ELECTRO-MECHANICAL DESIGN AND PRODUCTION CONSULTANT

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ELECTRIC MOTOR SPECIALIST

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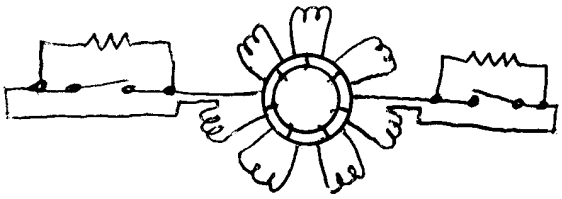
JUNE PROGRESS REPORT

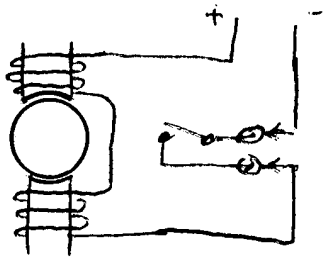
GOVERNED SPEED D.C. MOTOR

At the start of this investigation, it was decided that two approaches to the problem would be made:

(a) A governor would be made with two pairs of contacts which would open the armature circuit at symmetrically opposite points and add resistance to the armature to decrease the current, thereby decreasing the speed. The electrical diagram of this method is shown below.



(b) An auxiliary field would be wound on the magnet structure and a single governor contact would close at the governing speed which would energize the field, increasing the flux and slowing down the motor. The electrical diagram is shown below.



As soon as a layout of the motor was made, it was seen that there was no room for an auxiliary field to be wound on the pole structure, so method (b) was abandoned.

Another method was conceived at this point. A winding could be added to the armature spanning approximately 180°. This winding would be isolated from the other windings; and at a preset speed, the contact could be closed to cause a closed loop in the armature . This loop, by dissipating power in itself, would cause a damping torque which would slow the rotation down. The electrical diagram is shown below.

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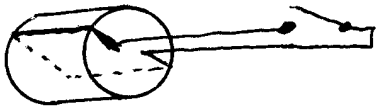

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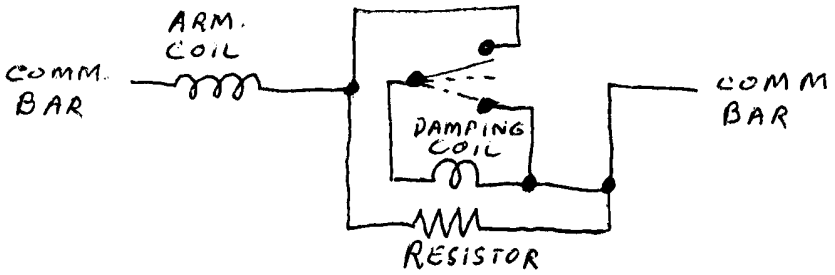
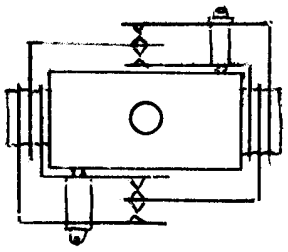
This could also be combined with method (a) to provide a two step function as shown by the diagram below.



The design of the governor blades themselves will be as shown below.



In this manner, the rectangular metal block will hold the blades firmly so that no creep will occur, and the double blades of the same spring material will compensate for temperature change.