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M. FERREE ET AL  
GOVERNOR FOR ELECTRIC MOTORS

Filed Jan. 31, 1925

FIG. 1

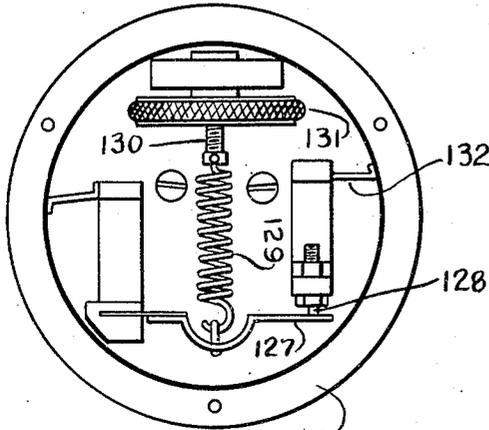


FIG. 2

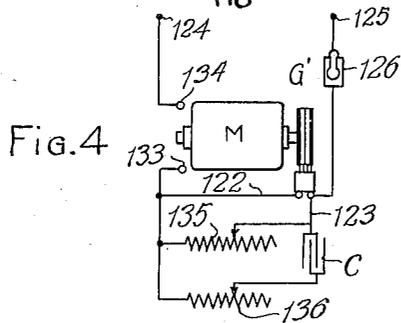
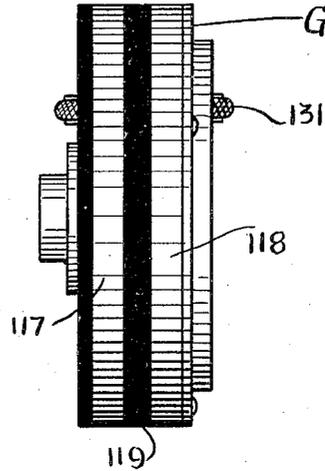
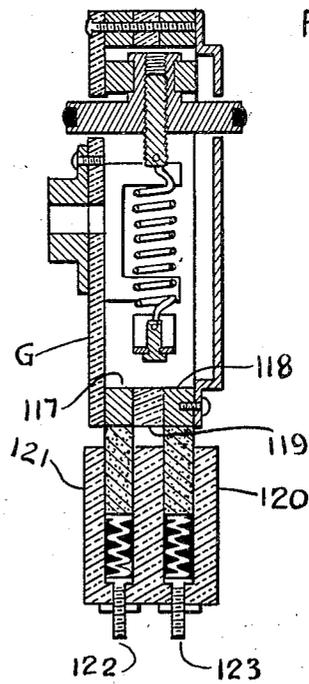


FIG. 3



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# UNITED STATES PATENT OFFICE.

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## GOVERNOR FOR ELECTRIC MOTORS.

Application filed January 31, 1925. Serial No. 5,955.

This invention relates to a new and improved governor for electric motors which is especially adapted for use in electric motors employed to operate the receiving or sending drums of phototelegraphic apparatus.

One of the objects of our invention is to devise a governor which shall be especially adapted for use with the phototelegraphic apparatus shown in U. S. Patent No. 1,529,473 issued on March 10, 1925 for "Method of and means for transmitting pictures", and reference is made to this patent to more fully disclose a specific field of use for the governor shown herein.

Another object of our invention is to devise a governor for electric motors in which the governor is of the centrifugal type and breaks the circuit of the motor when it revolves above a predetermined speed, the function of the governor being to minimize irregularities in the speed of the motor due to the making and breaking of the circuit thereof, and to also minimize sparking.

Other objects of our invention will be set forth in the following description and drawings which illustrate a preferred embodiment thereof.

Fig. 1 is a detail view of the internal mechanism of the governor.

Fig. 2 is a side elevation of the governor.

