

ALIEN PROPERTY CUSTODIAN

METHOD OF MAKING SIGN-PANELS

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This invention relates to sign-panels of the type having light-reflecting areas provided thereon, as for instance warning or orientation sign-panels, way indicators and the like, such as are used alongside of roads to mark railway or road crossings, serpentine road sections and the like. Heretofore sign-panels of this type have been made by a method in which the light-reflecting layers in the form of signs or letters are caused to adhere to the lacquer coated face of the panel before the lacquer coating has time to harden and then, when this backing coating has hardened, the whole of the panel together with the reflecting layer is provided with a transparent covering layer of paint for protection against atmospheric agents. The object of the invention is to secure, by a particular method of manufacturing sign-panels of the above described type, a perfect adhesion of the lacquer layers as well as of the light-reflecting areas and of the paint coating on the same, a permanent reflection effect and a resistance as great as possible against atmospheric influences. According to the invention these desired results are obtained by the use as a light reflecting surface of finely corrugated metal foil, preferably an aluminium foil. The expression "finely corrugated foil" is used in the body of the specification and in the claims to describe particularly an irregularly wrinkled flat foil whose folds, extending in all directions and considerably varying in length, form "waves" which on their sides reflect light in all directions. By corrugating the metal foil perfect reflection of light in all directions is obtained and moreover intimate union of the foil with the lacquer backing and the covering coating is secured. Advantageously the foil is provided with fine fissures or perforations preferably after it has been secured to the backing lacquer layer. Thus evaporation of the lacquer solvent is permitted during the hardening of the backing layer also within the areas under the applied foil and the formation of bubbles and bumps on the face of the metal foil is prevented, and moreover the aforementioned fissures or perforations insure a strong bond between the covering and backing lacquer layers, thereby increasing the strength and durability of the sign-panel.

As metal foils there is made use of very thin aluminium, tin or other metal foils which are first finely corrugated or wrinkled in such a manner as to have the appearance of a crumpled leaf which, however, is substantially flat. Alternatively it is possible to cut out the metal foil to a larger size than that of the surface to be

covered by the same and then cause the foil to adhere by its margins on the still sticky surface to be covered in such a way that the portion of the foil between such margins becomes arcuate, thereafter pressing the foil against the lacquer backing, for instance, by means of a rubber roller, whereby the whole inner surface of the metal foil becomes corrugated, the corrugations extending in all directions without projecting above the plane of the foil so that the finished sign-panel is perfectly smooth.

In the practical working of the method according to the invention the panel to be treated, e. g. a sheet of metal, is cleaned, if desired by sand blasting, so as to insure reliable adhesion of the lacquer coating on the surface of the panel. The lacquer backing is formed preferably with a synthetic resin lacquer. Preferably a lacquer is used which must be heated to a certain temperature in order to harden, e. g. a synthetic resin lacquer which does not change its colour at a temperature of between about 120° C. and 140° C. This lacquer is applied on the panel, e. g. by spraying, and then the panel is caused to dry, preferably by heating to a comparatively low temperature, e. g. to 60° C. during a period of ten minutes. After such heating the lacquer coating is still sufficiently sticky. The sign, letter or the like, which is cut out from an aluminium, tin or other metal foil, is then applied on this coating and adheres to the same. The signs or letters are cut about one third larger in size than their desired size on the panel. Before its application, or during such application, the foil is so corrugated as to reduce the design to the required size, so that when the foil is forced down completely on the lacquer backing, e. g. by means of a rubber roller, fine protuberances are formed on the surface of the foil and the latter is completely pressed down flush with the plane of the panel. In this way irregular protuberances and wrinkles extending in all directions arise in the foil, such protuberances and wrinkles reflecting the light in all directions. The stuck-on foil is provided with fine fissures which are obtained either by interrupting the crests of the corrugations at certain points, or by perforation by means of a metallic brush or the like. Then the panels are placed in a furnace heated to about 120-140° C. where they are left for a comparatively long period, e. g. 1-2 hours. By this burning the backing lacquer hardens on the panels. After removal from the furnace and cooling down the panels are provided with an opaque covering paint which covers the edges of the foil

and delimits the reflecting coil areas exactly to the desired shape. The opaque covering lacquer also prevents the edges of the foils from becoming loosened and fringed. After application of the covering paint, which may be black, blue or of any colour, the panels are allowed to dry somewhat and then are again burnt in a furnace at a temperature of about 120 to 140° C. After removal from the furnace and cooling the panels are provided, e. g. by spraying, with a protective layer of a colourless lacquer of the same composition as that of the backing layer, e. g. a synthetic resin lacquer. Through the fissures of the foils this lacquer layer becomes intimately united with the backing lacquer layer so that it cannot be loosened by the atmospheric agents. When the insulating lacquer has been sprayed on the panels the latter are once more allowed to dry somewhat and then are subjected

to drying in a furnace at a comparatively low temperature, e. g. 80° C. for about half an hour, whereafter the panels are left to dry completely at room temperature.

5 The described method also permits to provide reflecting areas on panels on which it is then possible to paint the desired signs, letters or the like by means of opaque lacquers. Before the application of the final protective layer the foil
10 may be provided with a transparent coloured lacquer layer, e. g. a yellow layer, so that the metal foil will have a golden aspect.

Most advantageously an aluminium foil is used in carrying out the improved method, as such
15 foil insures to the highest degree constant light-reflecting characteristics even after a prolonged exposure to the atmospheric agents.

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