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PROCESS FOR THE PREPARATION OF METALLIC SCREENS FOR LUMINOUS PROJECTIONS.

No Drawing.

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To all whom it may concern:

Be it known that I, PIERRE JEAN MARTIN, citizen of the United States of America, residing at Brussels, in the Kingdom of Belgium, have invented certain new and useful Improvements in Processes for the Preparation of Metallic Screens for Luminous Projections, of which the following is a specification.

The present invention relates to a process for the preparation of screens generally used for cinematographic and other luminous projections, its object being to improve the production of what are generally termed metallized screens.

It is known that in the metalization process the application of the metallizing substance to the plain coating serving as a backing and forming the background of the screen, produces a smooth reductive surface, but in the more illuminated parts of the projection reflections and halos result from this smoothness. It is necessary to minimize this effect to secure the sharp definition of the images projected and the natural means of obtaining this attenuation is to break up the bundles of light rays reflected by the screen, by imparting to the latter diffusing qualities to disperse the rays received and thus to suppress the reflections. With this object in view it has been proposed to apply a metallizing coat consisting of a mixture of gold size, aluminium powder and silver powder and when this coating is dry to dust it with a mixture of aluminium powder and silver powder in a dry state. It has also been proposed to provide a metallized screen, obtained by the application of silver, bronze or other metal, with indentations or striations so as to provide a surface broken up by a large number of projections and recesses. The application of a sand-blast has given the desired effect in some instances whilst in other instances the effect has been obtained by etching or special shaping.

According to the present invention the background coating has added to it a coating of fine grains of flint, or other such material constituting an infinity of small asperities, the cracks or fissures of which are filled by a special metallizing substance applied subsequently, and which reflect in all directions due to their multiple orientations the light which they receive and diffuse it without reducing any of its intensity. The application of grains of flint must not be

confused with sand-blasting wherein the particles of sand after impinging on the screen to create a number of indentations fall away as usual and therefore do not form part of the surface.

As to the special metallizing substance referred to, aluminium is the chief constituent but while the use of this metal has found favor in the art by reason of its natural qualities and of its relatively satisfactory brilliancy, yet it has the drawback of quickly tarnishing and thus rapidly losing its reflecting qualities. The substitution for aluminium of another metal, better able to withstand oxidation but necessarily of a higher density, would constitute a grave drawback for screens of large dimensions. It is therefore essential, whilst retaining the advantages of the use of aluminium, to lengthen the effective life of the screen by a suitable preparation of the metallizing substance capable of increasing its brilliancy and correspondingly reducing the energy consumed by the illuminating source. For this purpose, according to my invention, there is incorporated with the aluminium a very small proportion of gold in the pure state. Owing to the extreme ductility of gold it is possible to obtain a considerable surface in relation to the volume used and it has been found that by distributing it in the aluminium the intensity of the brilliancy of the metallizing coating is increased to a very large extent.

The gold beaten into extremely thin sheets is, prior to its incorporation with aluminium divided into minute facets of sizes corresponding to the degree of fineness of the grains of flint covering the screen, in such wise that the sum total of the surfaces resulting from this division may not be less than the original surface of the sheets from which they are made. The particles of gold are uniformly distributed in the aluminium and the multiple facets thus produced are, at the time of the metalization, applied to the asperities of the flint, giving the full brilliancy due to the polish of each of them whilst preserving, by their orientation in all directions, the entirety of the diffusing effect desired. For the same reasons and for the same object a similar treatment is applied to a part of the aluminium used, that is to say it is divided up into minute facets from very thin sheets, the other part, intended to serve as connecting medium between the

different facets of metal, being utilized in the form of powder and only constituting, practically speaking, the background of the metallized surface.

5 In a screen produced by the process according to this invention, although the metallized surface will consist largely of aluminium the drawbacks referred to are avoided by the incorporation of the precious metal
10 which yielding for a small volume proportionately considerable surfaces uniformly distributed over the metallized surface, covers an appreciable part of the metallized surface, each of the metal particles incorporated preserving the whole of the reflecting
15 qualities and these qualities being enhanced by the form of the facets under which these particles are presented.

I claim:—

20 1. The herein described process of pro-

ducing metallized screens for cinematographic and other projections, which consists in applying a coating of fine grains of flint to a plain backing, and applying to said coating a metallizing layer consisting
25 of aluminium admixed with a small proportion of gold in the pure state finely divided from thin sheets into minute facets of dimensions in proportion to the degree of
30 fineness of the grains of flint, the gold being uniformly distributed throughout the aluminium whereby the metallized surface is given increased brilliancy.

2. In the herein described process of producing metallized screens, in combination
35 with the steps claimed in claim 1, the step of finely comminuting the aluminium prior to its admixture with the gold.

In testimony whereof I affix my signature.

PIERRE JEAN MARTIN.