

Jan. 28, 1941.

A. S. HOWELL

2,229,924

STRIP FEED GUIDE

Filed May 7, 1937

2 Sheets-Sheet 1

Fig. 1

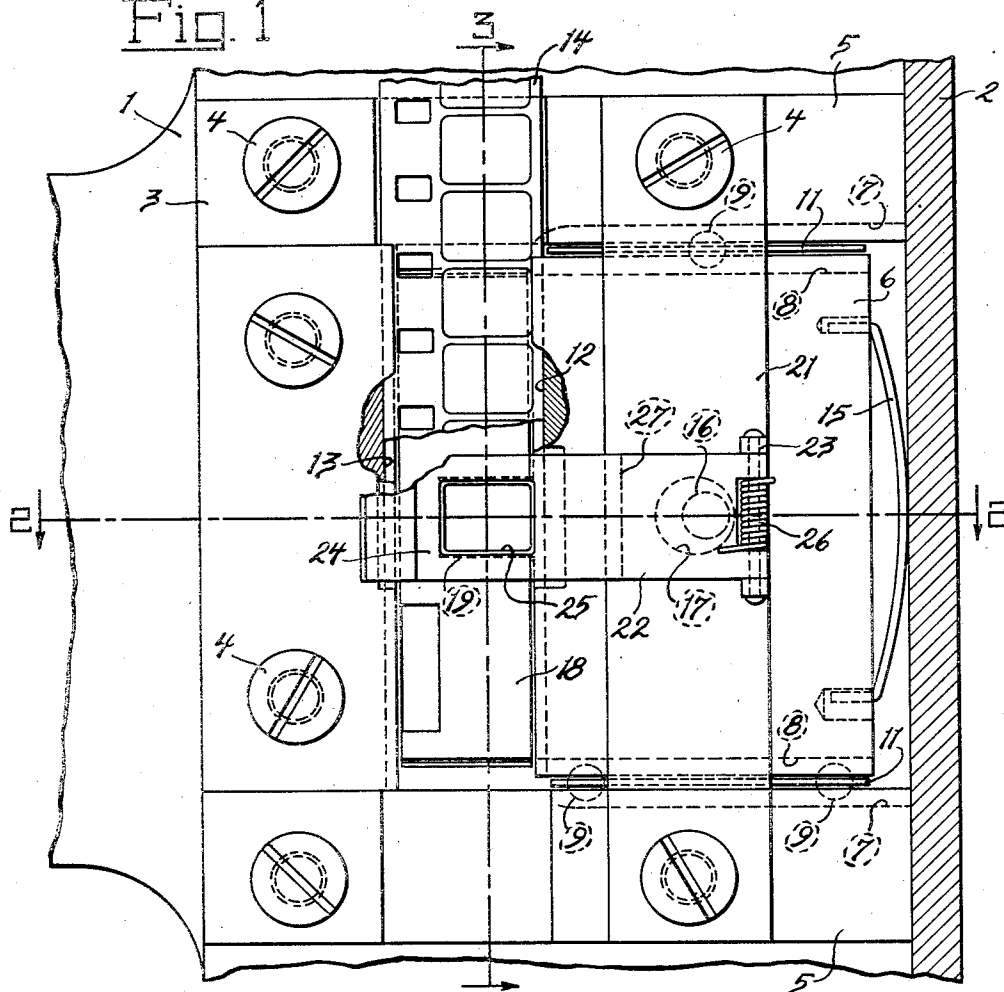
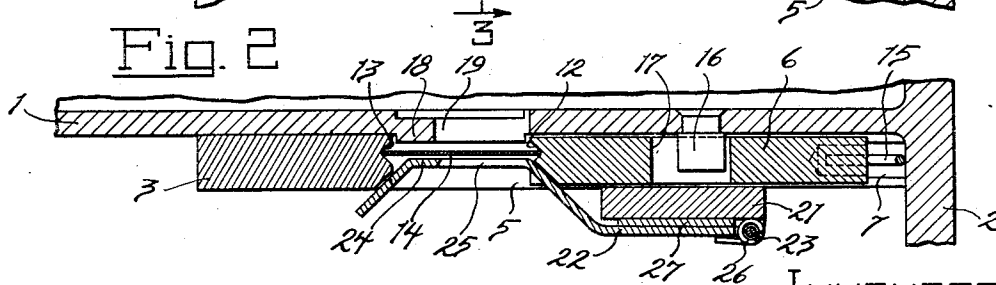


