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GB 1546665=
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- (71) Applicant
Tekron Patents Limited,
28—32 Upper Pembroke
Street, Dublin 2, Ireland
- (72) Inventors
Derek John Charles
Bernard,
Frank Arthur Davenport,
David Nigel Larkins,
Duncan Alistair Taylor
- (74) Agent
Kilburn & Strode

(54) **Circuits for Electric Window Winders for Vehicles**

(57) Various control circuits are described for electric window winders for vehicles. All these circuits allow the window to be fully closed or fully opened by a momentary operation of a control switch. In Figs. 1—3 (not shown), a bistable circuit (30) responds to momentary operation of a control switch (32 or 34). In Fig. 4, a microprocessor 150 responds to momentary operation of control switch 32 or 34. In Figs. 7—11 (not shown), the control switches are provided by a toggle switch having a mechanical retaining latch which operates upon actuation of the toggle

switch. Certain of the embodiments also have other features; they limit the current supplied to the motor of the window winder, so that a trapped finger, for example, is unlikely to be broken; and if the window refuses to move when the motor is energised, the motor energisation is reversed at intervals to try to free the window. In a particularly preferred embodiment, Fig. 4, the only operator controls are two push-buttons 32, 34, for opening and closing movement respectively; a momentary operation of the appropriate button will cause the window to close or open fully, while a more prolonged operation of a button will energise the motor for only as long as the button is operated.

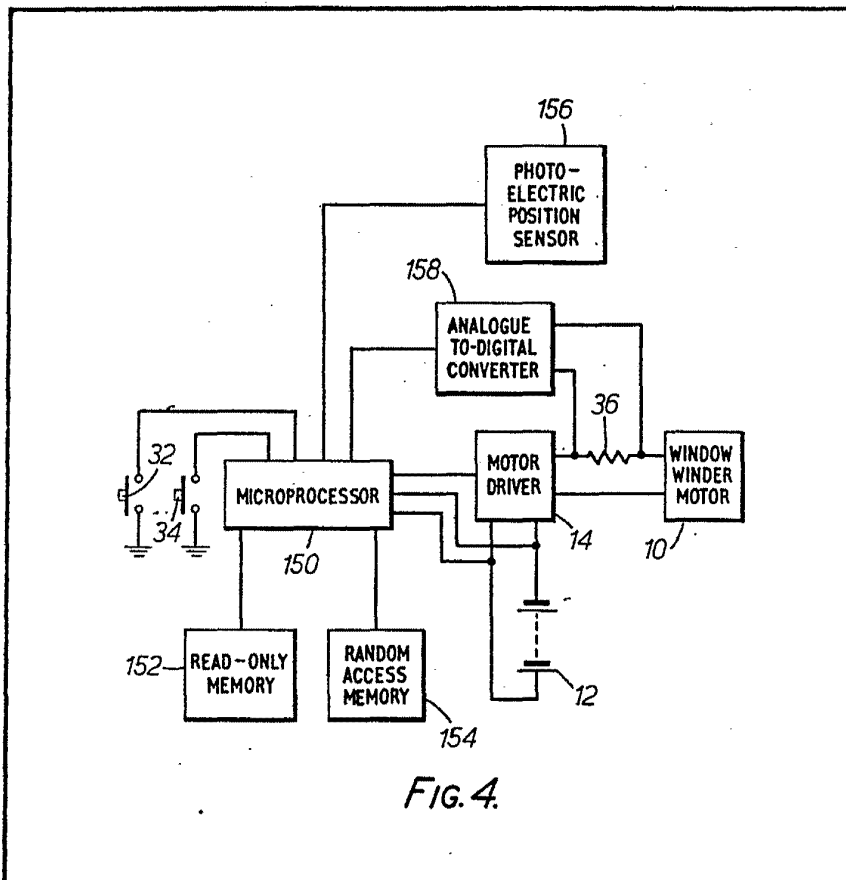


FIG. 4.

The drawings originally filed were informal and the print here reproduced is taken from a later

