June 21, 1927.

M. F. HIPPS

1,632,968

AUTOMATIC CUT-OFF

Filed Aug. 12, 1925

Fig. 1.

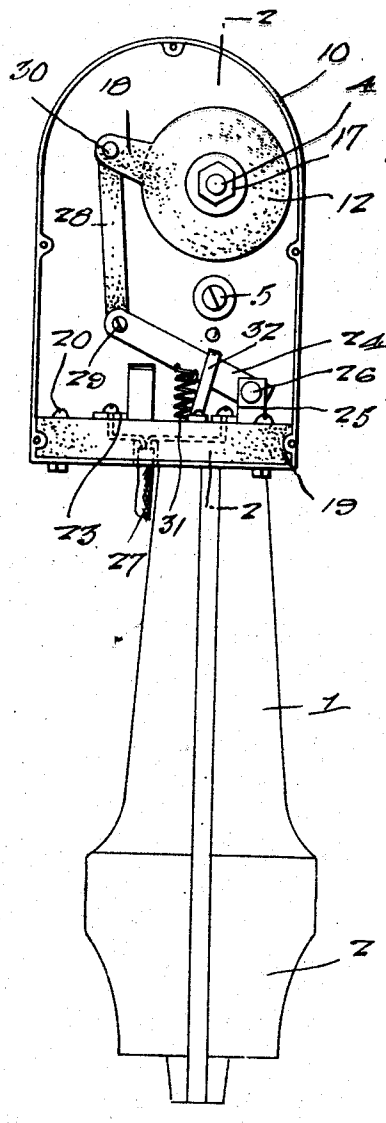
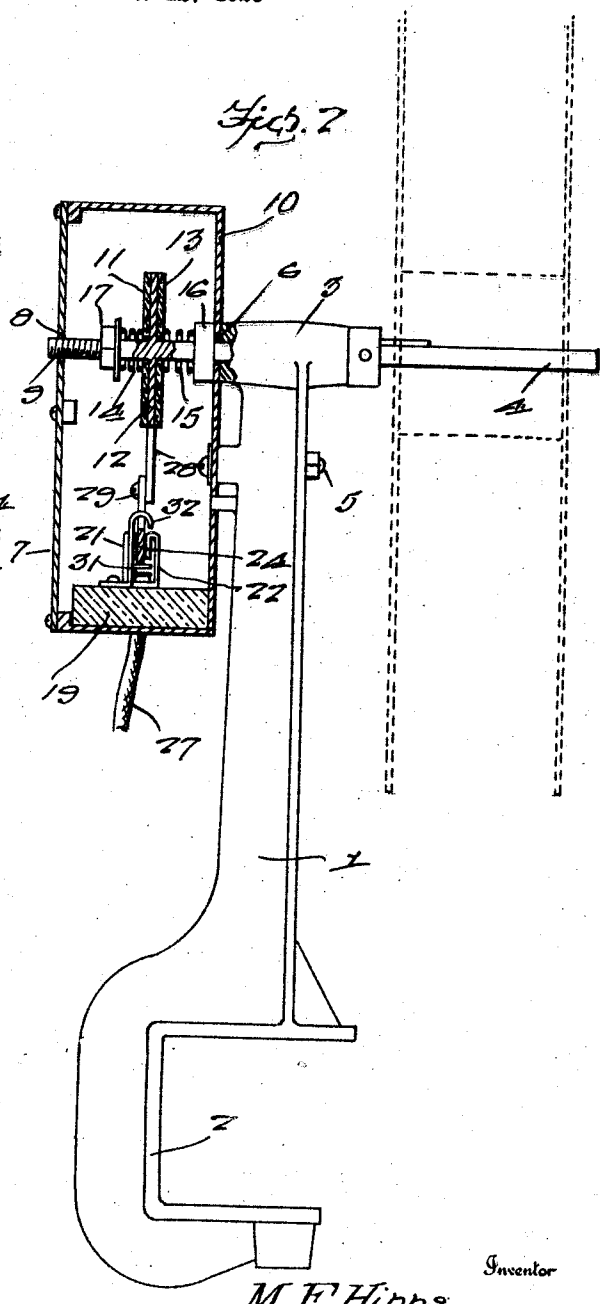


Fig. 2



Inventor

M. F. Hipps

By Clarence A. O'Brien

Attorney

Patented June 21, 1927. 1,632,968

UNITED STATES PATENT OFFICE.