Fig. 2



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2 Sheets-Sheet 2

Fig. 3

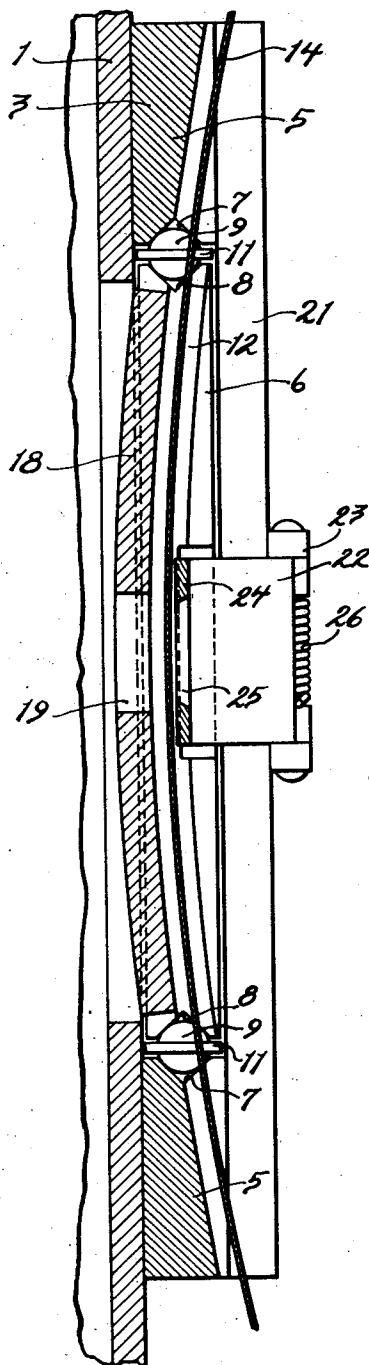
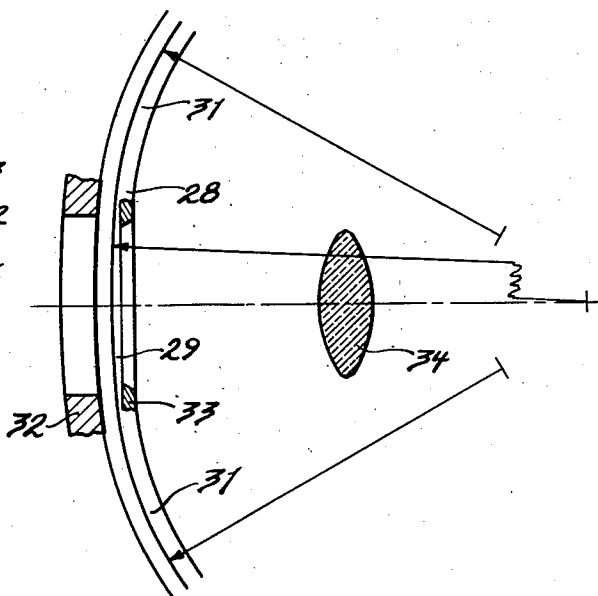


Fig. 4



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UNITED STATES PATENT OFFICE

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STRIP FEED GUIDE

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Application May 7, 1937, Serial No. 141,329

8 Claims. (Cl. 88—17)

My invention relates particularly to light apertured motion picture film strip feed guides, although not limited to this use alone.

The general object of the invention resides in the provision of a novel and practical strip feed guide which provides an accurate and desirable guiding of a strip both facewise and edgewise of the strip without necessitating facewise engagement of the strip with a view toward eliminating the possibility of scratching the faces of the strip.

With this object in view my invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said object and certain other objects, hereinafter appearing, are effected, all as fully described with reference to the accompanying drawings and more particularly pointed out in the appended claims.

