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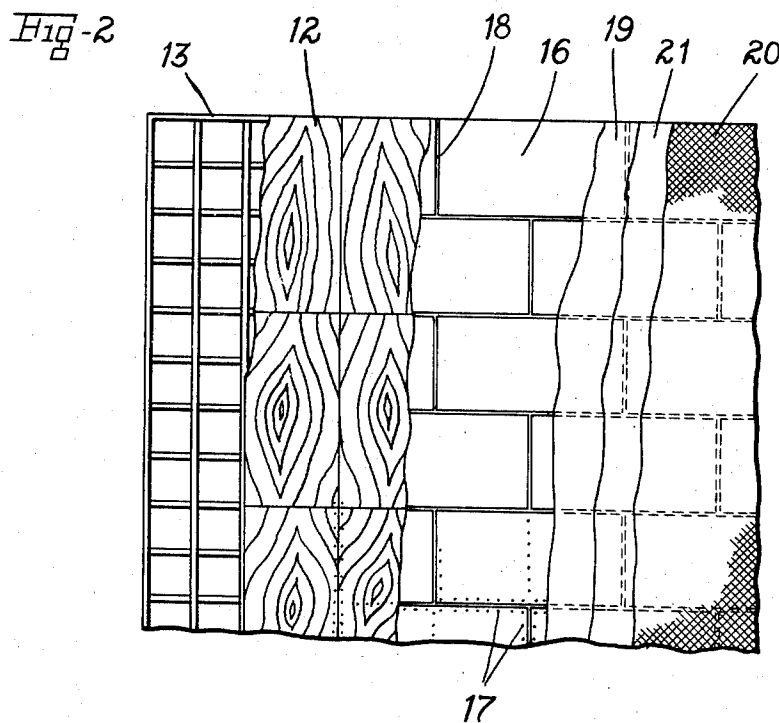
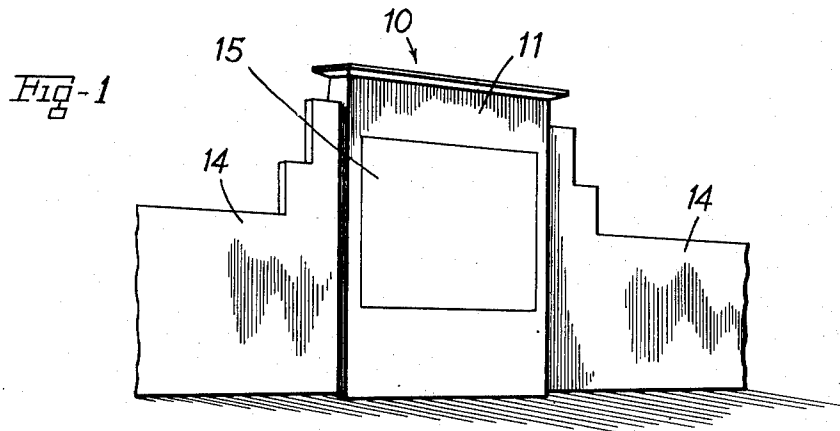
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2,579,892

OUTDOOR PROJECTION SCREEN

Filed Nov. 20, 1948

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

Fig-3

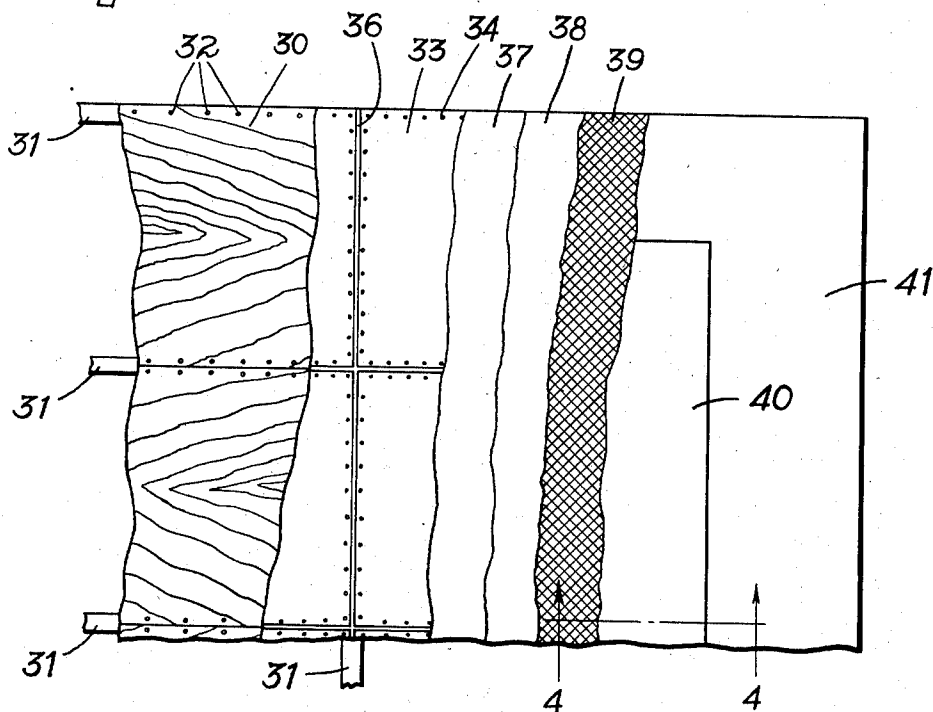
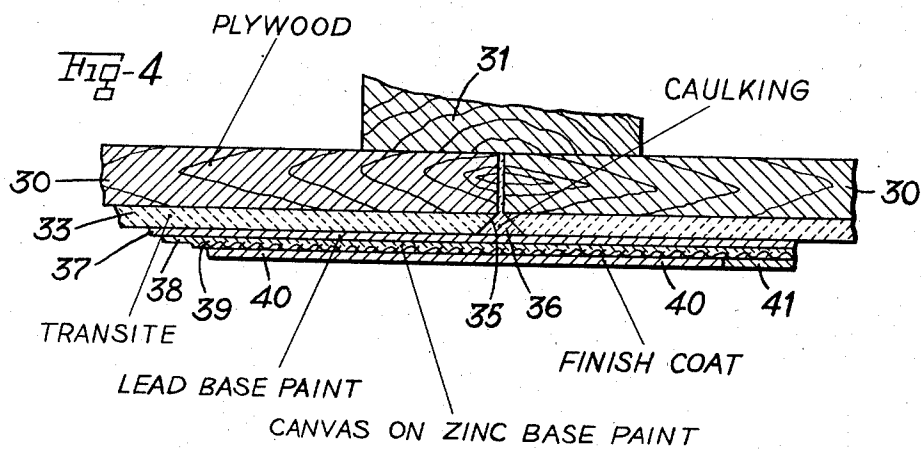


