Aug. 5, 1947. E. J. WIENKE 2,425,217

FILM TRACK AND APERTURE UNIT FOR PROJECTORS

Filed Feb. 15, 1946

Fig. 2

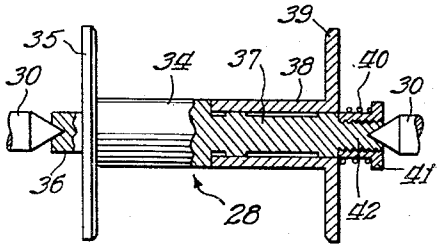


Fig. 1

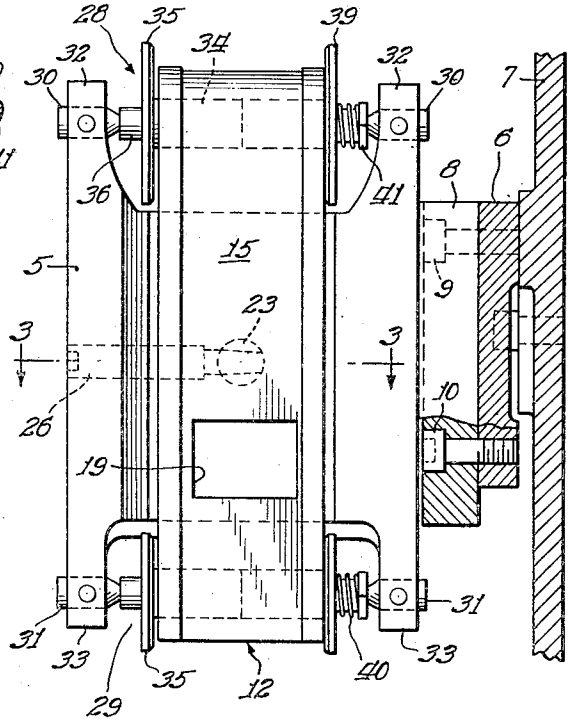


Fig. 4

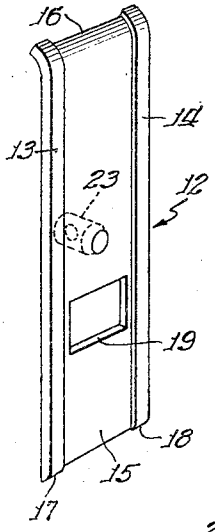


Fig. 5

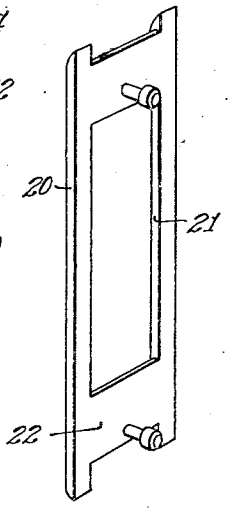
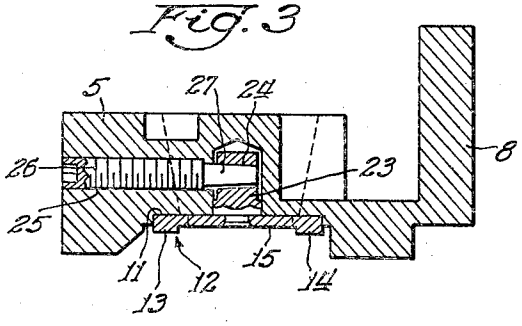


Fig. 3



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UNITED STATES PATENT OFFICE

2,425,217

FILM TRACK AND APERTURE UNIT FOR PROJECTORS

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Application February 15, 1946, Serial No. 647,939

2 Claims. (Cl. 88—17)

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The present invention relates to a film track and aperture unit for motion picture projectors, and is particularly adapted for use with the construction shown in my co-pending application, Serial No. 647,937, filed February 15, 1946, for Motion picture projector. It is the principal purpose of this invention to provide a novel film track and aperture unit whereby the aperture plate is removably mounted in such a way as to insure firm accurate positioning, and the film is guided with respect to the aperture plate in such manner as to maintain alignment thereof by rotatable guides above and below the aperture in the plate, which guides force the film to follow a definite patch across the aperture.

It is a further purpose of the invention to provide a unit of this character which is self contained and easily taken apart for any repair or cleaning purpose.

The nature and advantages of my invention will appear more fully from the following description and the accompanying drawings. It should be understood, however, that the drawings and description are illustrative only, and should not be considered as limiting the invention except insofar as it is limited by the claims.

In the drawings:

Figure 1 is a face view of the film track and aperture unit showing it mounted to the supporting parts of the projector,

Figure 2 is a fragmentary view partly in section illustrating the construction of the film guide rollers that guide the film across the aperture plate,

Figure 3 is a sectional view on the line 3—3 of Figure 1, and

Figures 4 and 5 together illustrate the aperture plate and the film tension shoe between which the film is guided.

