more than 500 knobs within the same length of time. Not only is the process far more expeditious, but it is more efficient in that the silver coating and the protective coating are both applied more evenly than by any previous process. Another feature is the fact that the close fit between the inner ends 12 of the knobs prevents the deposit of silver upon any portion of the surface of the knob except the inner end, thus obviating the necessity of cleaning off any silvering after the above described process has been completed.

I claim:

1. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends requiring silvering extending through closely fitting apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain said knobs in position and to seal the apertures, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surface of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, coating the silvered surfaces of the knobs with shellac while still retained within the tray, and then melting off the said solidified material.

2. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends requiring silvering extending through closely fitting apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain said knobs in position and to seal the apertures, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surface of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, applying a protective coating to the silvered surfaces of said knobs while still retained within the tray, and then melting off the said solidified material.

3. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends requiring silvering extending through closely fitting apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain said knobs in position and to seal the apertures, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surface of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, and applying a protective coating to the silvered surfaces of said knobs.

4. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends requiring silvering extending through closely fitting apertures in the bottom of the tray and against a felt guide, pouring a molten material into said tray about said knobs to retain said knobs in position and to seal the apertures, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surface of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, and applying a protective coating to the silvered surfaces of said knobs.

5. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends requiring silvering extend-

ing through closely fitting apertures in the bottom of the tray, pouring a molten material into said tray about said knobs to retain said knobs in position and to seal the apertures, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surface of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, and applying a protective coating to the silvered surfaces of said knobs.

6. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends extending through apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain the knobs in position, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surfaces of the knobs with a cleaning solution, then applying a silvering solution, permitting the silvering solution to stand upon the knobs for approximately one hour, drying the knobs, and applying a protective coating to the silvered surfaces of the knobs.

7. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends extending through apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain the knobs in position, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surfaces of the knobs with a cleaning solution, then applying a silvering solution, drying the knobs, and applying a protective coating to the silvered surfaces of the knobs.

8. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends extending through apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain the knobs in position, inverting the tray and contained knobs after the molten material has solidified, cleaning the thus exposed surfaces of the knobs, then applying a silvering solution, drying the knobs, and applying a protective coating to the silvered surfaces of the knobs.

9. The method of silvering knobs, which comprises placing a plurality of knobs in a tray with the ends extending through apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said knobs to retain the knobs in position, inverting the tray and contained knobs after the molten material has solidified, then applying a silvering solution, drying the knobs, and applying a protective coating to the silvered surfaces of the knobs.

10. The method of silvering articles, which comprises placing a plurality of articles in a tray with portions extending through apertures in the bottom of the tray, pouring a molten material into said tray about said articles to retain them in position, inverting the tray and contained articles after the molten material has solidified, then applying a silvering solution, drying the articles, and applying a protective coating to the silvered surfaces of the articles.

11. The method of silvering articles, which comprises placing a plurality of articles in a tray with the portions requiring silvering extending through closely fitting apertures in the bottom of the tray and against a moistened felt guide, pouring a molten material into said tray about said articles to retain them in position and to seal the apertures, inverting the tray and contained articles after the molten material has solidified, cleaning the thus exposed surface of the articles with a cleaning solution, then applying a silvering solution, drying the articles, and applying a protective coating to the silvered surfaces of said articles.

12. The method of silvering articles, which comprises placing a plurality of said articles in a tray with the portions requiring silvering extending through closely fitting apertures in the bottom of the tray, pouring a molten material into said tray about said articles to retain them in position and to seal the apertures, inverting the tray and contained articles after the molten material has solidified, cleaning the thus exposed surface of the articles with a cleaning solution, then applying a silvering solution, drying the articles, and applying a protective coating to the silvered surfaces of said articles.

13. An apparatus for silvering articles, which comprises a tray having an aperture in the bottom thereof adapted to receive and closely fit one of said articles, a guide adjacent to said tray adapted to limit the distance said article extends through said aperture, and a lining of absorbent material on said guide adapted to be moistened.

14. An apparatus for silvering knobs, which comprises a tray having a plurality of apertures in the bottom thereof adapted to receive and closely fit said knobs, a guide adjacent to said tray adapted to limit the distance said knobs extend through said apertures, and a lining of absorbent material on said guide.

15. An apparatus for silvering knobs, which comprises a tray having a plurality of apertures in the bottom thereof adapted to receive and closely fit said knobs, and a guide adjacent to said tray adapted to limit the distance said knobs extend through said apertures.

16. The method of applying a coating to an article, which comprises placing a plurality of said articles in a tray with a portion of the article extending through the bottom of the tray, pouring a molten material into said tray about the articles to retain them in position, inverting the tray and contained articles after said material has solidified, and then applying a coating to the surface of the articles thus disposed.

In testimony whereof I have signed my name to this specification.

GEO. GLAUDEL.