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1,852,236

CIRCUIT CLOSER

Filed Nov. 20, 1929

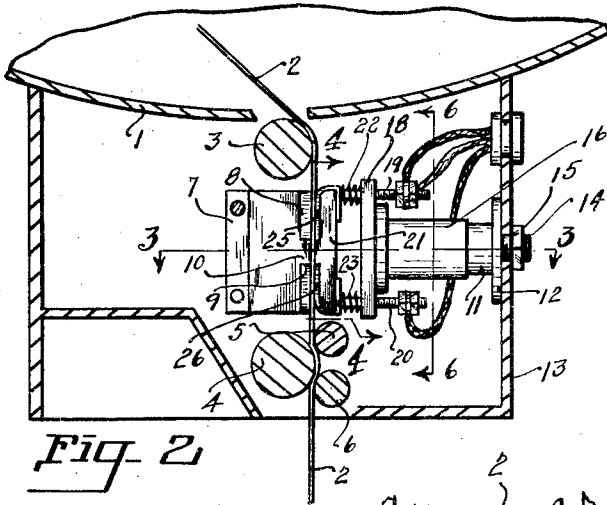


Fig. 2

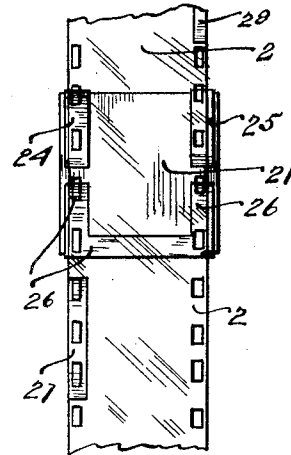


Fig. 4

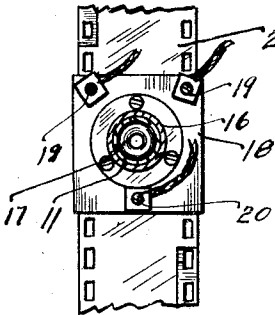


Fig. 6

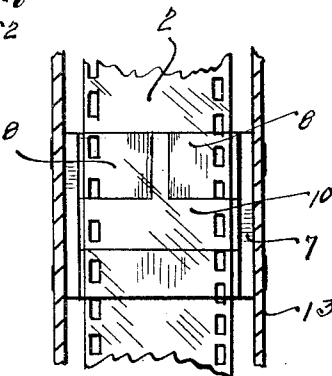


Fig. 5

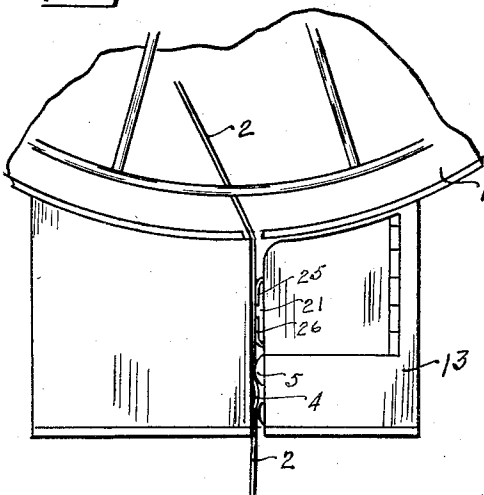


Fig. 1

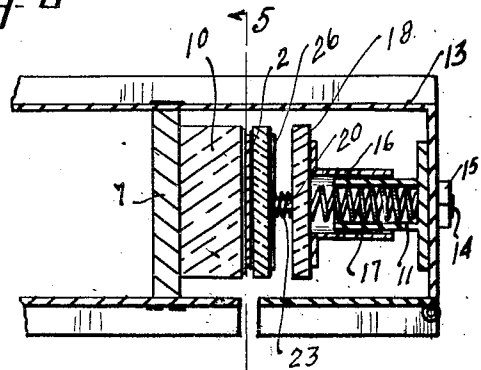


Fig. 3

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UNITED STATES PATENT OFFICE

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CIRCUIT CLOSER

Application filed November 20, 1929. Serial No. 408,550.

Our invention is primarily intended for use in conjunction with projecting machines and has for its object the completing of an electric circuit when a predetermined position has been reached upon the film being drawn through the device for the energizing of electric motors, or any other electric mechanism for any purpose that is disposed within the electric circuit.

The invention consists primarily of spaced shoes, or heads, through which the film is being drawn with one of the shoes being cushioned against a resilient head for normally maintaining a predetermined pressure upon the film and between the spaced shoes, or heads.

