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PROCESS OF DYEING ANODIC OXIDIZED COATING OF ALUMINIUM OR ITS ALLOYS

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Fig. 1.

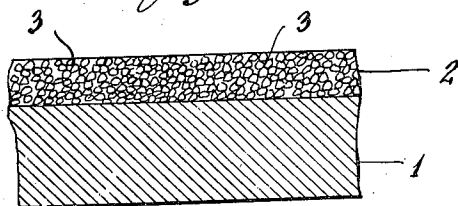
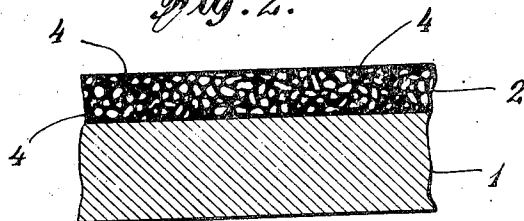


Fig. 2.



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PROCESS OF DYEING ANODIC OXIDIZED
COATING OF ALUMINIUM OR ITS ALLOYS

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2 Claims. (Cl. 41—29)

The present invention relates to a process of dyeing an anodic oxidized coating on aluminium or its alloys, which consists in combination of the step of subjecting aluminium or its alloys to the so-called electro-chemical anodic treatment, printing desired figures such as lines, designs, etc., on the surface of the porous oxidized coating formed on the surface of aluminium or its alloys by the above treatment, with a saponifiable fatty varnish preparation having a reservative property, and then dyeing the remaining portion of said coating with dyestuffs, for example, a direct dyestuff, acidic dyestuff, basic dyestuff or mordant color and the step of filling the pores of the said dyed portion with the soap produced by the treatment of the whole with an alkali hydroxide, for instance, caustic potash solution and the consequent saponification of the remaining attached saponifiable fatty printing varnish preparation with said alkali. Thus, according to the present invention it is possible to dye an anodic oxidized coating of aluminium or its alloys simply and accurately and at the same time impregnate the whole surface with a layer of soap and thus produce thereon the elegant lustre of a lacquer.

In the accompanying drawing forming part hereof.

Figure 1 is an enlarged fragmentary section of a piece of aluminium or of an aluminium alloy having a porous oxide coating formed on its surface by an electro-chemical anodic treatment.

Figure 2 is a similar view showing the condition when the coating is colored and the pores are filled with a soap according to the invention.

The following is an example of performing this invention:—

This invention employs as a printing preparation a kind of fatty printing varnish prepared by mixing suitably a fatty substance, mainly linseed oil belonging to dry oil, a resinous substance such as China copal and metal soap like lead soap.

The following is an example of preparing the fatty printing varnish employed in this invention:

	Per cent by weight
Linseed oil-----	40
China copal-----	20
Metal soap-----	40

In the drawing, the aluminium or alloy thereof is indicated at 1, while 2 indicates a porous oxide coating formed on the surface of the same,

and 3 refers to the pores in said coating. In Figure 2, the soap which fills the pores is indicated at 4.

With the mentioned fatty printing varnish preparation having preservative characteristics thus obtained, desired figures are printed upon the surface of an anodic oxidized coating of aluminium or its alloys, using a rubber plate, lithographic slate, etc., thus depriving that part of the surface of the dyeing power of a dyestuff. Next, after drying it suitably, the remaining portion of said coating is dyed with a desired dyestuff. If on this occasion it is desired to have a deep and durable color, use is especially made of a direct dyestuff. But oppositely if a fresh light color is preferable, it is advisable to take an acidic dyestuff. Although a basic dyestuff and mordant color are inferior to the above direct dyestuff and an acidic dyestuff in dyeing power, they also may be used. As a direct dyestuff, all kinds of direct dyestuffs, for example, diazo-phenyl black, diamine black and oxydiamine violet are employed, while as for an acidic dyestuff all kinds of direct dyestuffs, for instance, acid black, fast green and sulphon orange are available. Then, the whole of said anodic oxidized coating is treated in alkali hydroxide, for example, caustic potash solution-containing hot liquor to dissolve and remove those parts of said saponifiable fatty varnish preparation that have swollen on the above coating, and the dissolved fatty varnish and alkali hydroxide will form a kind of soap by saponification. In the present invention, by filling the pores of said dyed portion with the soap thus produced and thus impregnating the whole surface uniformly with a soap layer, it is possible to produce thereon the elegant lustre of a lacquer.

Incidentally, before use, said fatty printing varnish preparation may have dissolved therein about 10% of a basic pigment which does not dye anodic oxidized coatings of aluminium or its alloys, or an oil-soluble basic pigment such as gives a suitable color to said anodic oxidized coating as a guide color for distinguishing the color of the printed figures clearly from that of the oxidized coating.

The dyeing process according to this invention may be, on the other hand, called a process of producing a fatty anodic oxidized coating upon aluminium or its alloys. Its production does not only have the elegant lustre of the lacquer, but also if it is applied to, for instance, the dyeing of a sound record, the needle can run smoothly on the record in the recording of a sound, thus

rendering it possible to record voices clearly. Oppositely, in reproducing the sound it is possible to reduce the friction of the steel needle and prevent noises and also lengthen the life of the needle.

5 Having now fully described my invention, I claim:

1. Process of dyeing an anodic oxidized coating of aluminium, which consists in subjecting
10 aluminium to an electro-chemical anodic treatment, printing desired figures such as lines, designs, etc. on the porous oxidized coating formed on the surface of said aluminium by the above treatment, with a saponifiable fatty printing varnish preparation having a preservative property
15 and dyeing the remaining portion of said coating with a dyestuff, and then filling the pores of such dyed portion with the soap prepared by the treatment of the whole with an alkali hydroxide and

the consequent saponification of the remaining attached saponifiable fatty printing varnish preparation with said alkali.

2. Process of dyeing an anodic oxidized coating of aluminium alloys, which consists in subjecting aluminium alloys to an electro-chemical anodic treatment, printing desired figures such as lines, designs, etc. on the porous oxidized coating formed on the surface of said aluminium alloys by the above treatment, with a saponifiable fatty printing varnish preparation having a preservative property and dyeing the remaining portion of said coating with a dyestuff, and then filling the pores of such dyed portion with the soap prepared by the treatment of the whole with an alkali hydroxide and the consequent saponification of the remaining attached saponifiable fatty printing varnish preparation with said alkali.

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