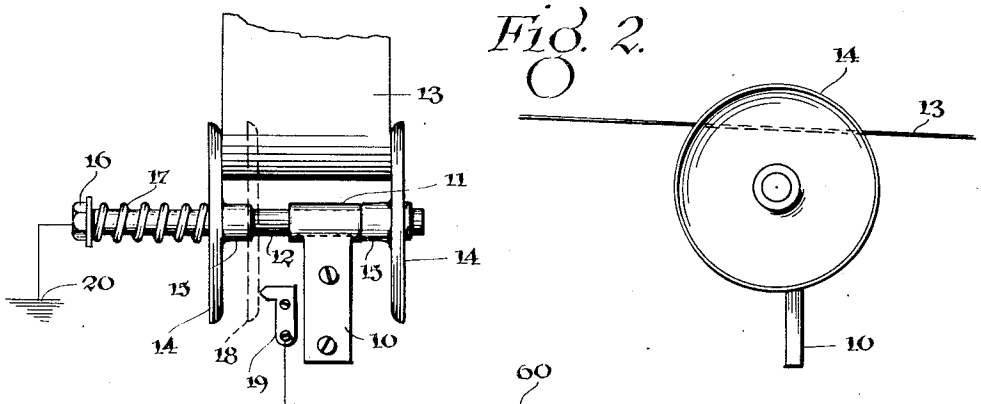
Dec. 4, 1923. 1,476,006

M. E. PHIMISTER

AUTOMATIC STOP FOR MOTION PICTURE MACHINES

Filed Aug. 18, 1921

Fig. 2.



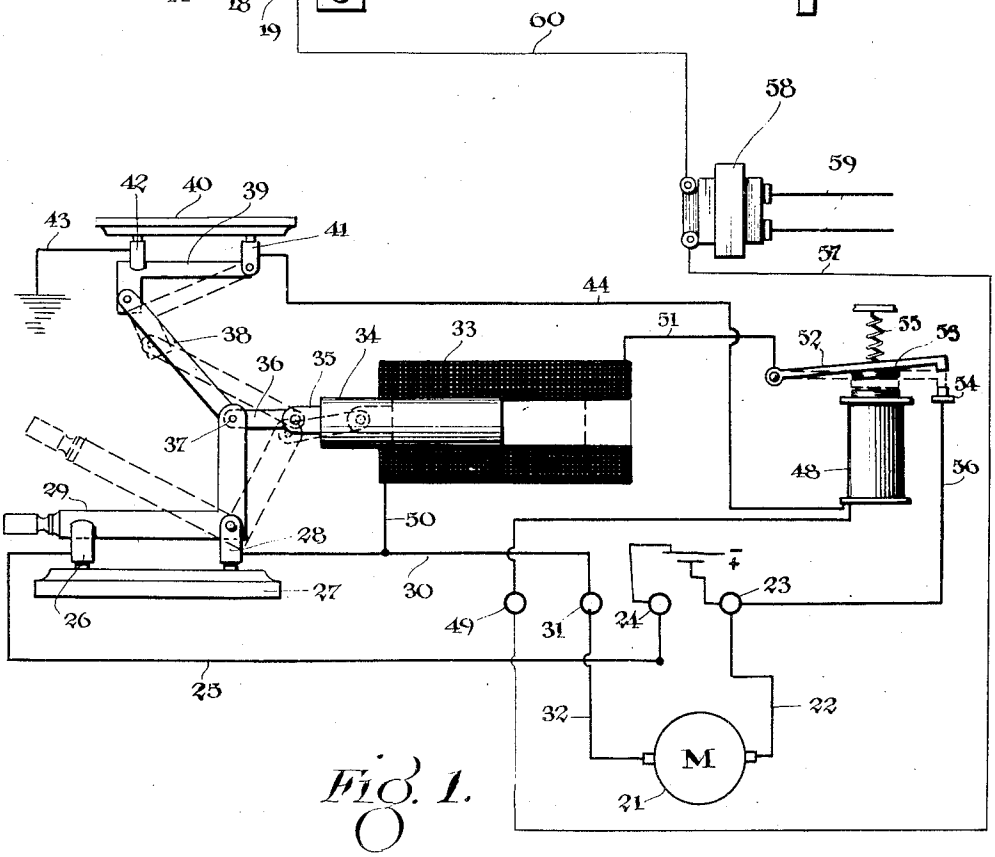


Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

MILTON EDWIN PHIMISTER, OF GREEN BAY, WISCONSIN.

