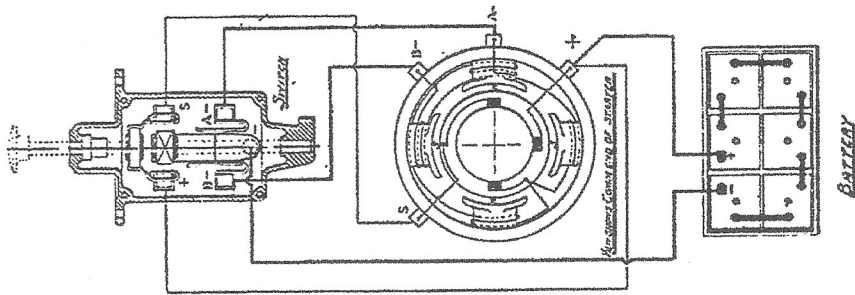
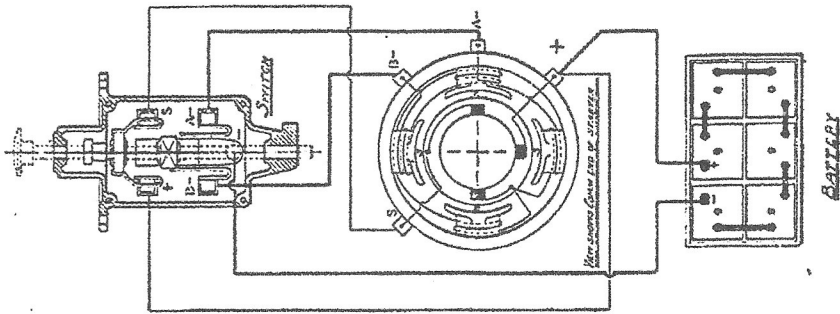


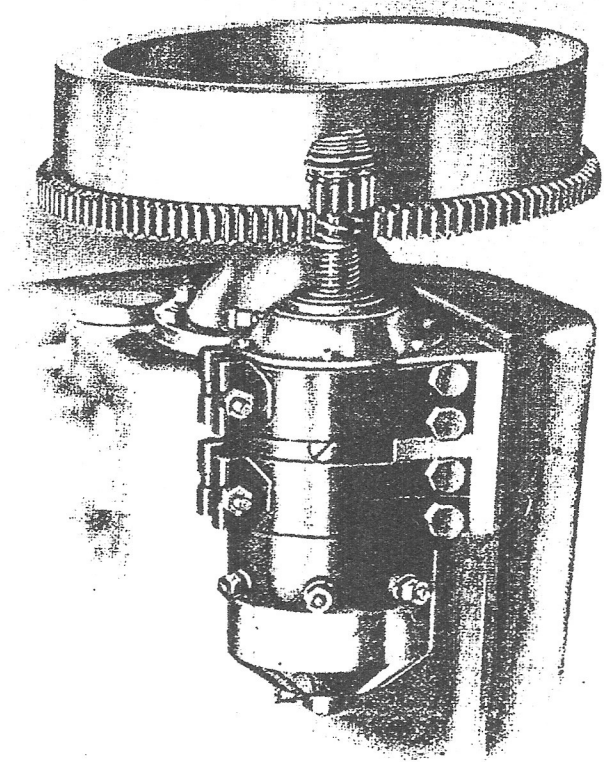
The ordinary series wound motor as generally employed for starting purposes has a very rapid acceleration and consequently the noiseless engagement of the gears is impossible, moreover, the full power is applied on the teeth before they are right home. With the C.A.V. new geared starter special additional field windings are provided giving a weak field. The first part of the movement of the switch connects these windings, and at the same time part of the armature is short circuited. The effect of this is that the motor commences to revolve very slowly, whilst the armature also moves endwise slightly, due to the solenoid action of the field magnets. This ensures that the sliding pinion does not stick against the top of a tooth.



(1) Off position. In this position the spring controlled contact is short circuiting that part of the armature subtended by the main brush and the slow running brush, but no current is passing.



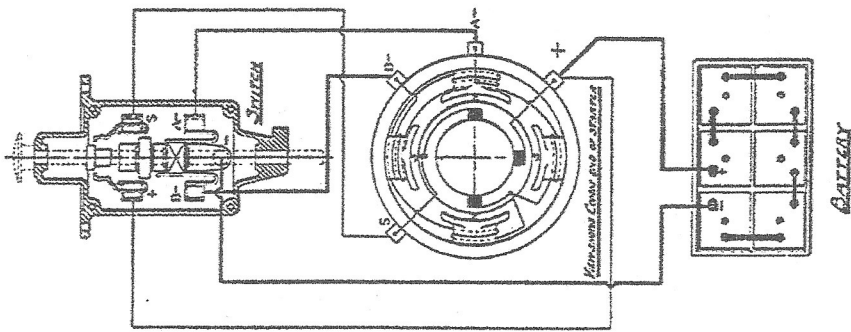
(2) In this position the short circuit is still on, but the "slow running" coils are connected to the battery, giving the initial engagement of the gears, and the armature revolving slowly pulls the pinion right home before the power is applied.



THE C.A.V. NEW GEARED STARTER

Once entered, the continued revolution of the armature draws the pinion right home and the further movement of the switch applies full power, previously releasing the short circuiting block. There is no difficulty about the operation of the switch, the only precaution necessary being to operate it *slowly*.

The accompanying diagrams show what usually happens when switching on the starter



(3) In this position the short circuiting block is held out of engagement by the pressure of the spring, while both the "slow running" and "power" coils are connected to the battery in series parallel. The particular diagram illustrated is that of the "Z.B." Starter, clockwise rotation.