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H. H. FENNER ET AL

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CIRCUIT CONTROLLER FOR MOTION PICTURE FILMS

Filed Nov. 20, 1929

2 Sheets-Sheet 1

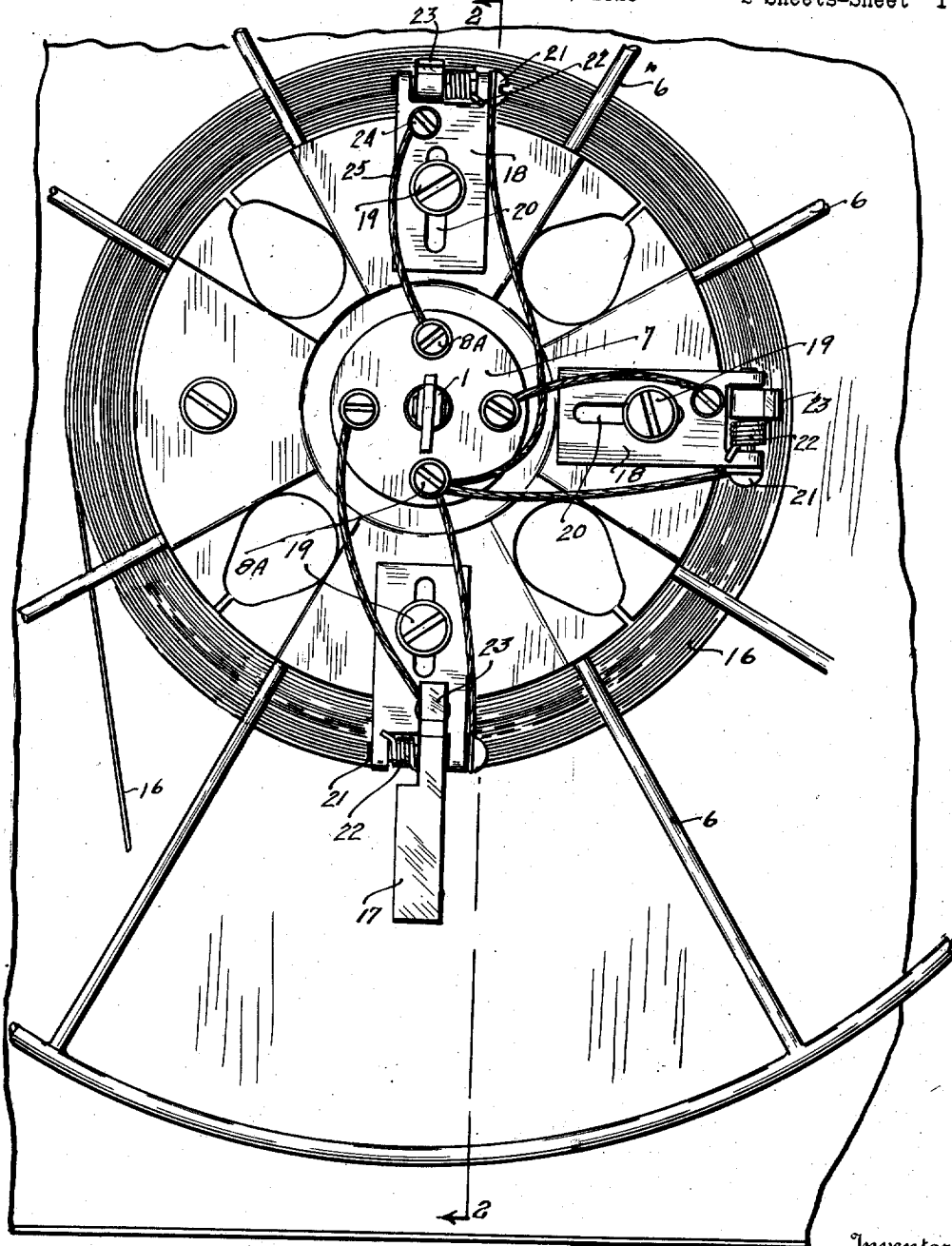


FIG. 1

Inventors
Howard H. Fenner
Robert E. Silvis
384 Thomas E. Silvis
Attorney

Aug. 2, 1932.