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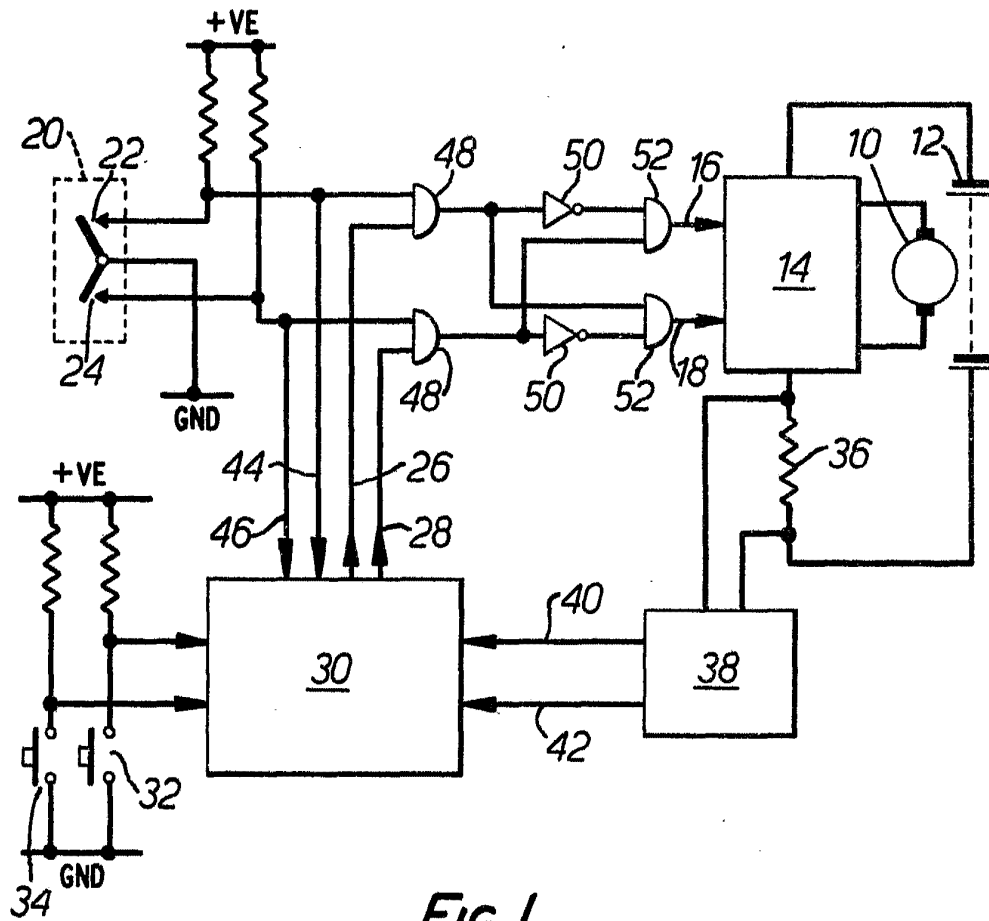


FIG. 1.

