

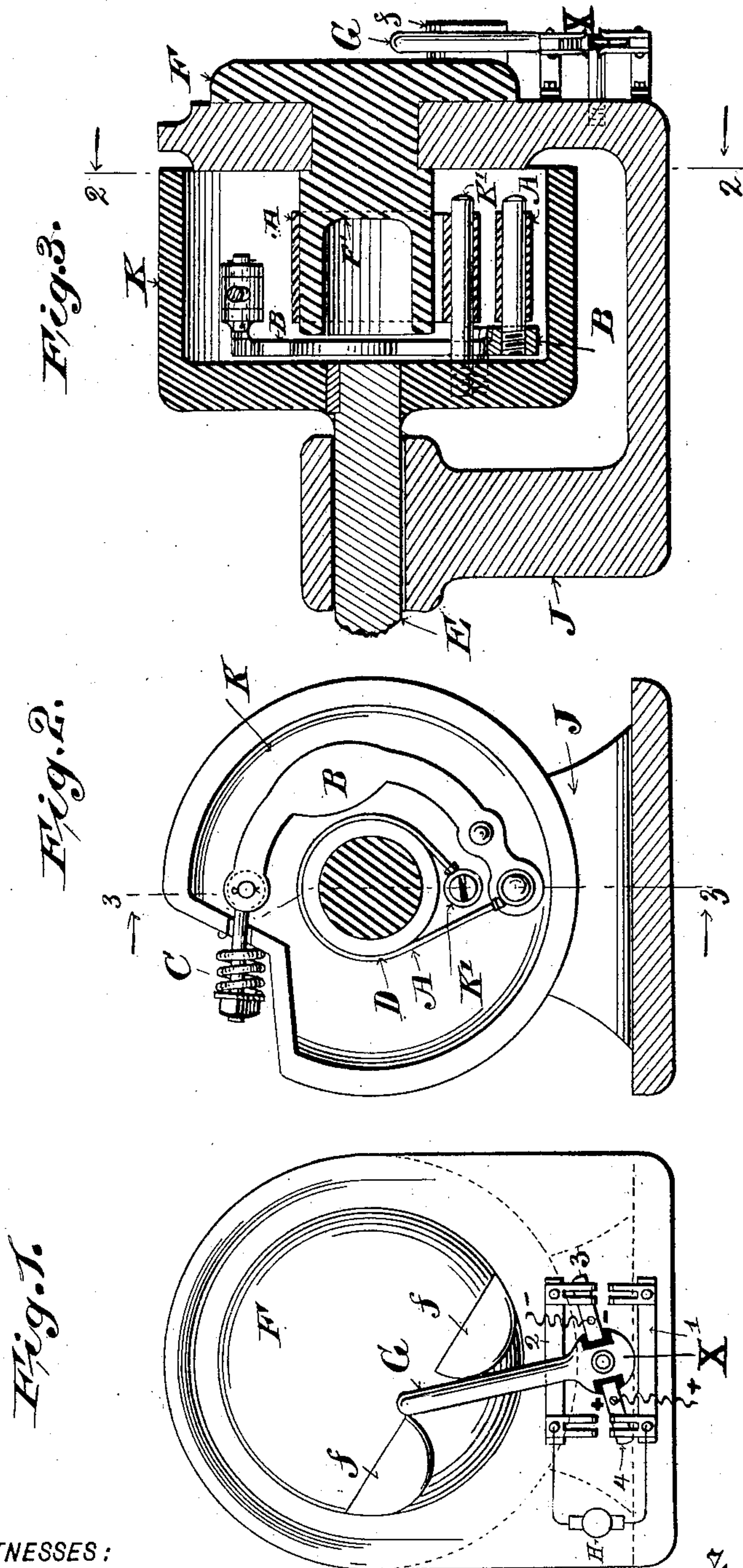
No. 706,082.

Patented Aug. 5, 1902.

M. MOSKOWITZ.
AUTOMATIC POLE REVERSER.

(Application filed Aug. 27, 1901.)

(No Model.)



WITNESSES:
C. W. Benjamin
H. S. Morton.

INVENTOR
Morris Moskowitz
BY *David S. King*
ATTORNEY

UNITED STATES PATENT OFFICE.

MORRIS MOSKOWITZ, OF BROOKLYN, NEW YORK, ASSIGNOR TO JAMES H. YOUNG, TRUSTEE, OF NEW YORK, N. Y.

AUTOMATIC POLE-REVERSER.

SPECIFICATION forming part of Letters Patent No. 706,082, dated August 5, 1902.

Application filed August 27, 1901. Serial No. 73,441. (No model.)

To all whom it may concern:

Be it known that I, MORRIS MOSKOWITZ, a citizen of the United States, and a resident of Brooklyn, in the State of New York, have
5 invented certain new and useful Improvements in Automatic Pole-Reversers, of which the following is a description, which, together with the accompanying drawings, forms part of this specification.

