

F. J. REMBUSCH.

SCREEN.

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937.550.

Patented Oct. 19, 1909.

Fig. 1.

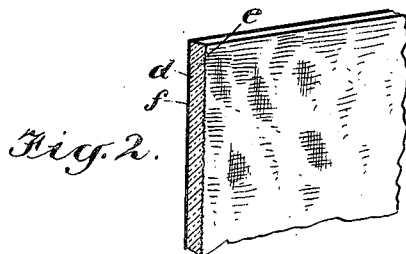
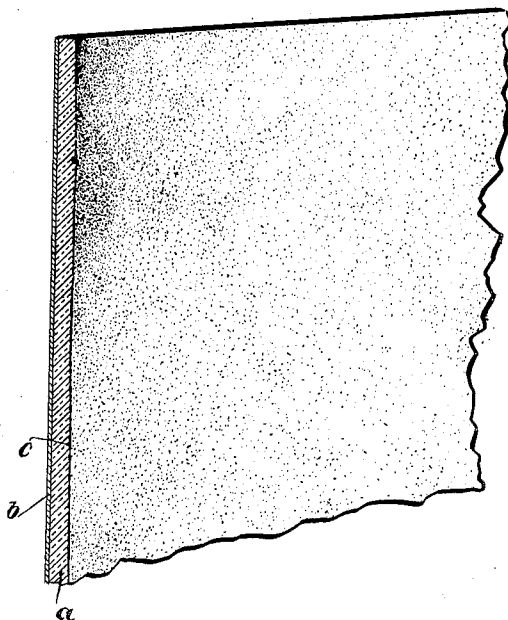


Fig. 2.

WITNESSES

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SCREEN.

937,550.

Specification of Letters Patent.

Patented Oct. 19, 1909.

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To all whom it may concern:

Be it known that I, FRANK J. REMBUSCH, a citizen of the United States, and a resident of Shelbyville, in the county of Shelby and State of Indiana, have invented a new and Improved Screen, of which the following is a full, clear, and exact description.

My invention relates to screens, my more particular purpose being to provide a screen which offers a total obstruction to the passage of light through it and in this manner improves the distinctness, clearness and brilliancy of images thrown upon the screen.

My improved screen permits of general use and is of special service in connection with apparatus for exhibiting moving pictures and stereopticon views.

More specifically stated, my invention comprehends a screen made principally of glass or other transparent or translucent material and provided upon one of its faces with a reflecting surface and having its opposite face roughened, and partially opaque, the idea being that when light strikes this face a portion of the light is stopped, yet some light filters through, strikes the reflecting surface, and is turned back so as to reach the roughened surface the second time, but from the opposite side. This greatly increases the illuminating effect of the light upon the screen and renders the image, if any, more distinct and vivid. Moreover the image appears to be nearer the observer.

My invention further relates to an improved method for preparing screens of the kind mentioned above.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a view partly in perspective and partly in section, showing a screen made in accordance with my invention, this screen being formed of a plate of glass provided with a roughened front face and with a silvered back face; and Fig. 2 is a cross section through another screen made in accordance with my invention, in this instance the front face being rendered partially opaque by a piece of wet silk spread over it.

In Fig. 1 a plate of glass *a* is provided with a backing *b* of silver, or other reflecting surface. The plate of glass is further provided with a facing *c* made by sand-blasting, etching, or otherwise roughening

one face of the plate. I find it a good plan to spread over the plate a thin web of silk and to wet this thoroughly, pressing it evenly to exclude all air bubbles. This makes a partially opaque surface which answers the purpose very well. Before applying the silver the surface to which it is to be applied is highly polished. This renders the metallic coating much more even and greatly improves its power to reflect.

In the form shown in Fig. 2 the plate of glass is shown at *d* and is provided with a backing *f* of silver, as before, but the front face is roughened by the application of a piece of silk cloth *e* to it. This cloth is then wet and is pressed evenly against the glass for the purpose of removing all bubbles. Except for the glass being roughened by the wet silk cloth, the construction and action represented in Fig. 2 are exactly the same as that in Fig. 1.

The operation of my device is as follows: An image being thrown upon the plate, the light used for defining the image first strikes the roughened face *c* and is, in a great measure, reflected and diffused by this face. The portion of the light which manages to pass this face, however, is not wasted. It passes through the plate and striking against the coating *b* of metal is reflected back and thus increases the virtual degree of illumination of the roughened surface *c*.

One remarkable fact about screens of this type is that they render the use of light less objectionable for purposes of illuminating the hall or room where the device is in use. For instance, if the screen be employed for purposes of exhibiting moving pictures, I find it practicable to illuminate the hall say by ordinary arc or incandescent lamps, to a considerable extent, without interfering materially with the images produced upon the screen. This is a good feature for the reason that many objections to moving picture shows are based upon the idea that the hall or room where such exhibitions occur is, during a good portion of the time, involved in darkness.

Since it is a well settled principle in optics that the angle of incidence is equal to the angle of reflection, the rays when reflected back from the metallic surface *b* to the roughened surface *c* may not strike the precise point where they first passed through the roughened surface, but the discrepancy is exceedingly small and the net result is that

the image possesses great clearness and is sharply defined.

Having thus described my invention, I claim as new and desire to secure by Letters

5 Patent:

1. A screen, comprising a body portion capable of transmitting light, said body portion being provided with a roughened surface and further provided with a reflecting

10 surface disposed opposite to said roughened surface.

2. A screen, comprising a body portion provided with two faces disposed parallel with each other, one of said faces being a

15 roughened surface and the other of said faces being provided with a reflecting surface.

3. A screen, comprising a plate of glass having one of its faces roughened and having its opposite face smooth but provided

20 with a metallic coating for reflecting light.

4. A screen, comprising a plate of glass provided upon one of its faces with means for preventing some of the light rays which strike it from passing into the plate, said

plate being further provided upon its opposite face with means for reflecting such of the light rays as reach it through the glass.

5. A screen, comprising a body portion capable of transmitting light, said body portion being provided upon one of its faces

30 with means for preventing some light from passing into said body portion, and further provided with a reflecting surface for turning back such light as strikes said reflecting surface.

6. A screen comprising a plate of material through which light is adapted to pass, one face of said plate being partially opaque and the other face of said plate being so

35 formed as to reflect light rays.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK J. REMBUSCH.

Witnesses:

THOMAS H. CAMPBELL,
ALBERT F. WRAY.