MARVIN F. HIPPS, OF ELECTRA, TEXAS.

AUTOMATIC CUT-OFF.

Application filed August 12, 1925. Serial No. 49,783.

This invention relates to a highly novel means for cutting off the circuit to an electric motor, which operates a moving picture film rewinder.

One of the important objects of the present invention is to provide a cut off which will automatically operate, the same being associated with a rotatable shaft on which is placed a moving picture reel from which the film is to be unwound onto an empty reel.

A further object is to provide an automatic cut off of the above mentioned character which will at all times be positive and efficient in its operation and will not in any way interfere with the operation of the rewinding mechanism.

A further object is to provide an automatic cut off of the above mentioned character which is simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of this invention will become apparent during the course of the following description taken in connection with the accompanying drawing.

In the accompanying drawing forming a part of this application and in which like numerals designate like parts throughout the same:

Figure 1 is a side elevation of the cut off embodying my invention showing the manner in which the same is associated with the rotatable reel supporting shaft, and the bracket therefor, and

Figure 2 is a vertical sectional view taken approximately on line 2—2 of Figure 1.

In the drawing, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a post, or standard, the lower end of which is provided with a substantially U-shaped bracket 2 for facilitating the clamping of the standard or post on a suitable support. The upper end of the standard or post is provided with the transversely extending bearing 3, in which is journaled the intermediate portion of the shaft 4. A moving picture film reel is adapted to be removably supported on the forward end of the rotatable shaft in the manner well known in the art.

The device described above forms a part of any well known type of motor operated moving picture film rewinding mechanism, and for the purpose of automatically cutting off the motor which operates the rewinder after the film has been unwound from one reel and wound upon another, I have provided a highly novel, yet simple attachment, the construction of which will be presently described.

The automatic cut off embodying my invention comprises a casing 10 which is adapted to be secured on the rear portion of the post, or standard 1, at the upper end thereof, and in order to secure the casing thereon, it has been found necessary to first remove the usual brake associated with the post and shaft, and a bolt 5 is then placed through a suitable opening provided therefor in the front of the casing, and through the post or standard, in the manner clearly illustrated in Figure 2. The front of the casing is also provided with an opening 6 to permit the rear end of the rotatable shaft 4 to extend therethrough and the removable cover 7 which is adapted to be secured over the open rear side of the casing is also provided with an opening 8 in registry with the opening 6 through which extends the threaded rear end 9 of the shaft.

Carried by the intermediate portion of the rear end of the shaft 4 which is disposed within the casing 10 is the annular flange 11. Slidably arranged on the rear end portion of the shaft, and disposed on opposite sides of the metal flange 11 are the fiber discs 12 and 13 respectively. These discs are of the same diameter as the flange 11, as is obvious from the construction shown in Figure 2. The purpose of the discs will also hereinafter be more fully described. For the purpose of forcing the discs into frictional engagement with the opposed faces of the metal flange 11, there is provided on the rear end portion of the shaft 4 the coil springs 14 and 15 respectively. A collar 16 is secured on the rear portion of the shaft 4 and is disposed adjacent the inner side of the front wall of the casing 10, and the coil spring 15 which encircles the shaft 4 is disposed between the collar and the disc 13. A nut 17 is threaded on the threaded end 9 of the shaft 4, and the coil spring 14 is disposed

between this nut and the adjacent face of the disc 11. Manifestly, by turning the nut on the threaded end 9 on the shaft in one direction, the tension of the coil spring 14 may be regulated.

Extending from the peripheral edge of each disc is the ear 18, and these ears are preferably arranged in alignment with each other.

Arranged in the bottom of the casing 10 is the insulated block 19, the securing means therefor being shown at 20. A pair of upstanding spaced contact fingers 21 and 22 respectively are supported on the block 19 adjacent one end thereof and are electrically connected together as indicated generally at 23.