In the said drawings—

Figure 1 is a sectional view in rear elevation of a light apertured motion picture film strip feed guide embodying my invention, with parts broken away and shown in section;

Figure 2 is a section substantially on the line 2—2 of Figure 1;

Figure 3 is a section substantially on the line 3—3 of Figure 1; and

Figure 4 is a partially diagrammatic sectional view in elevation similar to Figure 3 and illustrating a modification of my invention.

Referring to Figures 1, 2 and 3 of the drawings, 1 designates a vertically extending frame member which is provided with a vertical rearwardly extending portion 2. A guide plate 3 is secured in vertical transverse position on the rear face of the frame member 1 by means of headed screws 4. The plate 3 is of U-shape and has the leg portions 5 thereof extending horizontally toward the portion 2 of the frame member 1.

A second guide plate 6 is disposed in vertical transverse position between the leg portions 5. The opposing horizontal edges of the leg portions 5 are provided with parallel V-grooves 7 extending therealong, and the opposite horizontal edges of the guide plate 6 are provided with parallel V-grooves 8 extending therealong, thus forming opposing parallel pairs of bearing V-grooves. Spaced bearing balls 9 are engaged between the opposing pairs of the bearing grooves 7 and 8, and, as shown, comprise three which are arranged in triangularly spaced relation. The guide plate 6 is thus mounted by anti-friction bearing means for horizontal transverse move-

ment relative to the guide plate 3, usual perforated retainer plates 11 being engaged with the balls 9 for retaining them in proper positions.

The outer vertical edge of the guide plate 6 is provided with a V-groove 12 extending therealong and this groove is curved on a rearwardly disposed axis, as best shown in Figure 3. The inner vertical edge of the vertical portion of the guide plate 3 is provided with a V-groove 13 extending therealong and this groove opposes the groove 12 and is curved correspondingly therewith.

The grooves 12 and 13 form spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a motion picture film strip 14 therebetween for guiding the same, the aforesaid lineal bearing mounting of the guide plate 6 extending transversely of the guided strip and affording corresponding movement of the guide plate 6 relative to the guide plate 3 for confining the strip between the guide grooves for proper guidance of the strip and for conveniently engaging the strip between and releasing the same from the guide grooves.

A bow string 15 is engaged between the guide plate 6 and the frame portion 2 and, being operative between the guide plates, serves to yieldably urge the guide plate 6 to confine the guided strip between the guide grooves for the proper guidance of the strip, and, by reason of the guide grooves being curved longitudinally facewise of the guided strip, the strip is correspondingly curved and is thus stiffened transversely to oppose the pressure of the spring to assure against transverse buckling of the strip.

A stud 16 on the frame member 1 engages in a relatively large aperture 17 in the guide plate 6 to limit movement thereof.

The portion of the frame member 1 corresponding with the guided portion of the strip 14 is projected rearwardly, as designated at 18, and is curved correspondingly with the guided portion of the film and spaced therefrom, and is provided with a light aperture 19 intermediate the longitudinal extent of the guide.

A vertically extending bar 21 is secured, by two of the screws 4, on the rear faces of the leg portions 5 of the guide plate 3, and a horizontally extending plate 22 is pivotally mounted on a vertical axis, as designated at 23, for movement facewise of the guided strip. A portion of the plate 22 is offset, as designated at 24, to lie in adjacent spaced relation with the rear face of the guided strip 14 and is provided with a light

aperture 25 corresponding with the light aperture 19.

A torsion spring 26 is associated with the pivot 23 and serves to yieldably urge the plate 22 toward the guided strip, and a plate 27, forming a part of the pivot 23 and secured on the bar 21, forms a stop engageable by the plate 22 in opposition to the spring 26 to position the plate 22 in slightly spaced relation with the guided strip. The plate 22 is thus movable away from the strip guide region to facilitate engagement of the strip in and release of the same from the guide.

