

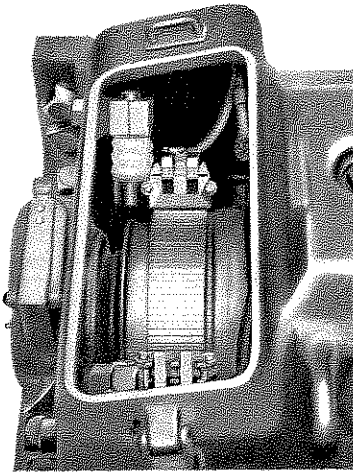


THIS IS THE PROPERTY OF
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Better Commutation

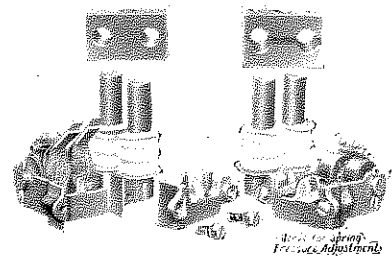
for

Railway Motors



The commutation of railway motors can be improved by carrying out the following recommendations:

1. Keep commutator mica segments undercut or grooved; cutting depth about $\frac{3}{64}$ inch.
2. Keep commutator surface smooth.
3. Use best grade of brush made of highest quality materials. Selection of brush depends upon local conditions and design of motor involved. See descriptive sheet 64404.
4. Do not allow oil to come in contact with commutator mica or carbon brushes.
5. Keep bottom of carbon box between $\frac{1}{8}$ and $\frac{1}{4}$ inch away from commutator surface.
6. See that brush fits carbonway without excessive clearance, but is free to move in response to the brush pressure used. Maximum clearance between new brush and new carbonway is 0.008 inch. The clearance should not be allowed to exceed $\frac{1}{32}$ of an inch.
7. Replace worn carbonways promptly. Many motors are equipped with brush-holders having *renewable* carbonways.
8. Clean brush-holders and supports regularly. Moisture or dust on any part of brush-holder or support may cause failure.
9. Keep armature linings in good condition so that air gap will be maintained uniform. This will minimize the movement of the armature in going over rough track, which tends to cause flashover.
10. Maintain proper brush pressure. It is advisable to follow the brush manufacturer's recommendations on the pressure to use. The pressure depends on the type of brush as well as the local conditions of service. It is essential that the pressure be sufficient to keep the brush on the commutator at all times.
11. Keep track and road bed in good condition. Rough track is the cause of many commutation troubles.



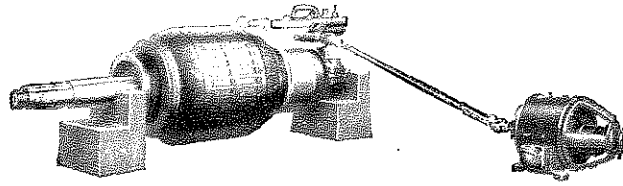
General Electric Company, Schenectady, N. Y.

SALES OFFICES IN ALL LARGE CITIES



Commutator Grooving Machines

Portable and Stationary Types



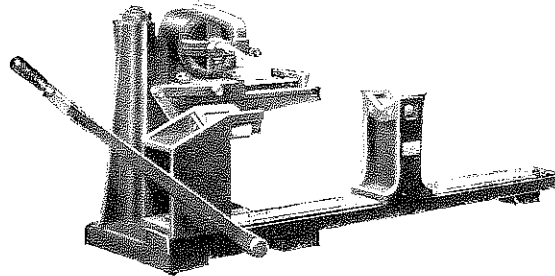
PORTABLE MACHINES—FORM 3

The Form 3 machine is a simple portable outfit which can readily be moved to any part of the shop, clamped to the armature and thus completely groove the commutator in a few minutes.

This machine has adjustable stops, which direct the travel of the saw to the brush surface of the commutator. It is equipped with a floating driving shaft which permits the grooving of a number of slots at one setting of the armature and an angular adjustment which can be used when the commutator bars are not exactly parallel to the shaft.

Loosening of the clamp bolts is unnecessary as a slight tap with the hand readily shifts the saw from slot to slot. The clamp is lined and will not mar the armature shaft.

The driving shaft is equipped with universal toggle joints and provision is made for either belt or motor drive.



STATIONARY MACHINES—FORM 2

The Form 2 machine meets the need of large railways for a stationary shop tool.

The base is provided with adjustable pillow blocks having "V" shaped bearing surfaces with brass rollers.

The slide arm is designed for both vertical and angular adjustment, the latter adjustment to be used where the commutator bars are not exactly parallel to the shaft.

The rotating saw is mounted on the end of the motor shaft which is extended and supported by an offset bearing, which readily permits the grooving of commutators having cars. Owing to the small size of the motors used with these machines, no starting resistance is necessary.



COMMUTATOR HAND SCRAPER

The hand scraper is for removing mica fins which are left in the slot by the grooving saw. A triangular curved file is sometimes used for removing the copper projections, but the removal of a very thin portion of the commutator surface by turning in a lathe using a special high-speed steel tool (trade name No. 3 Stellite), is recommended. The remaining copper burr left on the trailing edge of each commutator bar can be removed by the hand scraper above illustrated. A final polishing with sandpaper will make a smooth surface which is necessary for good commutation and long life of brush.

General Electric Company