Fig. 3 is a sectional internal view of the governor. The motor M is provided with an electrical governor G which may be of any suitable type. The type of the governor which we prefer to employ is shown in detail in Figs. 1, 2 and 3. The governor G comprises two metal rings 117 and 118 separated by an intermediate ring 119 made of fibre or other suitable insulating material. The metal rings 117 and 118 co-operate with brushes 120 and 121 which are connected to the leads 122 and 123. As shown in Fig. 4, the power line is connected to the terminals 124 and 125. The current passes through the switch 126 to the terminal 123, then to the ring 118 through brush 121 and then to the contact spring 127. The contact spring 127 is pulled against the terminal 128 by means of the tension spring 129 which can be adjusted by means of the threaded member 130 and the wheel 131. The terminal 128 is connected by means of the conducting member 132 to the other ring 117. The cur-

rent then passes to the terminal 122 through the brush 121 to the motor connection 133, then through the motor out to the other motor connection 134 and to the power lead 124.

When the speed of the motor exceeds a certain limit, the centrifugal force moves the spring 127 away from the contact 128 so as to break the current. In order to minimize any substantial irregularity in the revolution of the motor an adjustable resistance 135 is provided which is thrown into series with the line only when the governor spring 127 is opened. This is obvious from the connections shown in Fig. 4.

The adjustable resistance 135 preferably has a resistance which is preferably much higher than the internal resistance of the motor M.

In order to minimize sparking, a second adjustable resistance 136 is provided which preferably has the same value as the adjustable resistance 135 and the adjacent ends of the resistances 135 and 136 are connected to the terminals of a condenser C.

The theory of our device is as follows:—

When the action of centrifugal force causes the member 127 to move away from the contact 128, it is advisable to continue the supply of some power to the motor M or else its speed is lowered too much. By continuing to supply the motor M with diminished power through the high resistance 135, during the period that the governor is open, fluctuations in the speed of the motor M are minimized.

Experience and testing have shown that by employing a single resistance 135 that there is objectionable sparking when the circuit is broken by the movement of the member 127. To minimize this, the second resistance 136 is provided and this is preferably adjusted so as to have substantially the same resistance as the resistance 135. When the circuit in the governor is broken, the condenser C becomes charged and this charge is dissipated by waves in the resistances 135 and 136 whose corresponding ends are respectively connected to the plates of the condenser C, and also to the same motor terminal 133.

We have described a preferred embodiment of this invention, but it is clear that numerous changes and omissions could be

made without departing from its spirit, and we do not wish to be limited to the details before specified.

Claims:

- 5 1. A governor for an electric motor comprising a revoluble member embodying two contact members insulated from each other and adapted to be connected by a movable switch member adapted to be moved away  
10 from one of said contacts under the action of centrifugal force to break the motor circuit, means adapted to urge said switch member to the circuit closing position, one of said contact members being adapted to be  
15 connected to one of the power terminals and the other of said contact members being adapted to be connected to one of said motor terminals, a condenser, a resistance permanently connected between said motor  
20 terminal and the said power terminal, and a second resistance permanently connected to said motor terminal at one end and connected at the other end thereof to one terminal of said condenser the other terminal  
25 of which is connected to the corresponding end of the first mentioned resistance.
2. In a governor for electric motors, comprising a revoluble member embodying two

contact members insulated from each other and adapted to be connected to a movable switch member adapted to be moved away from one of said contact members under the action of centrifugal force to break the motor circuit, means adapted to urge said switch member to the circuit closing position, one of said contact members being adapted to be connected to one of the power terminals and the other of said contact members being adapted to be connected to one of said motor terminals, the combination with such elements of a condenser, a resistance permanently connected between said motor terminal and the said power terminal, and a second resistance permanently connected to said motor terminal at one end and connected at the other end to one terminal of said condenser, the other terminal of which is connected to the corresponding end of the first named resistance.

In testimony whereof I hereunto affix my signature.

MARVIN FERREE.

In testimony whereof I hereunto affix my signature.

JOSEPH WISSMAR.