Fig-4



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OUTDOOR PROJECTION SCREEN

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4 Claims. (Cl. 88—28.9)

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This invention relates to projection screens and in particular to projection screens such as are used, for example, in outdoor theaters.

One of the principal objects of the invention is to provide a smooth surfaced projection screen for outdoor theaters and the like which is durable, requires a minimum of maintenance, and which retains a high quality surface during long periods of use under varied weather conditions without objectionable warping, buckling, cracking or peeling.

Another object of the invention is to provide an outdoor projection screen having a framework or base on which there is mounted a fabric material which is suitably secured to the base, affording a superior surface for receiving a paint constituting the projection surface, the fabric retaining its continuity and assuring a smooth image receiving surface.

Still another object of the invention is to provide sealing means for fabric material mounted on such projection screens in order to protect the same against deterioration by entrance of moisture or rain and subsequent temperature changes.

Other objects and advantages of the invention will be apparent from the following description, the accompanying drawings and the appended claims.

In the drawings—

Fig. 1 is a perspective view of a typical outdoor projection screen;

Figs. 2 and 3 are fragmentary views in elevation of projection screens constructed in accordance with the present invention, broken away at different areas thereof to show the interior structure of the screens;

Fig. 4 is an enlarged cross-sectional view taken on line 4—4 of Fig. 3 showing details of construction of the screen shown in Fig. 3.

One of the serious difficulties in connection with the construction of outdoor projection screens is to secure a surface satisfactory for projection which, when exposed to varied weather conditions, particularly rain, moisture, frost and temperature changes, will be durable and will not deteriorate causing warping, buckling, cracking or peeling to such an extent as to distort the clearness or outline of the image projection. Where proper provision is not made for positively sealing the projection surface and retaining the backing or main body section of such projection screens in sealed relation, considerable deterioration results after the screens are subjected to varied weather conditions.

The projection screen which forms the subject matter of this invention, successfully overcomes the difficulties heretofore encountered in this field and is so constructed as to be durable and serviceable and to withstand ordinary as well

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as severe weather conditions without objectionable warping, buckling, cracking or peeling, and requires minimum maintenance during long periods of use.

According to the present invention, the outdoor projection screen illustrated in Figs. 1 and 2 embodies a vertically positioned wooden structure 10 having a main body section 11 formed by superimposing eight feet by four feet sections of plywood sheeting 12 upon a wooden backing or frame structure 13, the latter being connected to side supporting walls 14. The backing or frame structure 13 resembles a lattice and is generally constructed by notching, matching and then nailing together suitable lengths of ordinary two by fours so as to form a network of parallel rectangles having an inside dimension of about four square feet. The projection screen sub-surface 15 which has a typical dimension of thirty-six feet by forty-eight feet, is produced by securing four feet by eight feet strips of an asbestos sheeting or lumber material 16 to the main body section 11 by means of nails 17 or the like. The strips of asbestos material 16 are generally arranged in a staggered relationship with respect to each other as shown in Fig. 2, the seams between the asbestos material are filled with a caulking material 18, and thereafter the entire outer surface is coated with a flat white paint 19. While other types of frame or supporting structures and projection screen sub-surfaces may likewise be used, as for example frames or supporting structures made from metal parts, the structure described above and illustrated in the drawings has been found highly satisfactory in the practicing of the present invention.