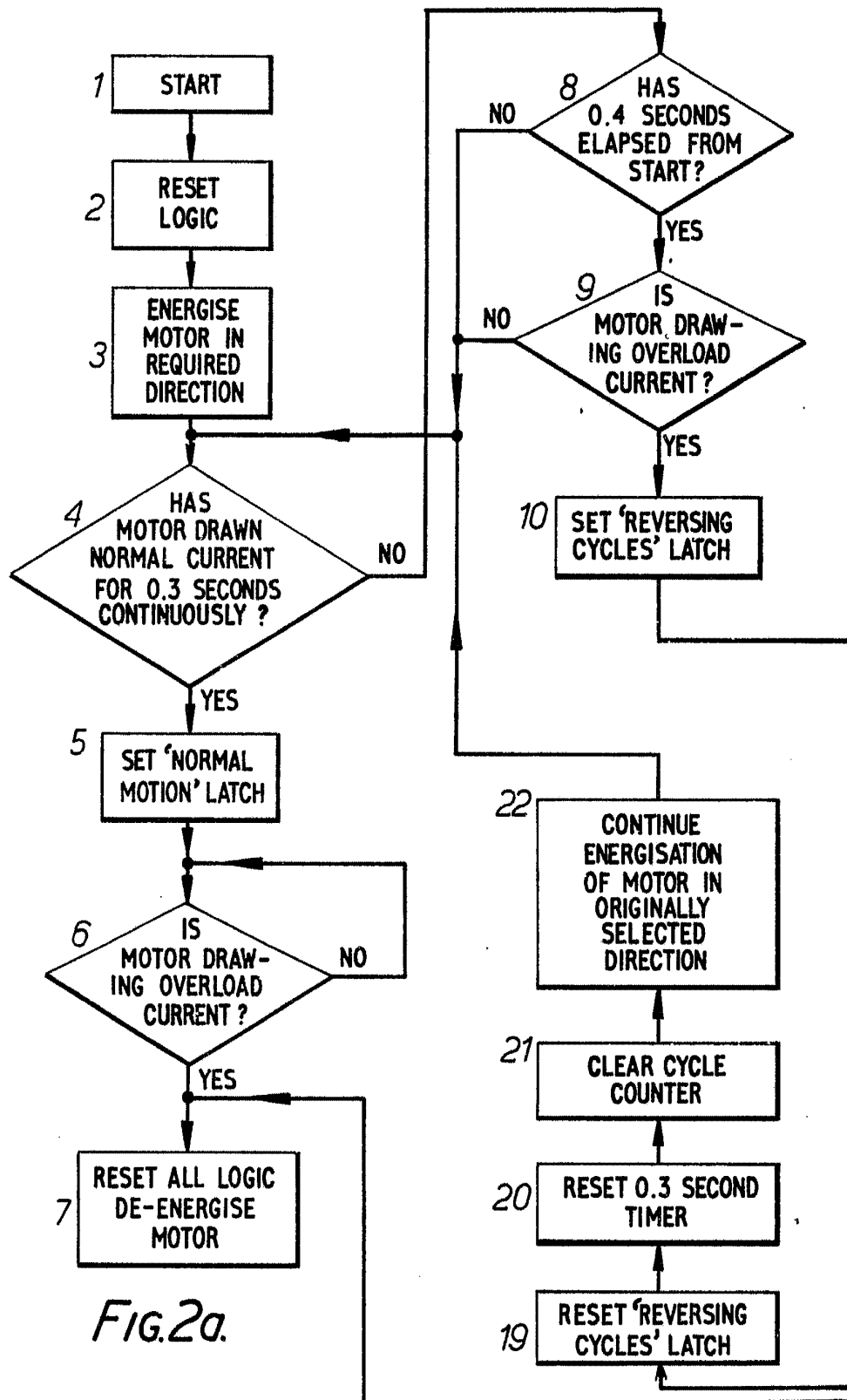
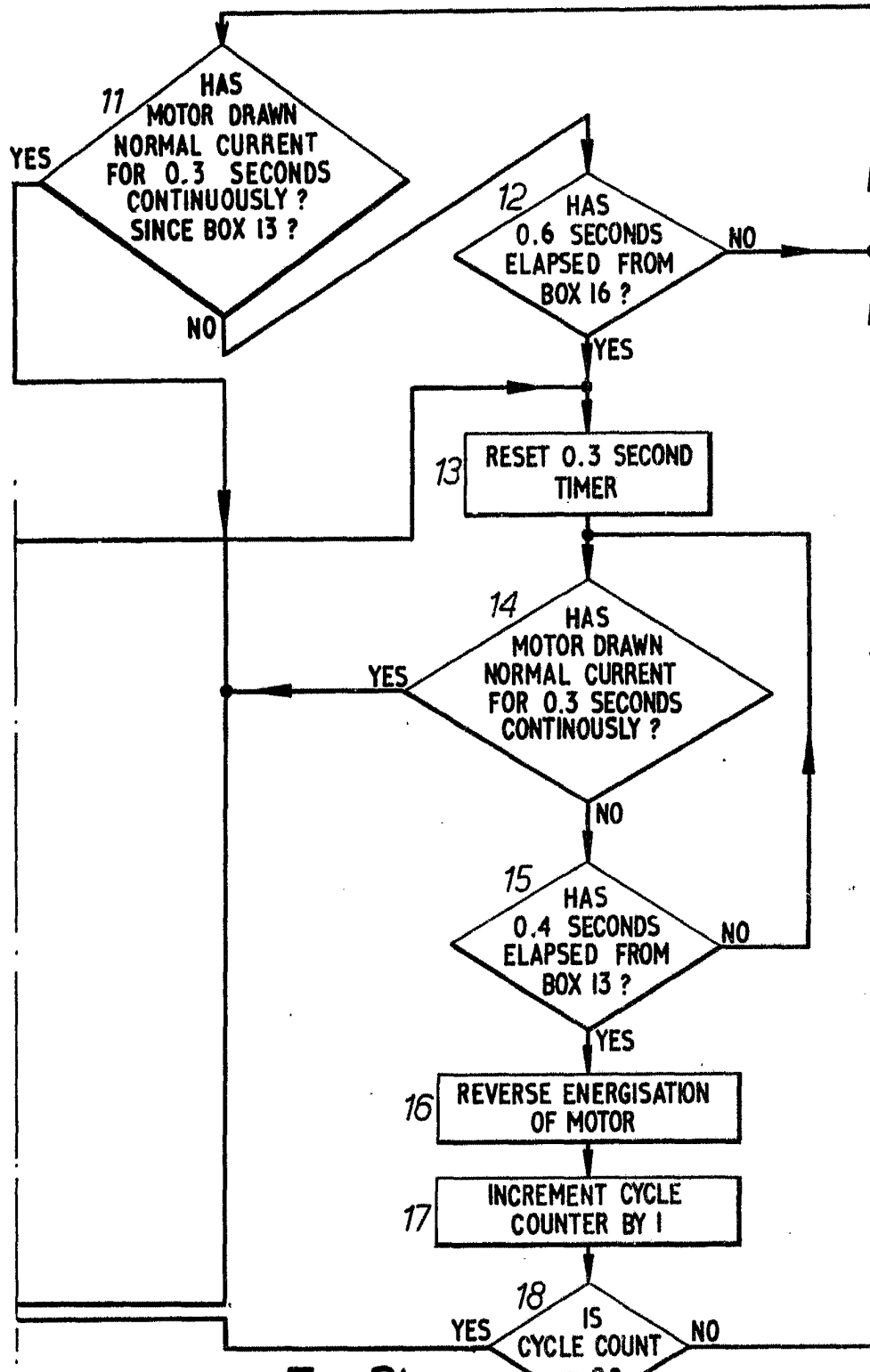


