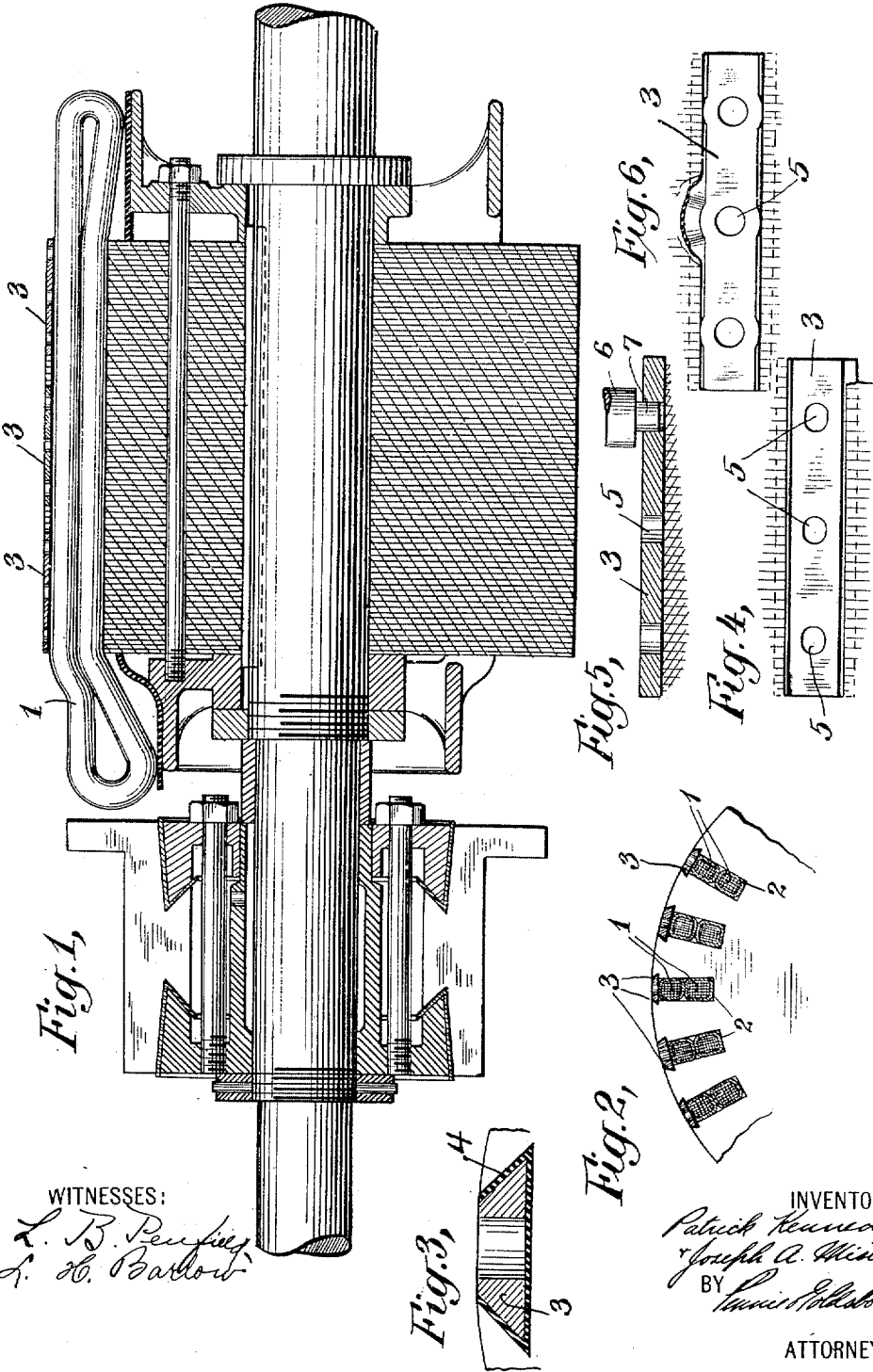


P. KENNEDY & J. A. MISLAND.
COIL RETAINING MEANS.
APPLICATION FILED MAY 15, 1909.

980,286.

Patented Jan. 3, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE

PATRICK KENNEDY, OF NEW YORK, N. Y., AND JOSEPH A. MISLAND, OF BAYONNE, NEW JERSEY.

COIL-RETAINING MEANS.

