June 5, 1928. 1,672,656

A. PAYNE

PICTURE SCREEN

Filed Sept. 25, 1924

Fig. 1.

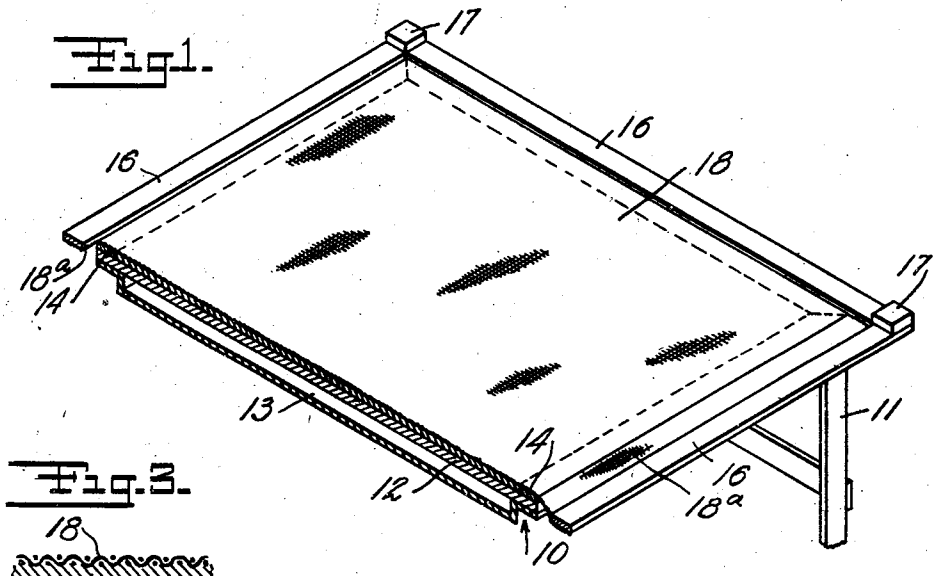


Fig. 3.

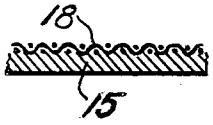


Fig. 2.

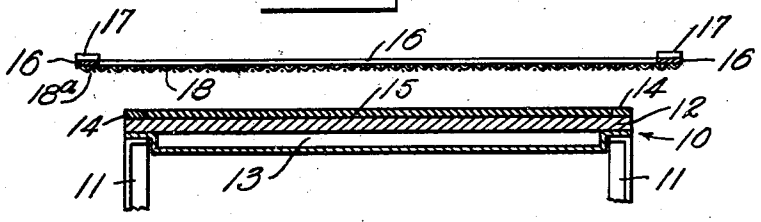


Fig. 4.

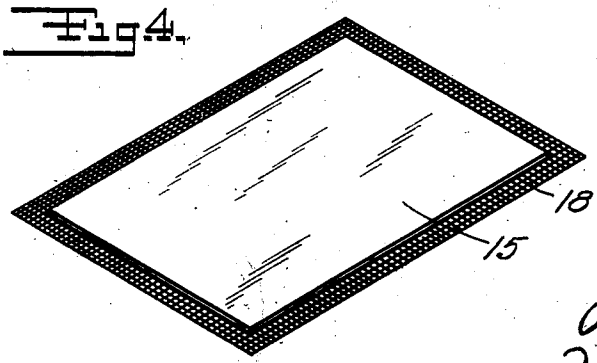
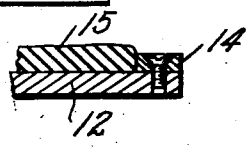


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR PAYNE, OF KEW GARDENS, NEW YORK, ASSIGNOR TO TRANS-LUX DAYLIGHT PICTURE SCREEN CORPORATION, A CORPORATION OF DELAWARE.

PICTURE SCREEN.

Application filed September 25, 1924. Serial No. 739,892.

This invention relates to translucent exhibition screens for projection machines, and more particularly to screens for use in microscopic work which require clear details.

The invention consists in combining a film of moldable gelatinous or gummy material with a fabric to form the thin sheet of a screen of this character which serves as a medium for showing a projected picture with unusual sharpness and without distortion.

An object is to provide a translucent flexible screen comprising a fine crinkly fabric evenly secured to one side of the non-fibrous molded sheet.

Other features and advantages will hereinafter appear.

In the drawings, Figure 1 is a perspective view, partly in section of the molding table and frame showing the method of stretching the fabric evenly over the molded film.

Figure 2 is a view corresponding to a transverse section of the table showing the frame in raised positions over the latter.

Figure 3 is a diagrammatic, fragmentary sectional view of the screen showing fabric secured to the molded film.

Figure 4 is a perspective view of a finished screen, the cross lines indicating the crinkly fabric and the middle section the adhering film.

Figure 5 is an enlarged fragmentary view of a portion of Figure 2 showing the side strips for confining the moldable material.

In my co-pending application, Serial No. 85,862, filed February 4, 1926, I have disclosed a process whereby such an improved screen is formed, in which a molding table 10 may have supporting legs 11 and a metallic top 12, composed of aluminum, copper, iron, steel, etc., or other like material suitable for giving a smooth molding surface. Top 12 is heated, preferably by steam, hot water, electricity, or like easily controlled means from a source situated at 13 underneath top 12. Side strips or guides 14 may be secured to the upper side of top 12 to extend completely around the edges thereof to form with said top 12 a receiver or mold for shaping a plastic material 15, to be used in making the screen.