Referring to Figure 4, the guide grooves corresponding with the guide grooves 12 and 13, are designated at 28. However, the grooves 28 have the intermediate portions thereof of lesser curvature, as designated at 29, than the end portions thereof, as designated at 31, in order that the light aperture region of the guided strip be relatively flat. In Figure 4 a front light aperture structure is indicated at 32 and a rear light aperture structure is indicated at 33, these light aperture structures having their light apertures disposed at the relatively flat intermediate portion of the guide grooves 28. A collecting lens is indicated at 34 in alignment with the light apertures of the structures 32 and 33.

While I have thus described my invention, I do not wish to be limited to the precise details described as changes may be readily made without departing from the spirit of my invention, but having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. In a strip feed guide the combination of two guide members provided with spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, at least corresponding portions of said grooves being correspondingly curved longitudinally facewise of the guided strip, and bearing means operative between said guide members whereby said guide members are relatively movable transversely of the guided strip.

2. In a strip feed guide the combination of two guide members provided with spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, at least corresponding portions of said grooves being correspondingly curved longitudinally facewise of the guided strip, bearing means operative between said guide members whereby said guide members are relatively bodily movable transversely of the guided strip, and spring means yieldably urging said guide members in their relative movement to confine the strip between said grooves.

3. In a strip feed guide the combination of two guide members provided with spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, at least corresponding portions of said grooves being correspondingly curved longitudinally facewise of the guided strip, lineal bearing means extending transversely of the guided strip and carrying one of said guide members for corresponding movement relative to the other guide member, and spring means operative upon said carried guide member and yieldably urging the same to confine the strip between said grooves.

4. In a cinematographic projector a device for guiding a film in front of the gate along an arcuate path comprising two complementary plates

having V-shaped grooves therein facing one another and said grooves extending curvilinearly throughout substantially the entire length of said gate and means for yieldingly moving said plates towards one another in accordance with the width of the film whose edges are retained in the grooves of said plates whereby a registration of said film is secured throughout the extent of said gate.

5. In a strip feed guide the combination of two guide members provided with spaced opposing grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, at least corresponding portions of said grooves being correspondingly curved longitudinally facewise of the strip, lineal bearing means extending transversely of the guided strip and carrying one of said guide members for corresponding movement relative to the other guide member, said bearing means comprising at least two oppositely opposing parallel pairs of bearing groove formations and at least three triangularly spaced anti-friction roller bearing elements engaged between said pairs of bearing groove formations, and spring means operative upon said carried guide member and yieldably urging the same to confine the strip between said strip guiding grooves.

6. In a strip feed guide the combination of two guide members provided with spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, at least corresponding portions of said grooves being correspondingly curved longitudinally facewise of the strip, lineal bearing means extending transversely of the guided strip and carrying one of said guide members for corresponding movement relative to the other guide member, said bearing means comprising at least two oppositely opposing parallel pairs of bearing V-groove formations and at least three triangularly spaced bearing balls engaged between said pairs of bearing groove formations, and spring means operative upon said carried guide member intermediate said bearing groove formations and yieldably urging the same to confine the strip between said strip guiding grooves.

7. In a light apertured photographic film strip guide the combination of two guide members provided with V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, and at least corresponding portions of said groove formations being correspondingly curved longitudinally facewise of the guided strip, bearing means carrying one of said guide members for movement relative to the other guide member transversely of the guided strip, spring means operative upon said carried guide member and yieldably urging the same to confine the strip between said grooves, and a light aperture formation spaced from a face of the strip guided by said groove formations and mounted independently of said carried guide member.

8. In a light apertured photographic film strip guide the combination of two guide members provided with spaced opposing V-grooves adapted to be oppositely engaged by the longitudinal edges of a strip therebetween for guiding the same, said grooves being correspondingly curved longitudinally facewise of the strip, lineal bearing means extending transversely of the guided strip and carrying one of said guide members for corresponding movement relative to the other

guide member, spring means operative upon said
carried guide member and yieldingly urging the
same to confine the strip between said grooves, a
light apertured member, a pivotal mounting for
5 said light apertured member whereby it is mova-
ble facewise of the guided strip, spring means
yieldably urging said light apertured member to-

ward the guided strip, and a stop operative upon
said light apertured member in opposition to said
spring to normally position said light apertured
member slightly spaced from the face of the
guided strip.

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