(No Model.)

J. J. WOOD.

COUPLING FOR COMMUTATORS AND ARMATURE WIRES.

No. 261,288. Patented July 18, 1882.

Fig. 1.

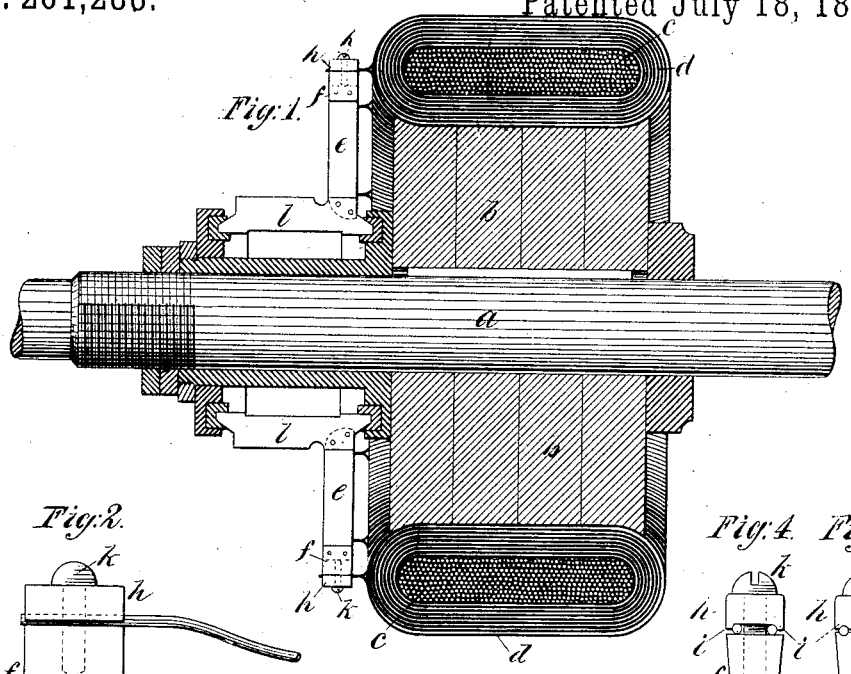


Fig. 2.

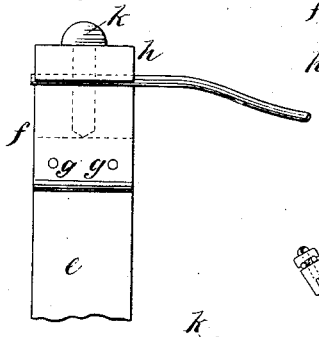


Fig. 3.

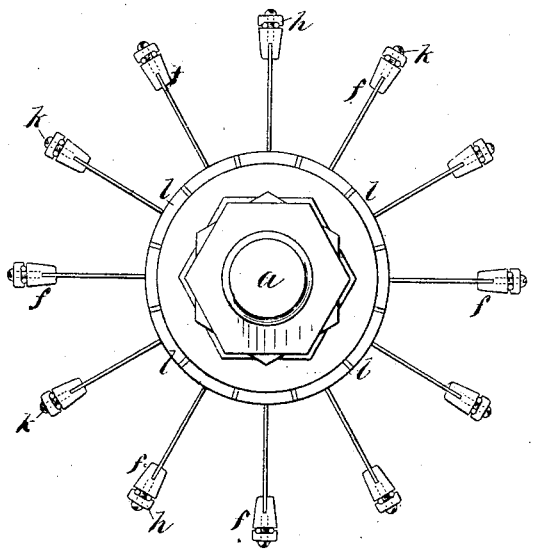


Fig. 4.

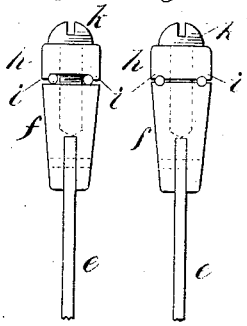
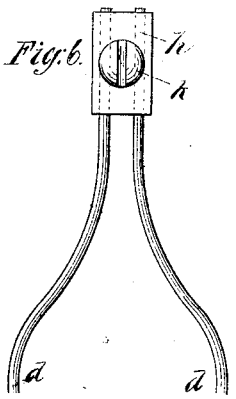


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES J. WOOD, OF BROOKLYN, NEW YORK.

COUPLING FOR COMMUTATORS AND ARMATURE-WIRES.

SPECIFICATION forming part of Letters Patent No. 261,288, dated July 18, 1882.

Application filed October 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WOOD, of Brooklyn, Kings county, New York, have invented certain new and useful Improvements in Commutator-Couplings for Electrical Armatures, of which the following is a specification.

My invention relates more especially to the Gramme form of armature and commutator; and it consists in an improved device for connecting or coupling the ends of the generating-coils with the commutator strips or sections, as hereinafter set forth.