Fig. 2a.



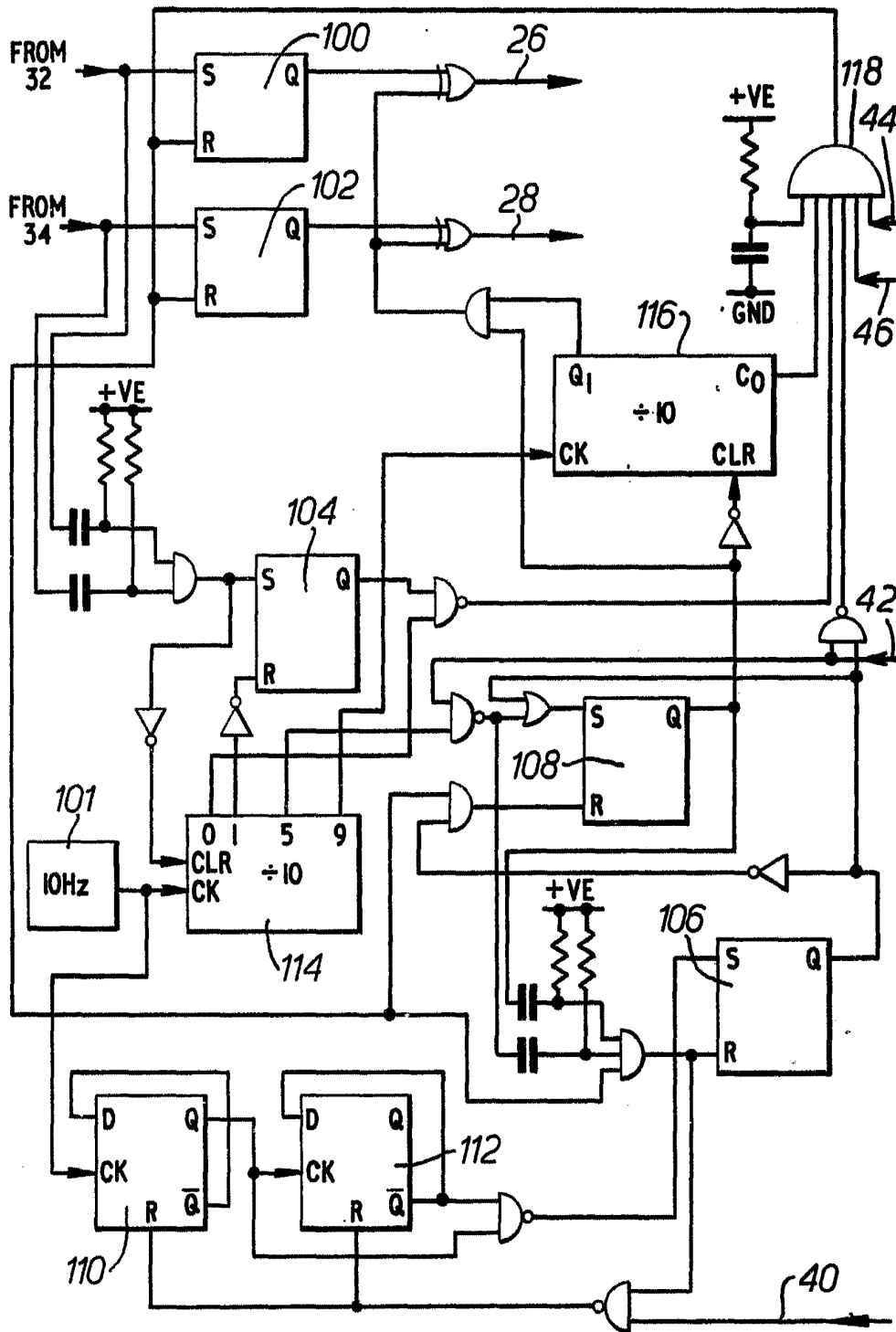


FIG. 3.

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