AUTOMATIC STOP FOR MOTION-PICTURE MACHINES.

Application filed August 18, 1921. Serial No. 493,407.

To all whom it may concern:

Be it known that I, MILTON EDWIN PHIMISTER, a citizen of the United States, and a resident of Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Automatic Stops for Motion-Picture Machines, of which the following is a specification.

This invention relates to an automatic stop for motion picture machines.

The object of the invention is to provide means whereby the motor unwinding the film in picture machines will be automatically brought to a stop upon the breaking or discontinuance of the film.

It is a further object of the invention that the same may be applied to any type of motion picture machine.

A still further object of the invention is that the same may be positive and reliable in operation.

Other objects and objects relating to details of construction, combination and arrangement of parts will hereinafter appear in the detailed description to follow.

In carrying out the invention it is contemplated to associate with the film at a convenient point relative to its passage through the motion picture machine while being unwound such means that when the film is broken or in some other manner discontinued that circuit of the motor for unwinding the film will be automatically opened.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a diagrammatic view illustrating the preferred embodiment of the invention.

Figure 2 is a detail side elevation more clearly illustrating the manner in which the film passes between the circuit closing elements or members associated therewith.

Referring to the drawings more particularly, 10 indicates a bracket which may be secured at any convenient and suitable point within the motion picture machine as before mentioned. The upper end of the bracket 10 is formed with a sleeve 11 through which there extends a bolt 12. The bracket 10 is so positioned that the bolt carried thereby will be disposed transversely of the film 13 being unwound by the moving picture machine and immediately therebeneath as shown. A pair of cup shaped members 14 are mounted upon the rod 12, one adjacent each edge of the film 13 and each cup shaped member being formed with a hub portion 15 by which the same may be loosely fitted upon the rod 12. The cup shaped members oppose one another as shown and interposed between the head 16 of the bolt 12 and the adjacent cup shaped member 14 is a coiled spring 17 adapted to slightly press this cup shaped member against the film 13 as illustrated in Figure 1. As is obvious when a film 13 is not disposed between the cup shaped members 14, the cup shaped member associated with the spring 17 will be pressed inwardly to the dotted line position as indicated at 18, and when in this position brought into electrical contact with the contact member 19. The contact member 19 is insulated from the ground and the bolt 12 grounded as at 20.

The motor which is utilized for unwinding the motion picture reel and indicated at 21 in the drawings, has its one side connected through a wire 22 to a terminal post 23 and said terminal post 23 is suitably connected to the positive side of a source of electric current supply. The negative side of the electric current supply is connected to a terminal post 24, and said terminal post is connected through the wire 25 to the contact 26 of a single throw knife switch generally indicated by the reference numeral 27. The remaining contact 28 of the knife switch is connected through the wire 30 to a terminal post 31, and the terminal 31 is connected through a wire 32 to the remaining unconnected side of the motor 21. The contact points 26 and 28 of the switch 27 are connected by an L-shaped blade 29. The purpose of the particular construction of the blade will later be made apparent.

A solenoid 33 is provided with which there is associated a plunger 34 adapted to be drawn within the solenoid when said solenoid is energized. The plunger 34 has projecting from its outer end a stud 35 and is pivotally connected through the link 36 to the one end of the L-shaped switch blade 29 as at 37. Also the link 36 is connected through the link 38 to an L-shaped switch blade 39 of a second switch 40 in a similar manner. The switch blade 39 establishes connection when closed between the contact points 41 and 42. The contact point 42 is grounded as at 43 while the contact point 41 is connected through the wire 44 to the one end of a coil forming the electro-magnet 48,

the other end of the coil forming the electro-magnet being connected to a terminal post 49.

The one end of the coil forming the solenoid 33 is connected through the wire 50 to the wire 30, while its other end is connected through the wire 51 to a pivoted bar 52 carrying an armature 53 and adapted to move downwardly to form electrical contact with the contact 54 when the magnet 48 is energized. The pivoted bar 52 being held in its raised position by a spring 55. The contact 54 is connected through the wire 56 to the terminal post 23 or to the positive side of the source of current supply.

The terminal post 49 is connected through a wire 57 to the one side of the secondary winding of a transformer such as the type employed for electric bells and generally indicated at 58. The primary side of the transformer is supplied through the line wires 59 and its remaining secondary terminal is connected through the wire 60 with the insulated contact 19.