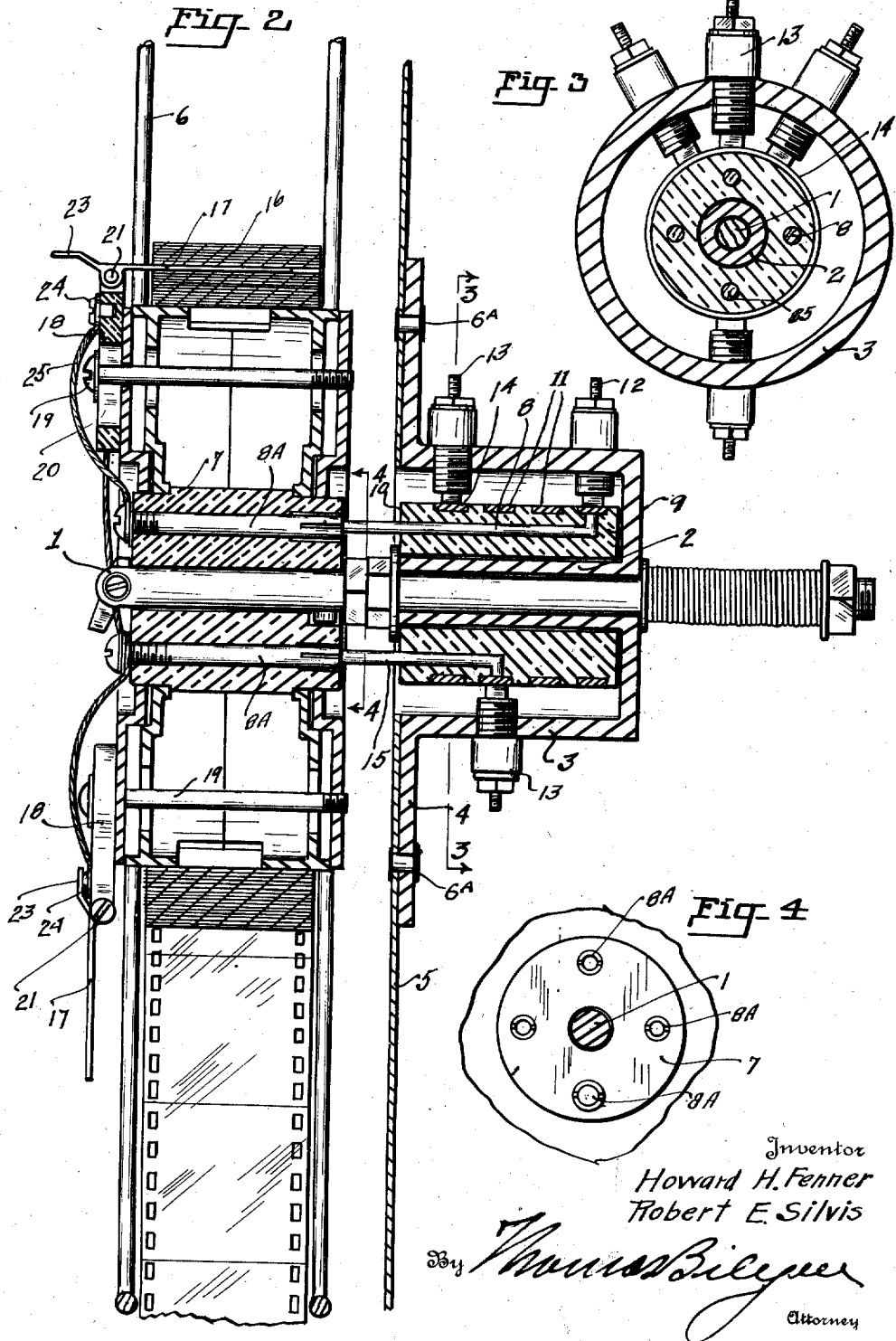
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

