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F. SEUFERT

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FILM FEEDING MECHANISM FOR CINEMATOGRAPHS

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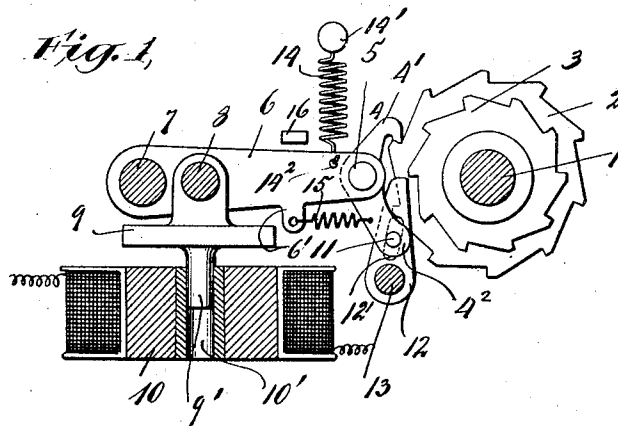
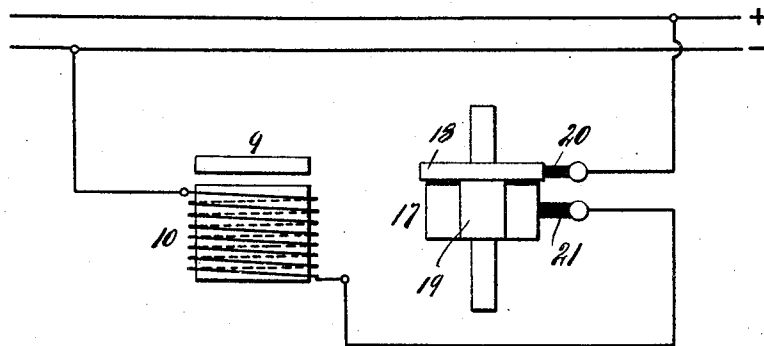


Fig. 2,



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FILM-FEEDING MECHANISM FOR CINEMATOGRAPHS.

Application filed May 16, 1924. Serial No. 713,733.

To all whom it may concern:

Be it known that I, FRIEDRICH SEUFERT, a citizen of Germany, residing at Munich, Bavaria, Germany, have invented certain new and useful Improvements in Film-Feeding Mechanism for Cinematographs, of which the following is a specification.

The great difficulties connected with the mechanical transmission of step-by-step motion to the film band have long ago led to experiments to overcome the same by electric means. But these experiments have failed, because the mechanical transmission of the electro-magnetic forces were not free of faults, in that the picture could not be fed with precision.

The object of this invention is to provide a construction, which will obviate these drawbacks.

In the accompanying drawings, Fig. 1 is a sectional view of the device and Fig. 2 is a diagram of the electric connection illustrating the operation of the device.

On the shaft 1 of the film sprocket wheel (not shown) are fixed two ratchet wheels 2 and 3. Cooperating with the ratchet wheel 2 is a pawl 4 fulcrumed at 5 in a lever 6. The latter is fulcrumed at 7 in a stationary part (not shown) and has pivoted to it at 8 the armature 9 of an electro-magnet 10. The pawl 4 is in form of a double armed lever, one arm 4' acting as pawl proper and the other 4² carrying a pin 11, which slidably engages a slot 12' extending longitudinally in an arm 12 fulcrumed at 13 in a stationary part (not shown). This arm 12 is adapted to act as pawl in cooperation with the ratchet 3. The lever 6 is acted upon by a spring 14 one end of which is fixed at 14' and the other connected to said lever at 14². The arm 4' of the pawl 4 is connected to a projection 6' of the lever 6 by a spring 15. 16 denotes a stop for the lever 6.

When the armature 9 is attracted by the electro-magnet, the lever 6 will swing around its fulcrum 7 toward the electro-magnet. Owing to this movement, the pawl 4' will be forced by the ratchet wheel to swing around its pivot 5 away from said wheel, while the arm 4² will swing toward the ratchets, and by its pin 11 swing the pawl 12 into engagement with the ratchet 3, locking the latter so

that the intermittent rotary motion of the film wheel will be controlled with great precision.

The armature 9 is provided with a projection 9' engaging a central bore 10' in the electro-magnet, whereby it is properly guided. The spring 14 has the tendency, when the electro-magnet is deenergized, to swing the lever 6 back into its normal position to rest against the stop 16, while the spring 15 has the tendency to swing the pawl 4 into engagement with the ratchet wheel 2.

For the operation of the electro-magnet, I employ a commutator adapted to revolve with uniform speed. The same comprises an insulation body 17 on which is mounted a commutator ring 18 and one or more conducting plates 19 insulated from one another, but conductively connected to ring 18. Cooperating with the ring 18, is a brush 20 connected to the positive pole of the electric source (not shown), while a second brush 21 is adapted to slide on the body portion of conductors and alternately make and break the circuit. The second brush 21 is connected to one pole of the electro-magnet, whose other pole is connected to the negative pole of the electric source.

The electro-magnet, through the operation of the commutator, will thus be alternately energized and disenergized, thereby causing the intermittent or step-by-step motion of the feeding roll of the film, as hereinbefore described.

What I claim is:—

In a film feeding device, the combination with the film feeding shaft, of two ratchet wheels fixed on said shaft, an electro-magnet, a spring actuated lever having a stationary fulcrum and from which is pivotally suspended the armature of said electro-magnet, a spring actuated double armed lever pivoted to said first named lever and of which one arm cooperates as pawl with one of said ratchet wheels and a second pawl having a stationary fulcrum and cooperating with said second ratchet wheel, said second pawl being adapted to slidably engage the second arm of said double armed lever.

In testimony whereof I affix my signature.
FRITZ SEUFERT.