Feb. 23, 1932. M. B. EVANS 1,846,515

X-RAY SCREEN

Filed Dec. 26, 1928

Fig. 1.

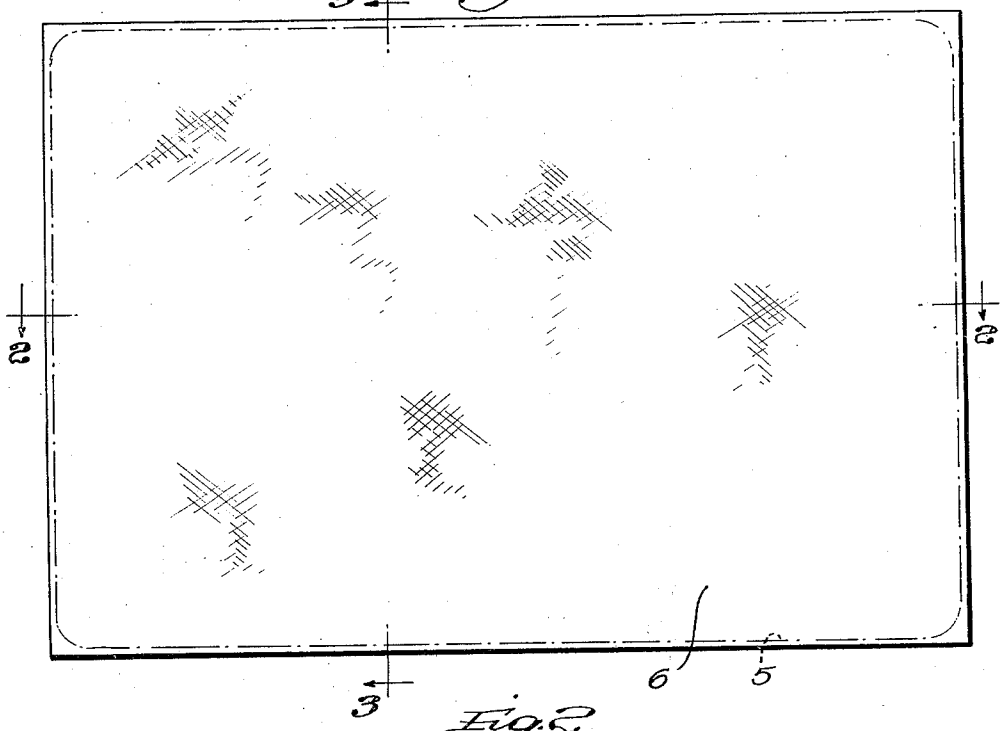
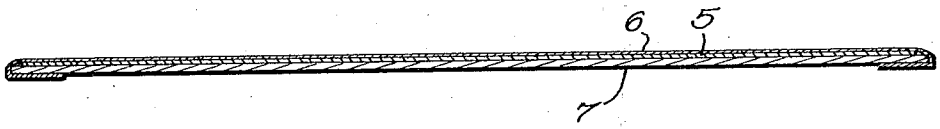


Fig. 2



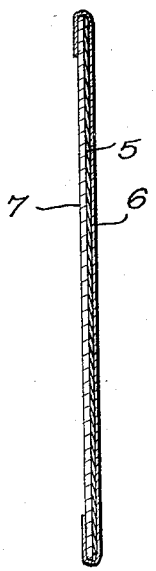


Fig. 3

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X-RAY SCREEN

Application filed December 26, 1928. Serial No. 328,482.

This invention has relation to that type of X-ray screen in which calcium tungstate is used to give fluorescent action to the X-ray film, and the object of the present invention is to render these screens more durable as well as to render them more efficient in operation and use, as more fully hereinafter set forth.

In the drawings annexed—

Fig. 1 is a face view of the screen;

Fig. 2 is a longitudinal sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1.

Referring to the drawings annexed by reference-numerals, 5 designates the usual calcium tungstate screen-sheet. Usually, the tungstate face of this sheet is coated permanently with a thin layer of celluloid for the purpose of protecting the tungstate, this celluloid material being used because it does not interfere with the fluorescent action. As is well known, in use the X-ray film is placed between two of these screens with the celluloid faces of the two screens next to the film. With my invention, I do not affix permanently the celluloid film to the face of the tungstate, but instead thereof I employ a separate, removable sheet 6 of thin celluloid material and temporarily fasten the same to the screen by means of a sheet of cardboard 7, preferably 10-ply cardboard, the four marginal portions of the celluloid sheet being folded over the edges of the backing-board and fastened to the back thereof by being pasted thereto throughout their lengths, thus forming an envelope in which the screen is entirely enclosed. The backing-board 7 is made longer as well as wider than the screen 5.

This screen is used in the same manner as the screens now in general use, and some of its advantages over the screens now in general use are as follows: The thin separate sheet of celluloid 6 affords even better protection than the permanent coating of celluloid heretofore used in that it not only protects the entire face of the screen but also its edges, thereby preventing the face and edges of the screen from being scratched or chipped while being handled and shipped. This celluloid sheet also serves to hermetically seal the screen, to thereby prevent drying out of the screen. The backing-board prevents breaking and buckling and warping of the screen, particularly in view of the fact that the backing-board is cut sufficiently larger than the screen to have all four of its margins project beyond the four edges of the screen, whereby the celluloid sheet may be stretched tightly over the cardboard without causing buckling or warping should the celluloid shrink, it being obvious that shrinking of the celluloid would cause distortion of the screen if the backing-board were of such size as to permit the shrinking action of the celluloid to press against any two opposite edges of the screen. It will be obvious also that, by reason of the fact that the thin celluloid sheet may be stretched tightly and smoothly on the face of the screen, it will not permit blurring by filtration of violet rays; and, further, that this celluloid protecting covering can be readily removed when the covering becomes dirty or discolored by age by merely tearing or slitting it sufficiently to remove the screen. Also it will be seen that this manner of covering the screen renders it more nearly waterproof, since it not only covers the face of the screen but also the edges, and the backing-board too assists in preventing moisture getting access to the screen.

What I claim as new is:

1. An X-ray screen embodying a fluorescent plate, a backing-board pervious to X-rays and having its area larger than the plate to thereby extend beyond the edges thereof, and a separate sheet of celluloid stretched smooth on the face of the plate and having its margin portions folded over upon the back side of the board and pasted thereto, to thereby provide a removable protective envelope for the screen which completely seals it against ingress and egress of moisture.

2. An X-ray screen embodying a fluorescent plate having stretched smoothly on its face a removable separate sheet of celluloid, and a backing-board for the plate, the marginal portions of said celluloid sheet being folded over the edges of the sheet and of the

board and pasted to the back face of the latter.

3. An X-ray screen embodying a fluorescent plate, a backing-board pervious to X-rays, and a thin, separate, removable sheet of material transparent to the light rays from the crystals of said plate, said sheet of material being stretched over the face of the plate and being sealed at its edges to said backing-board.

In testimony whereof I hereunto affix my signature.

MAYNARD B. EVANS.