10 The object of this invention is to provide a means for automatically reversing the polarity of an electric generator which is subject to changes in speed and in direction of rotation.

15 By the use of this device the current generating in the dynamo will always flow in one and the same direction irrespective of the direction of rotation of the armature-shaft of the generator.

20 Figure 1 is an outside view of the pole-reverser and its connections. Fig. 2 shows the armature-shaft on the plane 2 2 of Fig. 3. Fig. 3 is a cross-section on the plane 3 3 of Fig. 2.

25 For convenience of illustration and description this automatic pole-reverser is shown and described as applied to a generator generating electricity for car-lighting by means of the rotation of the car-axle; but it is by
30 no means limited to such a use and may be adapted to be used with any form of generator or motor whose armature is subject to reversal and where it is desired to have the current generated flow continuously in one
35 and the same direction.

To the end of the shaft E, which may be either the armature-shaft or any other shaft subject to the same reversals, is attached in
40 any suitable manner the disk K. An iron friction-band A, attached to the disk K by the pin K', bears lightly upon the friction-pulley D. This iron band A acts as a brake or friction-band and will turn the pulley D through the small angle, in which it is free to move in
45 either one or the other direction, as determined by the direction of rotation of the armature-shaft E. As the pulley D turns, it moves the arm G a short distance by means of the cheeks *f f*, so that the blades of the
50 switch X are moved to engage in one set and clear the alternate set of contacts. The move-

ments of the pulley D and of the arm G being limited, when the armature-shaft E rotates there will be a slipping and consequent friction pull between the band A and the friction-pulley D. 55

Connected with the band A is the centrifugal governor B, which may be of any appropriate construction. This governor B will be thrown outward toward the periphery of the
60 disk K with the increase in the speed of rotation of the armature-shaft E and against the tension of the spring C, thereby releasing the pressure of the friction-band A against the pulley D. The higher the speed, there-
65 fore, with which the armature-shaft rotates the more freedom the pulley D will have. Therefore when the generator is working at its normal speed there will be no loss of energy
70 by the band binding on the friction drum or pulley. The arm G will not change its position, and therefore the cheeks *f f* will hold the switch X in the position in which it was originally thrown—as, for instance, the extreme
75 left-handed position shown in Fig. 1. If the direction of rotation of the armature-shaft is reversed by reason of the car running in a direction opposite to that in which it first
80 goes, the shaft E will for an instant come to a state of rest. The spring C will draw the governor B toward the center of the disk K, which movement will cause the friction-band A to again firmly grip the pulley D. The
85 shaft will then turn in an opposite direction, the arm G will be thrown over to the right, and the cheeks *f f* will carry the switch X to a position which will be determined by the
rate of travel of the car.

In the diagrammatic illustration in Fig. 1 of the switch connections it will be observed
90 that the switch receives its current directly from the armature H into the bars 1 and 2. The two switch-blades (marked, in correspondence with the current they receive, + and —) are insulated one from the other and
95 are directly connected with the lamp-circuit. When the arm G is carried over in one or the other direction, the current will be rectified, making the blade 3 negative and the blade 4 positive at all times, the armature H being
100 subject to reversals of current in accordance with the direction of rotation of the shaft E.

As shown in the drawings, it has been found expedient for several reasons to mount the shaft E on the bearing J, which is made integral with the bearing for the plate F, carrying the cheeks *f* and the switch X; but, however, it may be constructed in any manner most convenient and best adapted to the uses to which the reversing mechanism may be put. The plate F has its core hollowed out at F', as shown in Fig. 3, for the sake of lightness of construction.

Having now described my invention in the form best known to me and without enumerating the various changes which may be made and the various uses to which this invention may be adapted, in the following claims I point out its new and characteristic features.

I claim—

1. In combination with an electric generator and its armature, means for automatically reversing the polarity of the generator, consisting of a friction pulley and brake operated by the armature-shaft of said generator, a centrifugal governor connected thereto, and a switch controlled by the movement of said pulley, substantially as set forth.

2. In combination with a shaft subject to reversal of rotation, an automatic pole-

changer controlled thereby and combining frictional means for actuating it in a direction corresponding with the direction of rotation of said shaft, and means for reducing the friction when a given speed limit is reached.

3. In combination with a shaft subject to reversal of rotation, an automatic pole-changer controlled thereby and combining frictional means for actuating it in a direction corresponding with the direction of rotation of said shaft, and centrifugal means for reducing the friction as the speed increases.

4. In combination with a shaft subject to reversal of rotation, an automatic pole-changer controlled thereby and combining frictional means for actuating it in a direction corresponding with the direction of rotation of said shaft, having a spring acting to produce the friction and a centrifugal means for counteracting the spring as the speed increases.

Signed this 26th day of August, 1901, at New York, N. Y.

MORRIS MOSKOWITZ.

Witnesses:

HENRY F. BROOKS,
U. S. MORTON.