HOWARD H. FENNER AND ROBERT E. SILVIS, OF MILL CITY, OREGON, ASSIGNORS TO
AUTOMATIC PROJECTOR-OPERATOR INC., OF PORTLAND, OREGON, A CORPORATION OF
OREGON

CIRCUIT CONTROLLER FOR MOTION PICTURE FILMS

Application filed November 20, 1929. Serial No. 408,551.

Our invention relates to moving picture projecting machines and consists of a spool or reel about which the film is wound and from which the film is unwound in the projecting operation.

The same consists primarily of a shaft, a hub mounted upon the shaft and a cylinder of insulating material disposed upon the outer periphery of the hub. Electric terminals are disposed in registerable engagement with metallic bands disposed upon the outer periphery of the cylinder. Electric terminals are in engagement with the metallic bands; and electric conduits are attached to the terminals. An insulating hub is disposed within the reel upon which the films are mounted and the insulating hub engages directly upon the shaft about which the reel is disposed. Electric terminals pass longitudinally through the insulating hub of the reel, and are in registerable engagement with the terminals that outwardly extend from the insulating cylinder disposed upon the hub that rests upon the shaft. A plurality of tell-tale electric contacts are adapted to placement and to being held within the film disposed about the reel and are so placed that, as the film is unwound from the reel, the tell-tales will be released at a predetermined and settable place within the film to complete electric contacts for making and breaking electric circuits as desired.

The primary object of our invention is to provide simple and efficient means placeable within the film for making and breaking electric circuits when a predetermined position is reached upon the film.

A further object of our invention resides in a simple construction for completing an electric circuit when a predetermined position, or positions, is reached upon the film as the same is unwound from the reel.

A still further object of our invention consists in providing simple means for indicating, electrically, that a certain position, or positions, has been reached upon the film as the same is unwound from the reel and for indicating that the position has been reached upon the film at a remote point upon, or within, the electric circuit leading from the device.

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 claims, 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 a reel having a film disposed thereupon and illustrating our new and improved device in position upon the reel.

Fig. 2 is a fragmentary, sectional, side view of the mechanism illustrated in Fig. 1, the same being taken on line 2—2 of Fig. 1 looking in the direction indicated.

Fig. 3 is a sectional, end view taken on line 3—3 of Fig. 2 looking in the direction indicated.

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

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

1 is the primary shaft upon which a hub 2 is mounted. The hub 2 is formed into a cup-like structure having a spaced side wall 3 disposed in spaced relationship with the primary portion of the hub 2. A flange 4 outwardly extends from the element 3 to which a separator plate 5 may be attached. The plate is secured thereto by any suitable fastening means, as by rivets 6A. A reel 6 is mounted upon the shaft, the same having an insulating hub 7 disposed centrally of the reel and the hub 7 is mounted directly upon the primary shaft. A plurality of insulated terminals 8A extend longitudinally of the insulating hub. An insulating cylinder 9 is disposed upon the hub 2 and the terminals 8 pass longitudinally of the hub 9 and extend outwardly from the end 10 of the hub. A plurality of bands 11 are disposed in spaced relationship with each other and are placed upon the outer periphery of the cylinder 9 and electric terminals 12 and 13 are disposed in spaced relationship with each other about, and register with, the metallic bands 11. The

positive electric terminal 13 is in registerable engagement with the metallic band 14 and forms a positive electric connection. The terminals 8 consist of one or more terminals and the positive terminal 15 is preferably larger than the other of the terminals 8 in order that the electric terminals that are adapted for engagement with the terminals 8 and 15 will always be in the same precise position when engaged and therefore the electric connection 15 is preferably made larger than the others in order that the reel may be placed upon the shaft and be made to engage the electric terminals in precise position at all times. The film 16 is mounted upon, and within, the reel 6 and when it is desired to complete an electric connection, because of a predetermined position having been reached upon the film, the telltales 17 are placed within the film at the precise position at which the electric circuit is to be completed.

