Sept. 1, 1931. B. J. POVALSKI 1,821,578

PROCESS OF MAKING IDENTIFICATION PLATES

Filed April 25, 1929

Fig. 1.

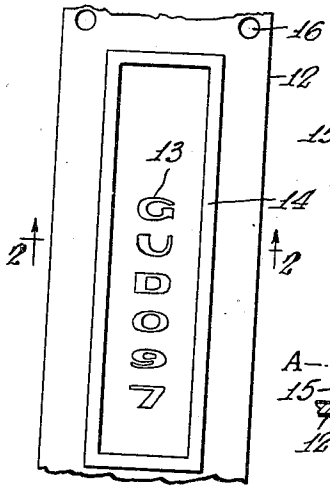


Fig. 2.

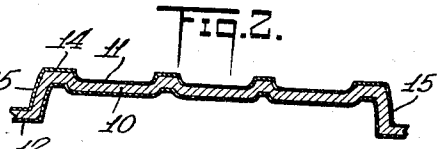


Fig. 3.

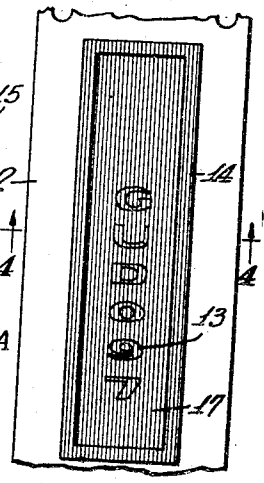


Fig. 4.

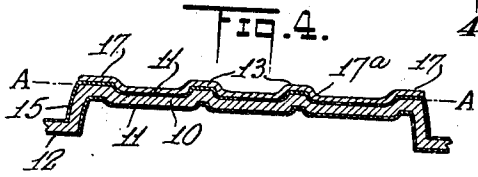


Fig. 5.

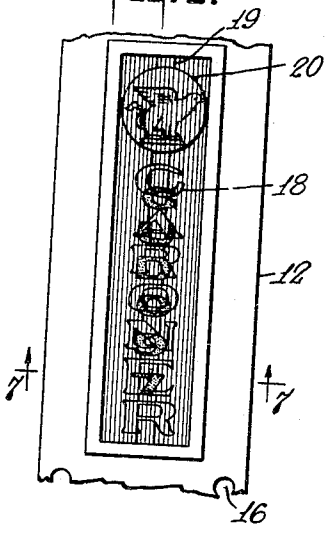


Fig. 6.

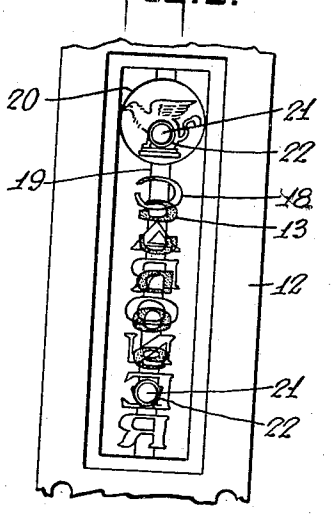


Fig. 8.

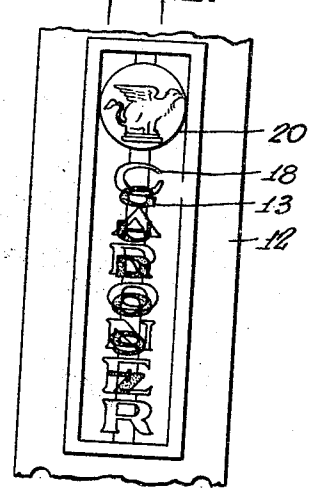
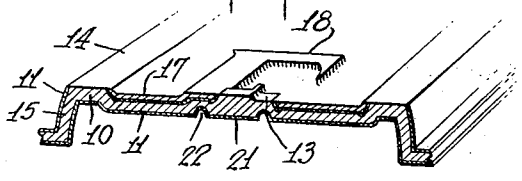


Fig. 7.



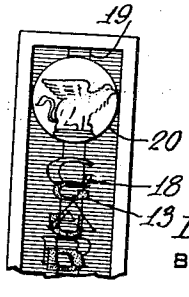


Fig. 9.

INVENTOR
Bernard J. Povalski.
BY
ATTORNEY

Patented Sept. 1, 1931 1,821,578

UNITED STATES PATENT OFFICE

BERNARD J. POVALSKI, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO FEDCO SYSTEM, INC., A CORPORATION OF DELAWARE

PROCESS OF MAKING IDENTIFICATION PLATES

Application filed April 25, 1929. Serial No. 357,970.

