J. GRIFFITHS.

MOVING PICTURE MACHINE.

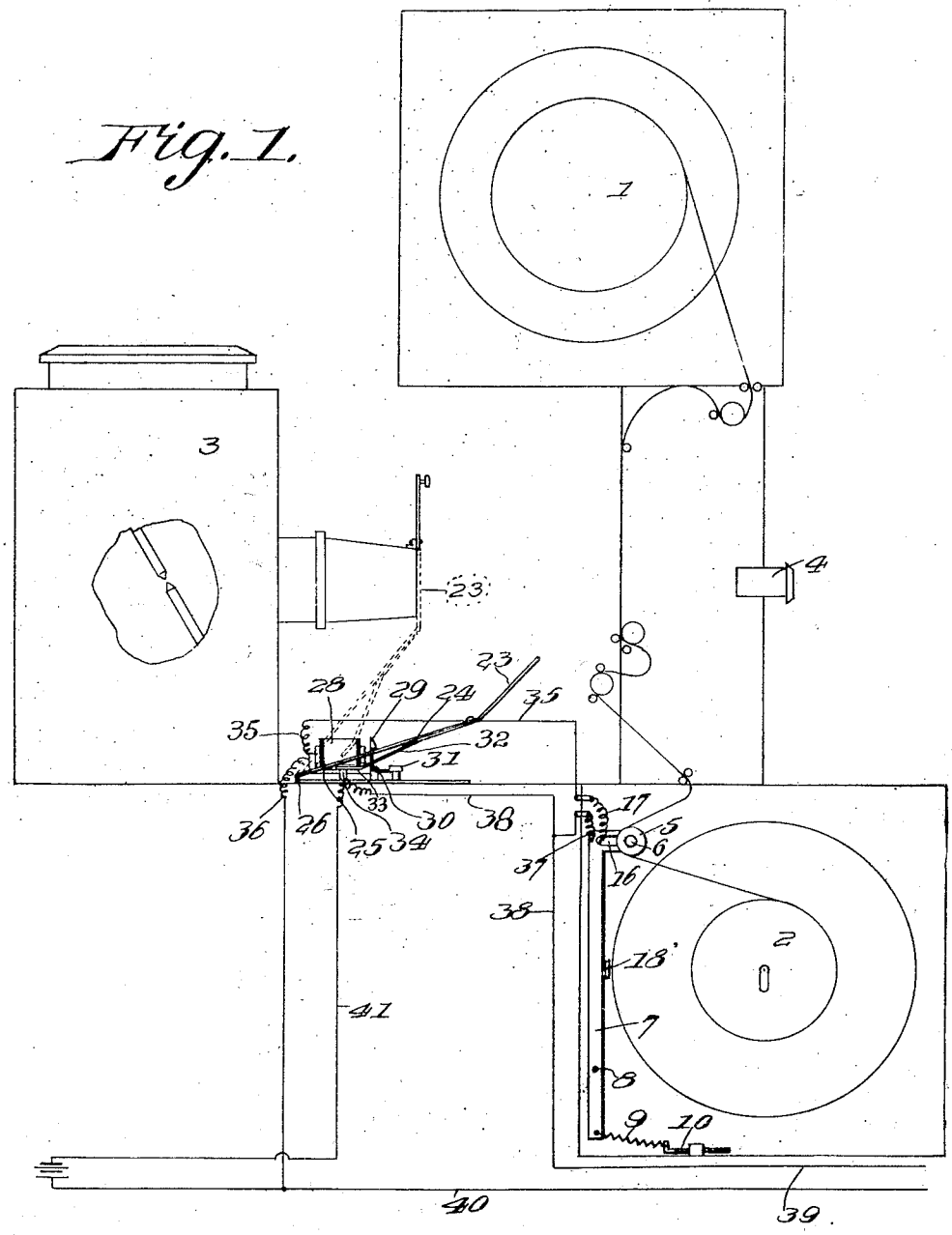
APPLICATION FILED MAR. 12, 1913.

1,099,356.

Patented June 9, 1914.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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2 SHEETS—SHEET 2.

