

pletely cured coating. Examples are a mixture of ethyl acetate and trichloroethane, and trichloroethylene. Then, for finishing purposes, the substrate 1 having the completely cured coating 3" (the resist coating) having the complementary pattern P' left thereon is washed thoroughly with a cleaning agent 10 composed of trichloroethylene or another organic solvent, and dried by using a washing tand 11, a cleaning rotary brush 12, and a drier 13.

As stated hereinabove, the method of this invention makes it possible to form a resist coating 3" having a pattern P' which is in a complementary relation to the predetermined pattern P on the surface of the substrate in the form of a long roll or a sheet on a continuous production line. The method has very high utilitarian value and economic advantage because it forms the pattern P' of the resist coating 3" by utilizing the local differences of the ultraviolet light-cured coating in the degree of solubility or solvent resistance.

The product of this invention having the structure shown in FIG. 5 produced through the aforesaid steps is submitted to a plating step, as shown in the following Examples, for the production of electronic component parts. In the plating step, a plate layer p is formed on the exposed surface (that surface of the substrate 1 which does not have the resist coating 3") of the product of FIG. 5 as shown in FIG. 6. The product of FIG. 6 is treated with a suitable solvent to remove the resist coating 3". As a result, a product having a plated layer p with a predetermined pattern P is obtained on the surface of the substrate 1 as shown in FIG. 7.

The following examples illustrate the present invention specifically. The primary and secondary ultraviolet irradiating devices used in these examples had the following structures.

PRIMARY ULTRAVIOLET IRRADIATING DEVICE

Four ultraviolet light lamps are arranged both above and below the substrate being transferred at a predetermined speed. The distance between the substrate and a set of four lamps on each side is 14 cm. The lamps on each side are arranged at intervals of 10 cm, and the long axis of each lamp is at right angles to the transferring direction of the substrate. Each of the lamps has an output of 2 KW, and an effective lamp length of 150 mm.

SECONDARY ULTRAVIOLET IRRADIATING DEVICE

Five ultraviolet light lamps are arranged both above and below the substrate transferred at a predetermined speed. The distance between the substrate and a set of five lamps on each side is 10 cm. On each side, each lamp is spaced from an adjoining lamp with an interval of 10 cm, and the long axis of each lamp is at right angle to the transferring direction of the substrate. Each of the lamps has an output of 20 KW, and an effective lamp length of 150 mm.

EXAMPLE 1

The following experiment was run by using the production line shown in FIG. 1.

The line speed was preset at 20 meters/min. Both surfaces of a phosphor bronze strip (PBR 1H, a product of Mitsubishi Electric Co., Ltd.) were coated entirely to a thickness of 15 microns with an ultraviolet light-curable paint having a resist effect against plating (DAI-

CURE pr, a product of Dainippon Ink & Chemicals, Co., Ltd.). The coated metal strip was passed through the primary ultraviolet irradiating device to pre-cure the coating. A predetermined pattern was then printed on both surfaces of the metal strip using a rotary relief printing press (a relief printing plate prepared from V10DIC U-82, a photosensitive resin made by Dainippon Ink & Chemicals Co., Ltd. was wrapped around the printing cylinder with a both surface-adhesive tape and the joint portion of the plate was sealed up with an epoxy adhesive) and a lithographic black printing ink (New Champion Apex Black, a product of Dainippon Ink & Chemicals Co., Ltd.). The metal strip was then passed through the secondary ultraviolet irradiating device at a speed of 20 m/min. to cure completely that part of the coating which was not printed with the black ink. The metal strip was then subjected to development using a stainless steel developing device including a solvent jet nozzle and a nylon brushing roll built therein and trichloroethylene as a developing solution. As a result of the developing, the printed layer and that part of the coating which was beneath the printed layer were removed. The surface of the metal strip was exposed to view in a pattern faithful to the pattern of the printed layer (in other words, a completely cured coating, i.e. resist coating, having a pattern complementary to the pattern of the printed layer was formed on the surface of the metal strip). The metal strip so developed was then dipped for 30 seconds at 70° C. in an alkaline solution at pH 11 containing sodium carbonate and sodium triphosphate, washed with water, and then electrolytically washed at 50° C. for 30 seconds at a voltage of 5 V and a current density of 4A/dm² in an alkaline solution at a pH of 11 containing sodium carbonate and sodium triphosphate. After pickling, the coated substrate was plated in a silver strike bath for 6 seconds at 25° C. and a current density of 2 A/dm², and then plated in a silver cyanide bath at 25° C. and a current density of 4 A/dm² for 60 seconds.

The resist coating had a sufficient resist effect against the above washing and plating operations, and the coating was not at all peeled off. After the plating, the resist coating was peeled off by dichloromethane, and washed with water to obtain a metal strip plated with silver in the desired pattern.

EXAMPLE 2

The same ultraviolet light-curable paint as used in Example 1 was coated entirely to a thickness of 10 microns on both surfaces of an aluminum plate (300×400 mm) with a thickness of 0.3 mm by means of a roll coater. The coated plate was passed through the primary ultraviolet irradiating device at a speed of 20 meters/min. to pre-cure the coating. A predetermined pattern was printed on the pre-cured coating by means of a lithographic offset printing press and the same lithographic black ink as used in Example 1. The plate was then passed through the secondary ultraviolet irradiating device at a speed of 20 meters/min. to cure that part of the pre-cured coating which did not have the printed layer thereon, and then a coating having a pattern in a complementary relation to the pattern of the printed layer was formed by using the same developing device and the developing solution as used in Example 1. The plate was then electrolytically washed for 30 minutes in a 1% sodium hydroxide solution at 25° C. The plate was then washed with water. The aluminum plate was fixed to an anode and graphite was used as a