The projection screen sub-surface 16 is then provided with a fabric material 20 which is sealed or keylocked to the asbestos material by means of a composition or coating 21. The coating composition 21 is of such character that when it is applied to the surface 16, and the fabric material 20 is pressed or rolled thereagainst while the composition is still in a flowable condition, the composition migrates through the interstices of the fabric material 20 and upon drying unites or keylocks the fabric and the asbestos material together and thereby forms a seal or union therewith. A suitable coating composition for this purpose comprises a mixture of lead base pigment, zinc oxide, and a drying oil. The formula given below is representative of a composition which is highly satisfactory.

55 Lead base pigment	-----pounds	100
Zinc oxide	-----do	22
Linseed oil	-----gallons	1

It has been found that when an asbestos material surface is coated rather freely with such

composition and a fabric material such as a fine grained canvas is placed thereagainst and rolled, the composition while still fluid will migrate through and be absorbed by the canvas and upon drying will produce a smooth surface and in addition form a unitary bond or seal between the asbestos material and the canvas which is not subject to deterioration during long periods of severe weather conditions.

Illustrated in Figs. 3 and 4 is another embodiment of an outdoor projection screen in accordance with the present invention. In this embodiment of the invention, the main body or sub-base 30 is produced by mounting sections of marine plywood onto a lattice-type backing structure 31 preferably constructed by notching, matching, and nailing together suitable lengths of wood such as the well known two by fours. In accordance with this embodiment, the two by fours are positioned on four foot centers so that open rectangular areas of approximately sixteen square feet are defined by the backing structure. The sections of plywood are secured to the structure 31 by any suitable means such as nails 32 and are preferably of such dimension as to completely cover the open areas defined by the lattice-type backing structure 31 as illustrated in Fig. 3. For this purpose, standard sections of 5-ply marine plywood having dimensions of about four feet by eight feet by one-half inch have been satisfactorily employed. Sections of a fire-proof asbestos material 33 such as asbestos lumber which is made from asbestos fibers and Portland cement and is known commercially as "Transite," are then superimposed upon and securely anchored to the face side of the sub-base 30 by the use of nails 34. The sections of asbestos material 33 may be of any suitable size but are preferably cut to the same dimensional lengths and widths as the sections of plywood 30 so that the slots or seams 35 between the adjacent sections of plywood and the adjacent sections of asbestos material may be filled in one operation by a suitable caulking material, indicated at 36.

The outer surface of the asbestos lumber material 33 is then coated with a suitable lead base primer paint 37 and after this primer coat of paint has dried, a binding or sealing composition 38 comprising a lead base pigment and zinc is then applied, over which a sheet of fabric such as a fine grained canvas 39 is laid and rolled onto the freshly painted surface. The composition 38 migrates through the fine grained canvas 39 and after drying unites or keylocks the fabric and the asbestos material 33 together producing a smooth image-displaying surface which has been found durable and serviceable under varied weather conditions and during long periods of use.

Over the facing of the canvas material 39 may be applied an ordinary white resin emulsion type paint coating 40, which further enhances the protection of the screen against weather conditions, and in addition provides a whiter image-displaying surface so that images or movies projected on the screen will appear more prominent and clear to the observer. Moreover, if desired, the periphery of the canvas material which is not utilized for displaying images may be painted with any suitable black paint 41.

The invention disclosed herein not only provides a projection screen for outdoor theaters that withstands varied weather conditions without warping, buckling, cracking or peeling, but it also provides a screen which has a smoother

image-displaying surface than the outdoor projection screens now in use.

The coatings 21 and 38 may be compounded in any suitable manner to produce compositions of suitable whiteness which will not detract from the white characteristics of the finished projection screen and which may be coated on an asbestos material surface such as described for use in sealing or keylocking the asbestos material to a fabric material such as fine grained canvas or the like.

Furthermore, it has been found that these coating compositions are adapted to be used upon painted asbestos or plywood outdoor projection screen surfaces which are in use today and such surfaces may thereby be converted into a smooth surfaced, durable outdoor projection screen in accordance with the teachings of this invention.

While the method and article herein described constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to this precise method and article and that changes may be made herein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A projection screen for outdoor theaters including a lattice-type frame, a sheeting of plywood secured thereto, a sheeting of asbestos material secured to said plywood and a fine grained canvas material adhesively united to said asbestos material to provide a substantially smooth image displaying surface.

2. As a new article of manufacture, a weather resistant projection screen for outdoor theaters having a smooth image displaying surface, comprising a base formed by a plywood sheeting and a sheet of asbestos material secured to a lattice-type frame, said base having a coating of binding material comprising a lead base pigment, linseed oil and zinc, a canvas material united to said base by said binding material, and a coating on the surface of said canvas material forming the image displaying surface.

3. A projection screen for outdoor theaters comprising a base formed of a plywood sheeting secured to a lattice-type frame with a sheeting of asbestos material secured to said plywood sheeting, said base having a coating of binding material and an overlying canvas material secured thereto.

4. A weather resistant projection screen for outdoor theaters comprising a base formed by a lattice-like frame with a sheeting of plywood and an outer sheeting of asbestos lumber secured thereto, said base having a coating containing lead base pigment, linseed oil and zinc, and a canvas material united to said coating to form a smooth image displaying surface.

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