The switch further includes the lever 24 which is pivotally supported at one end on the bracket 25 which is also supported on the block 19, the pivot being illustrated at 26. This bracket 25 is also wired in the circuit to the motor (not shown) provided for operating the film rewinding mechanism. The wiring which leads from the switch is indicated at 27.

The lever 24 is of such length as to extend beyond the spring contact fingers 21 and 22, and between which the free end portion of the lever is adapted to be disposed as will be presently apparent. A link 28 also of fiber is pivotally connected at its lower end to the free end of the lever 24 as at 29. The upper end of the fiber link is pivotally connected to the ears of the respective fiber discs as at 30. It is of course understood that the upper end of the link is disposed between the spaced ears. In this manner, the switch is operatively connected to the discs.

A coil spring 31 is provided for normally forcing the lever 24 upwardly out of engagement with the contact fingers 21 and 22 whereby the circuit to the motor will be broken, and for the purpose of limiting the upward swinging movement of the lever, there is provided the stop member 32 which is secured on the block 19. This stop member is preferably in the form of a hook, as is clearly illustrated in Figure 2. The operation of my automatic cut off may be briefly stated as follows: When a reel is placed on the forward end of the shaft 4, and the same is operatively connected with the other reel whereby the film may be wound from one reel onto another, as soon as the shaft 4 rotates, the discs will be brought into frictional engagement with the flange 11, and as a result, the lever 24 of the switch will be forced into engagement with the spring contact fingers 21 and 22, thus closing the circuit to the motor, and permitting the automatic operation of the film rewinding mechanism. While the free end of the lever is held between the spring contact fingers, the shaft 4 will be permitted to rotate freely.

As soon as the reel on the shaft 4 ceases to rotate, the spring 31 will automatically force the lever 24 upwardly so that the free end thereof will be brought out of engagement with the spring contact fingers 21 and 22, thus automatically breaking the circuit to the motor and stopping the operation thereof. The stop 32 will limit the upward swinging movement of the lever as well as the link 28, and the ears 18 formed on the respective fiber discs.

It will thus be seen from the foregoing description, that a cut off has been provided for use in connection with motor operated moving picture film rewinding mechanism which may be readily and easily installed or attached on the rewinder, and will at all times be positive and efficient in its operation.

Furthermore, the simplicity in which the present device is constructed makes the same very inexpensive, and will not in any way interfere with the operation of the reel.

While I have shown the preferred embodiment of the invention it is to be understood that minor changes in the size, shape, and arrangement of parts may be resorted to without departing from the spirit of the invention, and the scope of the appended claims.

Having thus described the invention, what I claim as new is:—

1. In combination with a rotatable reel supporting shaft, of a switch for controlling the circuit to an electric motor, said switch including a pair of spaced contact members, and a pivoted lever adapted to be disposed between said contacts, means arranged on said shaft and operatively connected with said lever for moving the lever into engagement with the contacts when the shaft is rotated, said means comprising a flange arranged on the rear end portion of the shaft, a pair of discs arranged on the shaft and adapted for frictional engagement with opposed faces of the flange, and a connection between the discs and the free end of the lever, and means for automatically disengaging the lever from the contacts when the shaft stops rotating.

2. In combination with a rotatable reel supporting shaft, of a switch for controlling the circuit to an electric motor, said switch including a pair of spaced contact members, and a pivoted lever adapted to be disposed between said contacts, means arranged on said shaft and operatively associated with the lever for moving the same into an operative position when said shaft is rotated, said means comprising a flange arranged on the rear end portion of the shaft, a pair of discs slidable on the shaft, resilient means cooperating with the discs

and associated with said shaft for moving the discs into frictional engagement with the respective faces of the flange, ears extending laterally from the discs, a link pivotally secured at its upper end between said ears and at its lower end to the free end of said lever, a coil spring cooperating with the pivoted lever for automatically moving the same to an inoperative position when the shaft ceases to rotate, and a stop for limiting the upward swinging movement of said pivoted lever.

In testimony whereof I affix my signature.

MARVIN F. HIPPS.