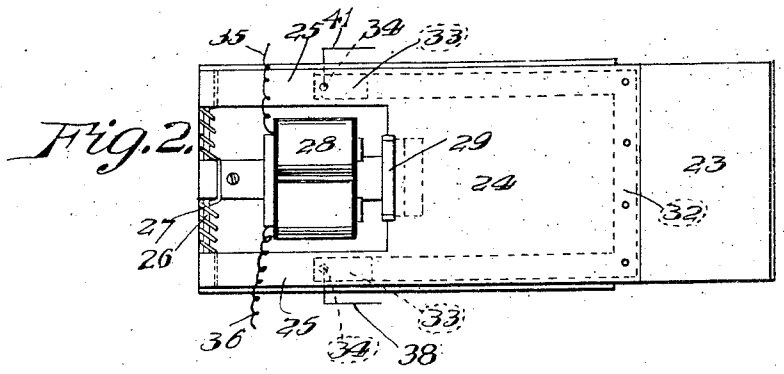


Fig. 2.

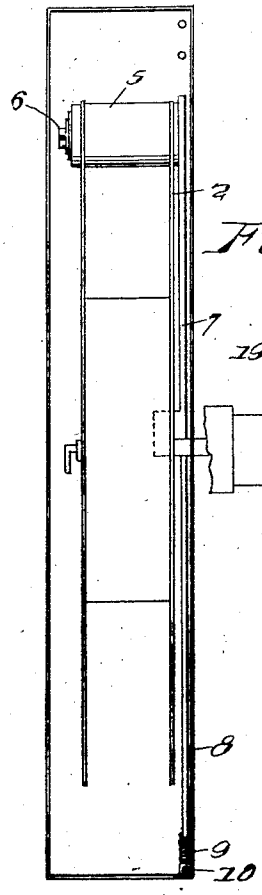


Fig. 3.

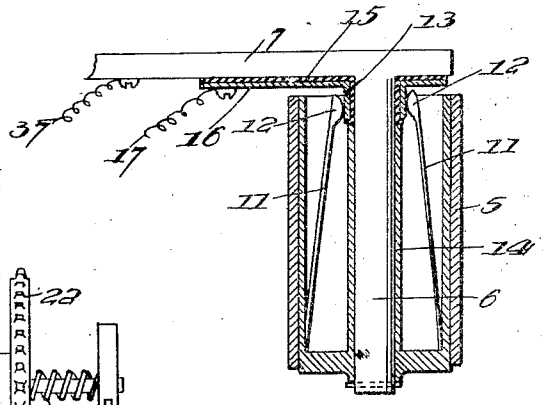
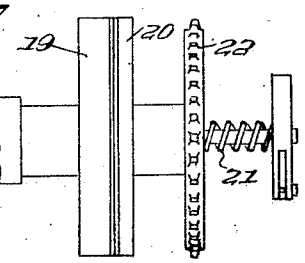


Fig. 4.



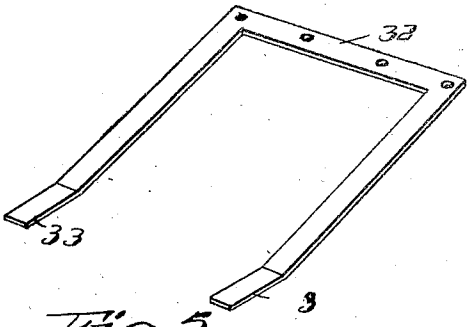


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN GRIFFITHS, OF ANSONIA, CONNECTICUT, ASSIGNOR OF ONE-HALF TO ALICE F. HAYWARD, OF BETHEL, CONNECTICUT.

MOVING-PICTURE MACHINE.

1,099,356. Specification of Letters Patent. Patented June 9, 1914.

Application filed March 12, 1913. Serial No. 753,686.

To all whom it may concern:

Be it known that I, JOHN GRIFFITHS, a citizen of the United States, residing at Ansonia, New Haven county, Connecticut, have invented certain new and useful Improvements in Moving-Picture Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in moving picture machines and relates more particularly to novel and improved means for automatically cutting off the light rays from the film, should the latter stop or be fed at speed below normal.

Further, the invention aims to provide novel and improved means for braking the receiving reel should the film be subjected to an abnormal strain or pull such as might injure the same.

In the drawings: Figure 1 is a side elevation of a moving picture machine, showing the present invention applied thereto; Fig. 2 is a top plan view of the shutter controlling mechanism; Fig. 3 is an end elevation of the braking mechanism; Fig. 4 is an enlarged view, partly in section of the drum that forms a part of the braking and shutter controlling mechanism; and Fig. 5 is a perspective view of the contact member of the shutter controlling mechanism.