A further object of our invention consists in providing a predetermined path through which the film is drawn and having means disposed within the path of the film for completing one or more electric circuits when a predetermined point is reached upon the film.

In the drawings we have shown but a single one of the shoes through which the film is to pass. If it is desired, one or more sets of shoes may be positioned within the path of travel of the film for energizing one or more electric circuits at each passing of the film through the spaced shoes.

A still further object of our invention consists in providing means for maintaining the film in precise alignment and tension as the same passes through the respective shoes, or heads.

Still further objects of our invention consists in providing a resilient support for one of the shoes that is carried upon a compressible head in order that the shoe may adapt itself to precise surface engagement with the film being passed therethrough.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claim, and a preferred form of embodiment of which is hereinafter shown with reference to the drawings which accompany and form a part of this specification.

In the drawings:

Fig. 1 is a fragmentary, sectional, side view of the bottom portion of the reel upon which the film is positioned.

Fig. 2 is a side view, partially in section, of the mechanism disposed in the line of travel of the film and illustrating the film as being passed through the device.

Fig. 3 is a sectional, plan view, of the device, the same being taken on line 3—3 of Fig. 2 looking in the direction indicated.

Fig. 4 is a sectional, end view of the shoe mechanism, the same being taken on line 4—4 of Fig. 2 looking in the direction indicated.

Fig. 5 is a sectional, end view taken on line 5—5 of Fig. 3 looking in the direction indicated.

Fig. 6 is a sectional, end view taken on line 6—6 of Fig. 2 looking in the direction indicated.

Like reference characters refer to like parts throughout the several views.

1 is the reel from which the film 2 is unwound. Disposed in the line of travel of the film is a roller 3 over which the film is required to pass, the roller 3 being in spaced relationship with the bottom surface of the reel 1. A set of rollers 4, 5 and 6 are disposed in spaced relationship with roller 3 and between which the film 2 also passes. The rollers 5 and 6 are preferably smaller than the roller 4 in order that an intimate contact may be created between the respective rollers and tension be maintained between the respective rollers. A head 7 is disposed in the line of travel of the film and the head 7 has spaced shoes 8 and 9 against which the surface of the film engages. A gap 10 is disposed between the respective shoes 8 and 9. A cylindrical plunger 11 has a flange 12 disposed at one end and the same is supported upon a supporting bracket 13. The plunger 11 is secured to the bracket by any suitable fastening means as by a threaded stem 14 having a nut 15 disposed thereupon for maintaining the plunger 11 in intimate engagement with, and in alignment upon, the supporting bracket 13. A cylinder 16 is disposed upon the plunger 11 and a resilient element, as a spring 17, presses the cylinder outward relative to the plunger 11. A head

18 is carried by the outer end of the cylinder 16 and electric terminals 19 and 20 pass through the head and support the shoe 21. Resilient elements 22 and 23 are disposed
5 about the electric terminals 19 and 20 and provide a resilient support for the shoe 21 disposed upon the fixed end of the electric terminals 19 and 20. Metallic shoes 24 and 25 are secured to the respective terminals 19
10 and a U-shaped metallic terminal 26 is secured to the electric terminal 20. The electric terminal 20 carrying the U-shaped shoe 26 is preferably the positive terminal. The film 2 passing between the respective rollers
15 has removable metallic strips 27 and 28 disposed at adjacent edges of the film and the removable metallic strips 27 and 28 may be positioned at any desired point upon the film and as the metallic strip, disposed upon the
20 film, passes between the respective shoe elements of the head, an electric circuit is completed and may be adapted for the actuating of any electric device disposed within the circuit at any remote position.

25 While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment
30 herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claim which follows.

What we claim is:

35 A safety device to be used with motion picture apparatus of the class described, in combination with a film, a head fixedly secured adjacent the line of travel of the film, a hollow plunger disposed in direct align-
40 ment with the fixed head, a spring disposed within its hollow portion, a cylinder having a head upon its closed end disposed about the plunger, openings disposed through the head of the cylinder, electric terminals slidably
45 disposed therein, shoes attached to one end of the electric terminals, springs disposed between the shoes and the head of the cylinder adapted for maintaining the shoe in intimate contact with the fixed head, and removably
50 disposed conductive strips disposed upon the film passing between the fixed head and the shoes for permitting the closing of the circuit when the shoes contact the strips.

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