My invention relates to an improved process of making identification plates, such for example as are applied to motor vehicles.

A specific object of the invention is to provide a process of making identification plates with indicia which can not be altered without disclosing the fact that the plate has been tampered with, and which cannot be duplicated or counterfeited except at such expense as would be prohibitive to a counterfeiter, or by the use of equipment embodying heavy initial expense and an installation of such character as would betray the counterfeiter.

A further object of the invention is to provide a new process for producing an identification plate with superposed embossed designs or indicia, the surface of one design showing in a metal of different color from the rest of the plate, and the general effects being similar to that of the plates described in Patent No. 1,656,928.

The identification plate described in said patent was of substantial thickness with the embossings shown on one face only. It is an object of the present invention to provide an identification plate made of comparatively thin sheet metal, so that the embossing will appear in reverse on the under face of the plate.

Another object is to provide an identification plate formed with a down-turned marginal flange or rim, so as to give the appearance of thickness and substantiality.

The plate provided by my present invention is less expensive in the amount of material used than that described in said patent and the process of manufacturing the same is much simplified.

In the process described in said patent, a single patterned die was used at each embossing step and the body of the plate had to be made of comparatively thick metal and also of a metal which would flow readily into the recessed portions of the die. In the present process, male and female dies are used so that a relatively hard metal may be used to advantage. The plates may be formed in a strip of metal and need not be cut out of the strip until they have been otherwise completed. Thus, a set of integrally connected plates may be put through the various steps of my process, thereby effecting a considerable saving in operating expense over that involved in the individual handling of plates required by previous processes.

A convenient way of attaching the identification plate to a support is to spot weld it at one or more places, and an object of the present invention is to form the plate with a weld spot (i. e. with a small facing suitable to be spot welded to a base) and with an area of weakness surrounding the weld spot, so that after welding, the weld spot will tear out, if anyone attempts to detach the plate from its support, and hence will mutilate the plate so that it cannot be used again.

The plate produced by the present process is similar to that described in my copending application, Serial No. 357,967, filed concurrently herewith, but the process differs therefrom in a number of particulars, notably in avoiding a plating step between embossings.

The above named and other objects of my invention, will either be pointed out specifically or will be readily apparent in the following description of my novel process of producing a specific form of identification plate, but it will be understood that the process may be adapted to the making of other forms of plates as well, without departing from the spirit and scope of the invention as pointed out in the claims.

In the accompanying drawings:

Figure 1 is a fragmentary plan view of a strip of metal as it appears after being subjected to an initial embossing and cupping step of my process;

Fig. 2 is an enlarged view in cross section, the section being taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary plan view of the strip of metal after being subjected to a further step of my process;

Fig. 4 is an enlarged view in cross section, the section being taken on the line 4—4 of Fig. 3;

Fig. 5 is a plan view of the obverse face of the strip of metal after being subjected to another embossing step;

Fig. 6 is a view of the reverse face of the strip shown in Fig. 5;

Fig. 7 is an enlarged view in cross section, the section being taken on the line 7—7 of Fig. 5;

Fig. 8 is a plan view of the strip of metal shown in Fig. 5 after being subjected to a further step of my process, and

Fig. 9 is a plan view of a portion of the finished plate.

In carrying out my improved process, I employ a strip of sheet metal which is of light color, and the first step of the process consists in plating the strip with a metal of darker color. If desired, the colors could be reversed using a dark metal for the base and coating the base with a plating of lighter color metal. In any case, the object is to provide a contrast of color between the base of the strip and the plated coating. Preferably, too, the metals should be substantially non-corrosive and one of the metals should be capable of being oxidized under a certain treatment which will not oxidize the other metal, or if both the metals are oxidized by the same oxidizing step they should show a marked color contrast after oxidation.

In the particular embodiment of my invention chosen for illustration I employ a strip of Monel metal 10 and coat the strip with a plating 11 of copper. The strip thus plated is indicated in the drawings by the reference numeral 12. The strip 12 is then subjected to an initial embossing operation which will form raised characters or indicia 13 on the face of the metal. For this purpose male and female dies are used so that the indicia will show in reverse on the under face of the plate. The next step is to run the strip through another set of male and female embossing dies to form a raised border or frame 14 for each plate, the embossing being deep enough to cup the plate and form a marginal flange or rim 15 of substantial dimensions, as shown in Fig. 2. It will be understood that the sectional views Figs. 2, 4, and 7 are greatly enlarged and for purposes of illustration greatly exaggerate the thickness of the strip 12.

