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STENCIL SCREEN AND METHOD OF
MAKING THE SAMEHarry E. Playford, Sapulpa, Okla., assignor to
The Liberty Glass Company, Sapulpa, Okla., a
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2 Claims. (Cl. 154—2)

This invention relates to stencil screens and to a method of making the same.

Heretofore it has been the practice to utilize stainless steel wire or silk in the formation of these screens but because of the comparatively higher cost or uncertainty of obtaining these materials, it has been found desirable to use substitutes. Silk, when moistened, will shrink and, therefore, has been an excellent material for use on a stencil frame in lieu of wire mesh. The most desirable, readily obtainable, and cheaper substitutes for silk are "rayon" and "nylon." Fabrics of these materials, however, will stretch when moistened and as the preparation of a stencil screen of necessity involves the steps of (1) sizing; and (2) transferring while in a moist state, of light sensitive material onto the fabric, said fabrics necessarily become moist and will stretch if the usual procedure is followed; thus causing undesirable sagging of the finished stencil screen.

Furthermore "nylon" and "rayon" are non-absorbent and ordinarily will not respond to the impregnation or attraction treatment to which steel wire is subjected nor absorb as readily as silk. Consequently these materials could not be used efficiently heretofore.

An object of the present invention is to so treat the "nylon," "rayon" or other synthetic fabric as to prevent excessive sagging or stretching after the screen has been attached to its frame and permit efficient use thereof in building up a backing for a stencil pattern or design, and efficient use of the screen in stenciling.

With the foregoing and other objects in view the invention resides in certain novel steps in the method of treatment and in the resultant product hereinafter more fully described and pointed out in the claims, it being understood that changes may be made within the scope of the claims without departing from the spirit of the invention.

In producing photo-gelatin and photo-poly-vinyl alcohol, or other light sensitive material screens using "nylon" or other synthetic fabrics, a piece of dry fabric of proper dimensions can be fastened to a temporary expansible support of any suitable construction so as to be stretched when moistened and after being moistened and stretched, the fabric can be tacked or otherwise fastened to the permanent stencil support. In lieu of the foregoing step wet fabric can be stretched over and fastened to the permanent stencil support, thereby eliminating the use of a temporary support for the stretching operation.

After the dry fabric has been attached to an expanding temporary support or has been stretched while moist, fastened to a permanent stencil support and allowed to dry, it is treated with liquid gelatin sizing or the like containing light sensitive material, and again allowed to dry. A sheet of light sensitive gelatin (potassium dichromate treated), or other light sensitive material is then transferred onto the fabric. At this point if normally employed forced drying is effected the gelatin sheet, or light sensitive material film, will not anneal properly to the gelatin sized, or light sensitive material impregnated fabric, due to the non-absorbing properties of the synthetic fabric used.

To overcome the foregoing difficulty my perfected method is to break down the sheet gelatin to a state where the synthetic fabric will be fused to the gelatin. The result is attained by placing the fabric on which the sheet of gelatin has been transferred and while still in a moist condition, in a room or container in which is maintained a temperature of about 90° F. and a relative humidity of about 45%. It has been discovered that under these conditions the sheet gelatin will break down to the point where, by molecular attraction, the synthetic fabric, the gelatin sizing and the sheet gelatin will become annealed into a unit of desired thickness, durability and tautness.

The apparatus employed need not be of any special construction. The room or enclosure should be made to exclude light and can be heated electrically while moisture can be supplied by boiling water in the enclosure, and the desired temperature and humidity can be attained by ventilation or by an automatic humidifier.

It has been found that a synthetic fabric, such as "nylon" and "rayon," treated as herein explained will not sag after the exposure and washing out process if dried normally or by drying means at a temperature of approximately 95° to 100° F.

Importance is attached to the fact that the fabric is stretched while moist before it is attached to the permanent stencil support.

What is claimed is:

1. The method of preparing a light sensitive material stencil screen with a synthetic mesh fabric of a type which will stretch when moistened, which includes the step of moistening the fabric, stretching the fabric while moist, attaching the stretched fabric to a supporting frame and drying the fabric, thereafter treating the stretched fabric with gelatin sizing and drying

it, then applying a sheet of light sensitive gelatin to the sized fabric, and then fusing together the fabric and the applied material thereon in a drying atmosphere.

2. The method of preparing a light sensitive stencil screen with a synthetic mesh fabric of a type which will stretch when moistened, which includes the step of moistening the mesh fabric to render it stretchable, stretching the fabric while moist, attaching the stretched fabric to a sup- 10

porting frame and drying the fabric, thereafter subjecting the stretched, dried fabric to a gelatin size, again drying the screen, thereafter transferring a sheet of moist light sensitive gelatin onto the screen, and then subjecting the materials to a temperature of approximately 90° F. while exposed to a humidity of approximately 45%, thereby to fuse the fabric, size and sheet gelatin into a unitary sheet.

HARRY E. PLAYFORD.