Referring now to the drawings, my invention is embodied in a film track and aperture unit which comprises a body casting 5 that is adapted to be mounted upon an assembly base casting 6 that in turn is secured to a wall 7 of the projector. The base casting 6 is aligned with the wall 7 and secured thereto in proper position as outlined in my co-pending application mentioned above. The casting 5 has a flange portion 8 that is secured to the base casting 6 by a plurality of screws such as are shown at 9 and 10.

The casting 5 is channeled on its front face as shown at 11 to provide a seat for an aperture plate 12. The aperture plate is shown in perspective in Figure 4. It comprises two guide ribs 13 and 14 with an intermediate panel portion 15, the

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ribs projecting above the panel portion so that the picture part of the film does not contact the plate. The ribs 13 and 14 are of course polished smooth to offer as little wear as possible to the film itself. The upper end 16 of the aperture plate is curled over and the lower ends of the ribs 13 and 14 are rounded as indicated at 17 and 18. The light aperture 19 is of course in the portion 15 of the aperture plate 12. The ribs 13 and 14 cooperate with corresponding ribs 20 and 21 of the film tension shoe 22, to form a guide for the side edges of the film. The details of mounting of the film tension shoe 22 are not described herein, since they form no part of the present invention.

In order to clamp the aperture plate 12 in position on the casting 5 I provide a rearwardly extending lug 23 midway of the aperture plate. This lug is riveted to the aperture plate and is provided with a tapered hole 24 extending transversely to the aperture plate with its axis parallel to the plane of the ribs 13 and 14. The casting 5 is provided with a threaded aperture 25 to receive a threaded pin 26. The axis of the pin 26 is offset rearwardly of the axis of the aperture 24, both axes of course being parallel to the guide face of the aperture plate 12. The pin 26 has a tapered end 27 extending into the aperture 24, so that by turning the pin 26 the lug 23 may be drawn back to tightly secure the aperture plate in the recess 11. The aperture plate is readily removable when the pin 26 is turned back far enough to remove the tapered portion 27 from the opening 24.

In order to guide the film accurately from top to bottom, of the track ribs 13 and 14, I provide upper and lower guide roller units 28 and 29. These units are each mounted by pins 30 and 31 that are anchored in upper and lower projecting portions 32 and 33 of the casting 5. The pins have conical tips and the guide roller units have conical recesses at their ends as illustrated in Figure 2 to receive the pins. Both of the guide roller units are the same in construction, and this detailed construction is illustrated in Figure 2. Each unit consists of a spindle 34 having a guide flange 35 at one end, and a projection 36 which has the conical recess to receive the pin 30. The spindle 34 has a reduced extension 37 which receives a sleeve 38 that carries a flange 39 forming a film guide opposite to the flange 35. The diameters of the sleeve 38 and the spindle 34 are the same, but the sleeve 38 is slidable on the reduced extension 37 of the spindle. A spring 40 engages the outer face of the flange

39 so as to press it toward the flange 35. The spring is held by a threaded flanged sleeve 41 that threads onto the portion 42 of the extension 37. The portion 42 also has the conical recess for a pin 30. The sleeve 41 may of course be adjusted to give more or less tension on the spring 40 if that is desired.

The flanges 35 on the upper and lower spindles 34 are fixed in proper alignment with the guide rib 13 so as to form a fixed guide for the edge of the film both above and below the aperture 19. The flanges 39 are spring pressed by the light springs 40 against the opposite edge of the film so as to maintain the film in engagement with the flange 35. This construction provides for accurate travel of the film past the film aperture under all conditions. Since the spindles are freely rotatable with the film as it travels past the aperture 19, the flanges 35 and 39 actually form guide rollers for insuring straight travel of the film across the aperture.

Having thus described my invention, I claim:

1. In a motion picture projector, a film track plate having guide portions at its side edges and having a light aperture between said portions, a support for said plate having a channel to receive said plate, a lug on the plate, said support having an opening receiving the lug, said lug having a tapered aperture therein the axis of which is transverse to the lug and generally parallel to the plane of the plate, and a lock pin threaded in the support on an axis offset rearwardly from the plate farther than the axis of the tapered aperture, said pin having a tapered end extending into the aperture.

2. In a motion picture projector, a film track plate having a light aperture therein, a support for said plate and a guide surface thereon to receive said plate, a lug on the plate, said support having an opening receiving the lug, said lug having a tapered aperture therein, the axis of which is transverse to the lug and generally parallel to the plane of the plate, and a lock pin mounted in the support on an axis offset rearwardly from the plate farther than the axis of the tapered aperture, said pin having a tapered end extending into the aperture.

EMIL J. WIENKE.

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