The initial embossings produced on the strip 12 are made successively and with a different set of indicia 13 for each plate. In order to bring the initial embossings into proper register for the subsequent cupping and border embossing, location holes 16 are formed in the strip. In the drawings I show only one plate embossed in the strip, but it will be understood that a series of plates will be embossed in the strip before the strip is subjected to the next step of my process. This step consists in treating the embossed parts of the strip to a coating of japan, or other suitable coating material, so that the strip then takes on the appearance illustrated in Figs. 3 and 4. The coating is shown at 17 in Fig. 4 and is indicated by the vertical shade lines in Fig. 3.

On inspecting Fig. 4 it will be observed that the coating, owing to its viscosity, will form fillets 17*a* in the corners of the embossing, the purpose of which will be explained hereinafter. After the japan has been applied, the plate is baked, or otherwise treated to harden the coating thereon.

The next step of the process is to grind off the coating and also the plating on the raised parts of the strip. This grinding is carried down to the line A—A of Fig. 4. Thus, the border 14 and the raised surfaces of the indicia 13 will appear in the whiter metal 10.

The next step of the process is to subject the strip to final embossing which will apply a design or set of indicia 18, directly over the indicia 13. This design may be of any suitable character, and is here represented as consisting of the vertical bar 19 intersected by the name "Caroner" and a medallion 20. The dies for the second embossing are so cut as to repeat the embossing of the frame, but the rest of the initial embossing will be flattened by the second embassing. However, the coating 17 which remains on the intaglio parts of the first embossing will preserve said embossing from obliteration by the second embossing, particularly along the margins of the raised surfaces where the greater depth of coating material produced in the fillets above referred to, will cause the outlines of the original embossing to be impressed into the surface of the strip. In order to make the indicia 13 show up clearly from all angles, the dies used in the final embossing are provided with stippled pads which will produce a stippled surface on that portion of the plate in which the indicia 13 are located. The result will be similar to that shown in Fig. 5. Because of the coating 17 the stippling will not show prominently, if at all, on the metal surfaces except those of the indicia 13.

As explained in said copending application, it is desirable to form the plate with flat weld spots 21 on the reverse side, surrounded by lines of weakness 22, so that when the spots 21 are welded to a suitable support the plate cannot be removed from said support without tearing along the lines of weakness. The lines of weakness are produced by forming the male die with an insert having an annular rim which will impress a groove 22 in the plate and leave a flat weld spot within the groove. The female die is not correspondingly indented and hence the insert reduces the thickness of metal in an annular groove which does not show through on the obverse face of the plate.

The next step of the operation is to remove the coating 17. This may be done by dis-

solving it with a suitable solvent. The plate will then appear as indicated in Fig. 8. The letters and numerals 13 and the border 14 will show in a lighter metal on the darker copper surface of the rest of the plate, and the surfaces of the indicia 13 will be stippled or roughened as indicated in the drawings.

To provide a further contrast between the Monel metal and the copper plating, the strip is then subjected to an oxidizing process which turns the copper plating to a dark, almost black color. If desired, certain parts of the oxidized copper surface may be burnished to remove the oxide, so that they will stand out in a bright copper color against the dark oxidized ground. Thus, in Fig. 9, I have shown the medallion 20 as burnished, to show in bright copper color.

The final step of the operation is to pass the strip 12 through a blanking-out die which will cut the plates out of the strip at the base of the rim 15.

While I refer to japan as a suitable coating, other materials can be used, such, for instance, as silicate of soda. If silicate of soda is used the coating may be dried without baking. Other materials will also suggest themselves to those skilled in the art. It is desirable, however, that the coating material be of a viscous nature when applied, and, when dried or otherwise hardened, that it be hard enough to stand up under the grinding operation and yet be pliable enough not to crack or flake under the final embossing operation. Instead of grinding the coating off the raised surfaces after the first indicia and the border have been embossed, the coating may be removed by any other suitable means, such for instance as scraping it off or dissolving it. In some cases it may be desirable to omit the step of removing the coating. In such cases the exposed surfaces of the first embossing could be oxidized or otherwise treated to show a marked color contrast, for while I have referred to copper and Monel metal as a desirable combination, other metals can also be used provided they would show sufficient contrast to make one set of indicia readable through the other set. Obviously the nature of the indicia or designs employed may be varied at will. If desired the indicia 13, the border 14 and the cupping of the plates may all be formed by a single embossing. These and other variations in my process may be made without departing from the spirit and scope of my invention as pointed out in the following claims.