980,286.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that we, PATRICK KENNEDY and JOSEPH A. MISLAND, citizens of the United States, residing at New York, county and State of New York, and Bayonne, county of Hudson, and State of New Jersey, respectively, have invented certain new and useful Improvements in Coil-Retaining Means; and we do hereby 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.

The invention relates to means for securing the current-conductors of dynamo-electric machines within the slots in which they are embedded and the object of the invention is to provide an inexpensive and more secure retaining means than has heretofore been employed.

The particular nature of the invention will be understood from the following description and the accompanying drawings in which there is disclosed the preferred form.

In the drawings Figure 1 is a central longitudinal section of the armature of a dynamo electric machine showing a coil retained in place by the improved retaining means. Fig. 2 is an end view of a portion of the periphery of the armature, the conducting windings being shown in cross section, Fig. 3 is a cross section on a larger scale of the extremity of a slot containing a coil-retaining wedge or key, and Figs. 4, 5 and 6 are detail views on a larger scale, (Fig. 5 being a section and Figs. 4 and 6 plan views), illustrating the manner in which the improved retaining device is secured in place.

The coils 1 of the armature are laid in the slots 2 in the ordinary way, the slots at their outer ends being given a dove-tail groove formation as illustrated in Fig. 2. The improved retaining devices comprise metallic wedges or retaining keys 3 lying in these dove-tail grooves on top of the coils. We find that it is necessary to insulate these metallic wedges or keys from the metal of the armature, and to that end we line the dove-tail groove with a lining of insulating material as indicated at 4. Many different insulating substances may be used for this purpose but we have found that mica

nite molded to the desired shape may be employed with good effect. Since, however, the keys or wedges must be tightly locked in the dove-tail grooves difficulty is encountered in getting them in place without destroying the insulating material. To avoid this difficulty we propose to make the wedges or keys of such a size that they fit rather loosely inside of the insulating lining within the dove-tail groove, and may be easily inserted without destroying the insulation, and we then provide means for expanding the wedges or keys at some portion of their length to form a firm and secure locking engagement. It will readily be understood that this expanding of the metal wedges or keys may be carried out in many different ways and in the drawings Figs. 4, 5, and 6 we have indicated one convenient way. Referring to Fig. 4 the wedge 3 is there illustrated in its condition before expansion and is provided with a convenient number of elliptical holes 5 adapted to receive an expanding tool 6 as indicated in Fig. 5. The tool 6, as will be understood, has an elliptical projection 7 adapted to fit within the elliptical holes 5, and then by rotating the tool the metal of the wedge or key at the region of the hole is expanded laterally as indicated in Fig. 6 and is wedged against the insulating lining and the wall of the dove-tail groove, so that the key is securely locked in place.

We find that these improved retaining wedges or keys may be applied with great convenience and that they have great durability, and in every way are an improvement upon the means commonly employed for the purpose. The keys may be made of standard sizes to fit different sized conductor-slots and may conveniently be distributed along the length of the slot as indicated in Fig. 1.

The improved retaining means is peculiarly valuable in the case of machines which are operated under such conditions that the armatures or other rotating parts of the machine must be driven continuously over long periods without inspection, as is the case of railway motors and axle driven railway lighting generators for example, because in such cases an armature conductor is liable to become loosened and in the absence of any inspection the defect is not discovered until

the conductor finally leaves its slot and the machine is seriously damaged.

What we claim is:

1. The method of securing conductors in slots of dynamo-electric machines which consists in inserting a metallic wedge or key in the slot after the coils are in place, and then expanding the metal of the wedge or key at intervals so as to produce lateral projections from the main body portion thereof sufficient to secure it in its coil retaining position.

2. A dynamo-electric machine having conductor-slots terminating at their outer ends in grooves, said grooves being lined with insulating material, and coil-retaining devices in said grooves comprising insulated metallic keys having lateral projections at

intervals along their length in wedging engagement with the lined grooves.

3. The method of securing conductors in slots of dynamo-electric machines which consists in placing insulation in the slots above the conductors together with metallic keys or wedges having elongated holes in their bodies, and expanding the metal of the keys or wedges laterally at the region of said holes.

In testimony whereof we affix our signatures, in presence of two witnesses.

PATRICK KENNEDY.
JOSEPH A. MISLAND.

Witnesses:

AUG. TREADWELL,
WALTER E. GREEN.