In the operation of the present device, assuming that the film 13 is being unwound for passing between the members 14 and the tension of the spring 17 so adjusted that no undue pressure of the members 14 will be had against the edges of the film 13; then should the film in any manner become broken or otherwise be displaced from between the members 14 the member 14 associated with the spring 17 will immediately move into position for contacting with the member 19. It will also be assumed that the switch blades 29 and 39 are closed. Now upon the member 14 forming contact with the contact 19 a ground for the wire 60 will be established thereby grounding one terminal of the secondary side of the transformer 58. Since the contact point 42 of the switch 40 is also grounded a circuit will be established through the electro-magnet 48 which in turn will draw downwardly the bar 52 and close the circuit through the solenoid 33. It is of course to be assumed that the motor 21 is in operation during this period since the switch 29 is in its closed position. With the winding of the solenoid 33 becoming energized the plunger 34 will be drawn downwardly and open the switch blades 29 and 39 simultaneously whereupon the circuit through the motor 21 will be discontinued and likewise the circuits through the solenoid 33 and magnet 48 will so be opened and discontinued.

I claim:—

1. An automatic stop for motion picture machines, comprising in combination, a movable element positioned adjacent the film at a predetermined point during the unwinding thereof, means for pressing said element against the film, means whereby an electric circuit will be closed by said rotatable element when said film ceases to pass the predetermined point, an electric motor for unwinding said film, an electric circuit for said motor, means adapted to be operated for opening said motor circuit upon the closing of the first named electric circuit, and said means being also adapted to simultaneously open the first named circuit.

2. An automatic stop for motion picture machines, comprising in combination, a rod supported transversely to the film at a predetermined point during the unwinding thereof, a pair of cup-shaped elements loosely supported by said rod and between which said film may pass and its opposite edges being engaged by the opposed surfaces of said cup shaped elements, a coil spring surrounding the one end of said rod and adapted to press the associated cup-shaped element inwardly, means whereby upon the film ceasing to pass between said cup shaped elements an electric circuit will be closed by the spring pressed cup shaped element, an electric motor for unwinding said film, an electric circuit therefor including a source of supply, and means whereby said electric circuit will be opened upon the closing of the first named circuit.

3. In combination with a moving picture film, a pair of rotatable elements, one of which is movable toward the other, means for urging the movable element toward the other element, said film being disposed between said elements and the edges of the film adapted to engage with said elements and maintain the same in a predetermined spaced relation, and means whereby upon the film failing to pass between said elements and the movable element moving toward the other element a certain degree an electric circuit will be established for the purpose described.

4. In combination with the film of a moving picture machine, a pair of rotatable elements, one of which is urged toward the other, and one of said elements engaging each edge of said film, and means whereby upon the film failing to pass between said rotatable elements, the movement of one element will cause an electric circuit to be established for the purpose described.

5. In combination with the film of a moving picture machine, a pair of rotatable elements, one of which is spring pressed toward the other and said elements each engaging an edge of said film, and means whereby upon the film failing to pass between said elements the spring pressed element may move and establish an electric circuit for the purpose described.

6. In combination, a continuous movable element, a shaft disposed transversely to the path of said continuous movable element, a disk slidable upon said shaft, means for urging said disk to engage with an edge of

the movable and continuous element, and means whereby upon the continuous movable element becoming disengaged from the disk, said disk will move longitudinally of said shaft and establish an electric circuit for the purpose described.

7. In combination, a continuous and movable film, a shaft extending transversely to the direction of movement of said film, a disk rotatable upon said shaft and adapted to engage one edge of the film, means for pressing said disk toward the engaged edge of the film whereby with the film failing to pass the disk, said disk will move longitudinally of said shaft, and means whereby upon the last named movement of the disk an electric circuit will be established.

8. In combination, a continuous and movable film, a shaft extending transversely to the direction of movement of said film, a disk rotatable upon said shaft and adapted to engage one edge of the film, means for pressing said disk toward the engaged edge of the film whereby with the film failing to pass the disk, said disk will move longitudinally of said shaft, a stop member adapted to limit the last named movement of said disk, and means whereby upon the disk engaging the stop member an electric circuit will be established for the purpose described.

9. In combination, a continuous and movable film, a shaft disposed transversely to the direction of movement of the film, a spring pressed disk carried by said shaft, said disk being rotatable and adapted to engage the associated edge of the film, a second disk rotatably supported by said shaft and adapted to engage the other edge of the film, said first named disk being adapted to move toward the other disk upon the film failing to pass the same, and stop means whereby upon the last named movement of the spring pressed disk an electric circuit will be established for the purpose described.

MILTON EDWIN PHIMISTER.