I claim:

1. In the process of making identification plates of the character described, the steps which consist in, providing a strip of sheet metal with a facing of a different metal, the two metals being such as show a marked contrast when subjected to oxidation, embossing the strip to form a plate with raised indicia thereon and a down-turned marginal rim, covering the plate with a protective coating, removing the coating and metal facing from the raised surfaces of the plate, embossing the plate with other indicia superposed on the first, removing the coating, subjecting the plate to oxidation, and burnishing a part of the oxidized portion of the plate to remove the oxide therefrom.

2. In the process of making identification plates of the character described, the steps which consist in, providing a strip of sheet metal which will not materially darken when exposed to oxidation, plating the strip with metal which will not materially darken when subjected to oxidation, embossing the strip to form a plate with raised indicia thereon and a down-turned marginal rim, covering the plate with a protective coating, removing the coating and metal facing from the raised surfaces of the plate, embossing the plate with other indicia superposed on the first, removing the coating, subjecting the plate to oxidation, and burnishing a portion of the plate to remove the oxide therefrom.

3. In the process of making identification plates of the character described the steps which consist in, plating a strip of sheet metal of light color with a plating of metal of a darker color, embossing the strip between male and female dies to form a plate with raised indicia thereon and a down-turned marginal rim, removing the metal plating from the raised surfaces of the embossing to expose the light colored body metal, subjecting the plate to a second embossing to form raised indicia superposed on the first indicia and to stipple the exposed surfaces of the first named indicia, and coating the metal plated portions of the plate between embossings to prevent obliteration of the first named indicia by the second embossing and protect the plated portions of the plate from being stippled.

4. In the process of making identification plates of the character described the steps which consist in, plating a strip of sheet metal of light color with a plating of metal of a darker color, embossing the strip between male and female dies to form a plate with raised indicia thereon, removing the metal plating from the raised surfaces of the embossing to expose the light colored body metal, subjecting the plate to a second embossing to form raised indicia superposed on the first indicia and to stipple the exposed surfaces of the first named indicia, coating the metal plated portions of the plate between embossings to prevent obliteration of the first named indicia by the second embossing and protect the plated portions of the plate from being stippled, removing the coating after

the second embossing, and cutting the plate out of the strip.

5. In the process of making identification plates of the character described the steps which consist in, plating a strip of sheet metal with a metal of different color, embossing the plate between male and female dies to form a plate with raised indicia thereon and a down-turned marginal rim, covering the plate with a protective coating, removing the coating and metal plating from the raised surfaces of the embossing, and subjecting the plate to a second embossing between male and female dies to form other raised indicia superposed on the first named indicia and to form a flat weld spot on the under-face of the plate and to impress a region of weakness in the under-face of the plate around the weld spot.

6. In the process of making identification plates of the character described the steps which consist in, plating a strip of sheet metal with a metal of different color, embossing the plate between male and female dies to form a plate with raised indicia thereon and a down-turned marginal rim, covering the plate with a protective coating, removing the coating and metal plating from the raised surface of the embossing, subjecting the plate to a second embossing between male and female dies to form other raised indicia superposed on the first named indicia and to form a flat weld sopt on the under face of the plate and to impress a region of weakness in the under face of the plate around the weld spot, removing the coating, and cutting the plate out of the strip.

7. In the process of making identification plates of the character described the steps which consist in, providing a strip of light colored sheet metal which will not materially darken when exposed to an oxidizing treatment, plating the strip with metal which will materially darken when exposed to said oxidizing treatment, embossing the plate between male and female dies to form a plate with raised indicia thereon and a down-turned marginal rim, covering the obverse face of the plate with a protective coating except on raised surfaces of the embossing, removing the metal plating from said surfaces, embossing other raised indicia over the first named indicia, roughening the exposed metal surfaces of the plate on the obverse face thereof, impressing a groove in the reverse face of the plate to form a region of weakness, removing the remainder of the coating, subjecting the plate to said oxidizing treatment, burnishing a part of the obverse face of the plate plate to remove the oxide therefrom, and blanking the plate out of the strip.

In testimony whereof, I have signed this specification.

BERNARD J. POVALSKI.