The material 15 may be of a composition as disclosed in Patent #1,151,502, dated August 24, 1915, or any other similar composition. Said material 15 when first prepared and still in heated condition is plastic and may be molded into a relative thin sheet that on cooling becomes a translucent, flexible film and having other desirable properties for service as screens of the character described.

A frame 16 having an opening therein substantially of the same shape and larger than top 12 may have weights 17 mounted thereon to give sufficient stretch to a fabric 18 incorporated in the screen as will be explained hereinafter, although the weights are not essential. The fabric 18 is preferably of a silk crinkly constitution. "Georgette" crepe of 84 mesh treated to remove all gums and resins (boiled off) has been found to give most satisfactory results for the purpose. The crinkly surface structure of the crepe provides an improved diffusor for the light which results in a clear-cut, non-distorted picture as viewed from either side of the screen. Any other fabric may be used in place of the material just described, so long as it has the requisite light diffusing qualities. These qualities are more usually found in a fabric having the crinkly texture common to crepe, but I do not desire to be limited to such materials. Fabric 18 is secured to the under side of frame 16 as shown in Figures 2 and 4.

In carrying out the process of forming the screen, the table top 12 is heated to the proper temperature to keep the moldable material 15 in plastic condition. The material 15 may then be poured on to top 12 and spread thereon until the portion between the guides 14 is entirely filled and the upper surface of the material 15 reaches slightly above the guides 14 as shown in Figure 5. Any surplus material may then be struck off with a straight edge moved over the top edges of the guides 14. The material 15 then is in form of a thin film of substantially the desired size and thickness. The fabric 18 which is firmly stretched on and secured to frame 16 is then lowered over the top 12 from the position shown in Figure 2 to that shown in Figure 1. The material is kept in its plastic state by means of the heated table top 12 until the fabric 18 is thoroughly impregnated with the material, this action taking place in the manner set forth in my co-pending application, Serial No. 85,862, filed February 4, 1926, or by any other suitable method. The fabric is embedded in the

plastic material to the extent that it is thoroughly impregnated therewith, but the fabric is not covered on both sides by the plastic material. It is impregnated therewith but the fabric forms one surface on the screen. The base of the screen is furnished by the body of gelatinous material and then one surface of the screen is formed by the fabric as outlined above. This surface acts as a diffusor and to some extent as a reinforcing means. Its principal function, however, is to act as a diffusor. The overhanging portions of the fabric or flaps 18ª adjacent the side of frame 16 form a border suitable for mounting the screen sheet in an exhibition frame.

Although the formation of a rectangular screen is shown in the drawing it is obvious that any other shape may be likewise constructed. As is well-known in the art the crinkly condition of crepe is caused largely by the irregular weave with which it is made.

It is to be understood that other methods than that above described may be utilized to form my improved screen.

Variation may be resorted to within the scope of the invention and portions of the improvement may be used without others.

Having described my invention, I claim:

1. A screen of the character described comprising a crinkly fabric, and a body of moldable, translucent substance secured thereon, said fabric acting as a diffusor to give sharp and undistorted pictures.

2. A screen of the character described consisting of a thin film of flexible, translucent material molded on to an evenly stretched relatively fine-mesh, crepe fabric, said fabric being embedded into the surface of the film to form a single sheet with the film, said fabric acting as a diffusor to give sharp and undistorted pictures.

3. A screen of the character described comprising an evenly, stretched, relatively fine-mesh crepe fabric secured to a film of flexible translucent substance, said fabric acting as a diffusor to give sharp and undistorted pictures.

4. A screen of the character described consisting of a body of gelatinous, translucent material having smooth, plane surfaces, and a fabric embedded in a surface thereof to act as a diffusion medium for the screen and for strengthening the screen.

5. A screen of the character described comprising a crinkly fabric and a gelatinous translucent substance molded thereon, said fabric acting as a diffusor to give sharp and undistorted pictures, said substance having its exposed surface formed flat and smooth.

6. A screen of the character described comprising an evenly stretched, relatively fine mesh crepe fabric secured to one side of a smooth surfaced film of flexible translucent substance, said fabric acting as a diffusor to give sharp and undistorted pictures.

7. A screen of the character described consisting of a translucent film having flat surfaces, and a stretched fabric of crepe texture adheringly secured on a surface of the film to form a single sheet, said fabric acting as a diffusor to give sharp and undistorted pictures.

8. A screen of the character described comprising a body of a translucent substance having incorporated therein a sheet of fabric from which the gum or resinous material has been removed.

9. A screen of the character described comprising a base formed of a translucent gelatinous material having a fabric on one surface thereof, said fabric forming a surface of the screen and being impregnated by the gelatinous material of the base.

10. A screen of the character described comprising a base formed of a translucent gelatinous material having a fabric on one surface thereof, said fabric forming a surface of the screen and being impregnated by the gelatinous material of the base, and said fabric having the gum or resinous material removed therefrom.

11. A screen of the character described consisting of a base of translucent gelatinous material, one surface of the screen being formed of a light diffusing fabric, united to the base by the material thereof, and said fabric having the gum or resinous material removed therefrom.

12. A screen of the character described comprising a base of translucent material having incorporated therein a fabric of irregular weave.

13. A screen of the character described comprising a base of translucent material having incorporated in one face thereof a fabric of irregular weave.

In testimony whereof, I, ARTHUR PAYNE, have signed my name to this specification, this fifteenth day of September 1924.

ARTHUR PAYNE.