Figure 1 of the drawings annexed presents a vertical longitudinal section of a Gramme armature and commutator. Fig. 2 is an enlarged side elevation of one of the clamps connecting the coil-wires with the commutator. Fig. 3 is an end view of the commutator, showing the radial strips extending from the segments of the commutator and terminating with the clamps which receive the ends of the armature-coils, the ends of the wires being represented as clamped thereby, but the armature itself being removed. Fig. 4 is an enlarged end view of one of these clamps, and Fig. 5 is a similar view of a slight modification. Fig. 6 is a plan view of one of the clamps.

In Fig. 1, *a* indicates the driving-shaft to which the armature and commutator are secured. *b* indicates the wooden hub of the armature; *c*, the iron-wire core, and *d* the copper generating-coils, wound thereon in the usual manner. *l l* indicate the segments of the commutator, which correspond in number and in radial positions with the generating-coils, and from each of which project radial copper strips *e e* at the end near the armature, as seen in Fig. 1, each of which strips connects with the armature-coils in the usual manner—that is, the last end of one coil and the first end of the next coil connect with the same strip, as partly seen in Figs. 1, 3, and 6. Now, on the tip of each strip *e* is affixed my improved clamp or coupling to receive and hold the ends of the coil-wires. This coupling consists of a small metal block, *f*, preferably brass, on the under side of which a slot is milled, in which the tip of the strip *e* is snugly socketed, and is then affixed by solder or rivets *g g*, Figs. 1 and 2, or by both. This block has preferably a level top, or is indented with two parallel grooves, as in Fig. 5, and over the top of the block is placed a cap, *h*, which preferably coincides with the form of the top, so as to be flush with the same, and on its under side are formed either two marginal lips, *i i*, as in Figs. 3 and 4, or two marginal grooves, as in Fig. 5, to match with similar grooves in the top of the block. Through the center of the cap extends a clamp-screw, *k*, whose head bears upon the cap, while its stem screws into a tapped hole in the center of the block, as illustrated in the several figures. Now, when this screw *k* is loosened the ends of the generating-coils are passed between the cap and the block and on either side of the screw, the last end of one coil being inserted on one side of the screw and the first end of the next coil on the other side of the screw, and the screw is then tightened, causing the cap to forcibly approach the block and securely clamp the wires between them, thereby making perfect connection between the coils and commutator-segments in a simple and neat manner. The position of the clamp-screw between the wires of course prevents the wires from coming nearer together, while the marginal lips or grooves *i i* prevent the wires spreading and escaping from beneath the cap, while the tendency is rather to force the wires laterally against the screw and prevent it from loosening. Hence by this form of connection not only is the construction very simple and symmetrical and the wires coupled in a very convenient and neat manner, but by reason of the broad bearing upon the wire (see Figs. 2, 4, and 6) the electrical connection is perfect without tending to cut or injure the wire; yet at the same time the connection is readily detachable, when required, to permit the removal of any segment of the commutator or any coil of the armature, which is frequently necessary to correct a defect or short circuit at some part. This device is hence an obvious improvement over the old system of soldering the connections, which is inconvenient, clumsy, and not detachable, and is equally an improvement over the previous

forms of clamp-screws, in one of which the ends of the wires are inserted in an eye, while the mere point of the clamp-screw bears thereon, which does not make a good connection, and tends to and frequently does cut off the wires, which are of course of soft copper, easily severed. In the other case the ends of the wires are coiled under the head of the clamp-screw, which is both clumsy and inconvenient and not so certain of making a perfect connection.

The block *f* and strip *e* may of course be made in one piece, or the commutator-segment, strip, and block may all be made in one piece; but it is not desirable.

The lips *i* in Fig. 4 might of course be formed on the face of the block *f*, instead of on the cap *h*, if desired.

What I claim is—

1. The combination, with an electrical armature-coil and commutator-segment, of the clamp-block *f*, cap *h*, and clamp-screw *k*, arranged and operating substantially as and for the purpose set forth.

2. In combination with electrical armature-coils and commutator-segments, the clamp-block *f*, cap *h*, and clamp-screw *k*, with the ends of the armature-coils placed between the block and cap and on each side of the clamp-screw, substantially as herein shown and described.

3. The combination, with an armature-coil and commutator-segment, of the clamp-head *f* and cap *h*, with a clamp-screw, *k*, connecting the two, and marginal lips *i i* on the face of one part, with the ends of the armature-coils placed between the cap and block and between the lips and the sides of the screw, substantially as herein shown and described.

4. The combination, with the segment of a commutator and the strip *e* projecting therefrom, of the block *f*, affixed to the outer end of said strip, with the cap *h*, mounted upon the end of said block, and clamp-screw *k*, passing through the cap into the block, forming between them a clamping-socket to receive the ends of the armature-wires, substantially as herein shown and described.

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