The film is fed in the usual manner from the reel 1 to the receiving reel 2 and passes between the arc lamp 3 and the lens 4. The film in its stated passage engages over a drum 5 which is rotatably mounted on a spindle 6 that is secured to the upper end of an arm 7 which latter is pivoted at its lower end at 8. The lower end of the arm 7 is connected by a coil spring 9 to an adjustable rod 10 in order to regulate the tension of the spring. Drum 5 carries on its interior, a plurality of flexible spring fingers 11 which are formed with contact heads 12, the contact heads being disposed so as to engage the contact sleeve 13 which is insulated from the bearing 14 of the drum and the arm 7 by insulation 15. The contact sleeve 13 is integral with a plate 16 that is attached to the arm 7 and has a wire 17 in contact therewith; the arm 7 has a brake block or facing 18 affixed thereto for engagement with the periphery of the reel 2 for a purpose to be later set forth. The axle of the reel 2 has a disk 19 rigidly mounted thereon, one face of which has a leather face that engages a leather faced disk 20 that is slidably mounted on the axle, the disk 20 being urged into contact with the disk 19 by means of a spring 21 that surrounds the axle of the reel 2, the disk 20 being driven by a sprocket 22 in the usual manner.

A shutter 23 is mounted on the free end of a member that consists of a body portion 24 having arms 25 which are pivoted to a stub shaft 26, the arms being engaged with the ends of a coil spring 27 which is arranged to throw the shutter from the full line position of Fig. 1 to the dotted line position shown in said figure. A magnet 28 is mounted in the space between the arms 25 and, when energized, attracts a latch 29 which is pivoted at 30 and has a weight 31 formed on its lower right angular end, the function of which weight is to hold the catch in the position shown in Fig. 1, *i. e.* out of contact with the magnet. The catch proper engages over the inner end of the body 24 and thereby holds said body and the shutter 23 in lowered position to permit unobstructed passage of the light from the arc lamp 3 through the film to the lens 4. On the under face of the body 24 is attached a U-shaped contact member 32, the free ends 33 of the legs of which are adapted to engage contact posts or terminals 34 which underlie the arms 25. The magnet 28 is connected by a wire 35 to the wire 17 and by a wire 36 to a motor and battery circuit 40. A wire 37 contacting with arm 7 is tapped onto a wire 38, which is included in the motor circuit 39, said wire 38 being connected to one of the contact posts 34. A wire 41 leads from the battery to the other contact post 34.

Should the film, for any reason, be subjected to excessive strain or pull, it will, by reason of its engagement with the drum 5, pull the arm 7 toward the receiving reel 2, thus applying the braking face to the reel, with the result that the reel 2 is held stationary and the driving disk 20 will have a slipping contact with the disk 19. When the strain or pull ceases, the tension on the drum being released, the latter is returned to normal position, by the spring 9, which causes

the brake 18 to release the reel 2 and allows the driving disk 20 to again revolve the disk 19 and therewith the reel 2 at normal speed.

During the operation of the film at normal speed, the heads 12 of the fingers 11, will, due to centrifugal action, be held out of engagement with the contact sleeve 13 with the result that the magnet circuit is held open. Should the film stop or slow up, the heads 12 will contact with sleeve 13 thereby closing the magnet circuit, and energizing the magnet; the energizing of the magnet attracting the catch 29, and moving same out of engagement with the member 24, releases the latter and permits same to respond to the action of the spring 27, which moves the shutter up into the dotted line position shown in Fig. 1, thereby cutting off the light rays. When the member 24 moves up to bring the shutter into operative position, it will be seen that the contact member 32 in moving with member 24 will have its ends 33 moved out of contact with the terminals 34 breaking the magnet circuit, so that to again position the parts to enable operation of the machine, it is only necessary, to restore the parts to the full line position of Fig. 1, and to hold the catch in engagement with the member 24 until the machine is speeding sufficiently to cause the heads 12 of fingers 11 to be out of contact with the sleeve 13. When the member 24 moves upwardly it also carries the contact member 32 with it, causing the ends 33 of the latter to move out of contact with the terminals 34 thus breaking the motor circuit and effecting stoppage of the machine.

What is claimed is:

In combination with the light projector and the film receiving roll of a moving picture machine, means actuated by the film to brake said roll when the film is subjected to abnormal pull or strain, devices to cut off the light and stop the motor, and mechanism also operated by said means to move said devices to operative position when the film breaks or moves at speed less than normal.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN GRIFFITHS.

Witnesses:
F. W. SMITH, JR.,
M. T. LONGDEN.