We have found splendid results may be obtained by the placing of an adjustable electric carrier 18 upon the outer surface of the reel, the same being secured in position by any suitable fastening means as by a set screw 19. The body of the set screw 19 passes through a slot 20 disposed within the adjustable body element 18. The telltale 17 is supported upon a threaded pin 21 and is positioned normally out of registerable engagement with the contact of the film through the action of the spring 22 disposed upon the pin 21, and when so placed, the terminal end 23 of the telltale is in registerable engagement with the electric terminal 24, but when repressed within the film at the desired position the electric circuit will be broken until the predetermined position, in which the same is placed within the film, is reached and when the film is unwound therefrom the spring 22 which has been repressed will react and the electric circuit will be completed by the engagement of the terminal end 23 with the electric contact 24. An electric conductor 25 conducts the current through one of the electric terminals 8 and the circuit will then flow through the terminal 12 that is in registerable engagement with the terminal 8 and thereby completes the electric circuit that may be used for the starting of the adjacent projecting machine or for any other purpose.

We have here shown in Fig. 4, four electric terminals, but we do not wish to be limited to any specific number of terminals as the same will be determined by the character, or use, of the device in the show house in which the same is being used.

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 herein shown and described, as it is susceptible of embodiment in various forms, all coming

within the scope of the claims which follow.

What we claim is:

1. In a device of the class described, the combination of a shaft, a hub mounted upon the shaft, an insulated cylinder mounted upon the hub and in spaced relation with the hub, a plurality of metallic bands disposed upon the insulated hub and in spaced relation with each other, electric terminals outwardly extending from the metallic bands and in spaced relation therewith, a reel removably disposed upon the shaft, an insulating hub forming the engaging surface between the reel and the shaft, a plurality of electric terminals carried within the insulating hub, said electric terminals being in registerable engagement with the terminals carried by the cylinder, a plurality of telltales adjustably disposed upon the reel and adapted for placement between the film disposed about the reel and adapted for being held down between the film and within the reel by the winding of the film about the reel, and an electric terminal disposed in registerable alignment with the telltale and adapted to registerable engagement therewith when the telltale is released.

2. In a device of the class described, the combination of a supporting shaft, endless electric terminals insulated from the shaft and disposed in spaced relation with the shaft, a film reel supported upon the shaft by an insulating hub, an adjustable electric carrier mounted upon the side wall of the reel, a telltale rockably disposed upon the carrier and adapted for being disposed between the film and for being held therein by the film, a terminal disposed outwardly from the body of the telltale, means for rocking the telltale about its support when the film unwinds to release the telltale, an electric terminal disposed in registerable alignment with the terminal of the telltale and with which the terminal of the telltale registers when the telltale is released and means for completing an electric circuit when the registerable engagement is made between the two terminals.

3. In a device of the class described, the combination with a reel of a motion picture projecting machine, a shaft disposed through the reel and outwardly extending from one side, a hub mounted upon the outwardly extending portion of the shaft, an insulated cylinder disposed in spaced relation upon the hub, a plurality of bands disposed about the cylinder, electric terminals outwardly extending from the hub and in direct alignment with the bands, an insulating hub disposed centrally of the reel, electric terminals disposed within the reel insulating hub, means for connecting the terminals within the respective hubs, adjustable means disposed upon the reel and connected to the electric terminals of the reel insulating hub adapted

to be placed between portions of the film disposed within the reel, tension means disposed within the last mentioned means for normally maintaining said means in position for closing a circuit, and means disposed at the free end of the adjustable means adapted to contact the electric terminals of the reel when the said adjustable means are released from between the film.

HOWARD H. FENNER.
ROBERT E. SILVIS.

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