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(54) **FEEDING ELECTRONIC CIRCUIT APPLICABLE TO ELECTRIC DOOR OPENERS**

(57) The electronic circuit comprises: a rectifying block (1) connected through two polarless connectors to a main feeding source (a) with a range of 6 to 28V AC / DC; a voltage governor (2) connected to the rectifying block (1) and providing an internal fixed and stable feeding (b) to a microprocessing system (4) determining the level of the main feeding (a) by means of a conditioning

stage (3), carrying out a timing operation to activate a power stage (5) which feeds initially a magnet with the maximum energy according to the main feeding (6 to 28V AC / DC), and subsequently a low energy mode using modulation of amplitude of pulses (c), the magnet (6) remaining activated up to the disconnection of the main feeding (a).

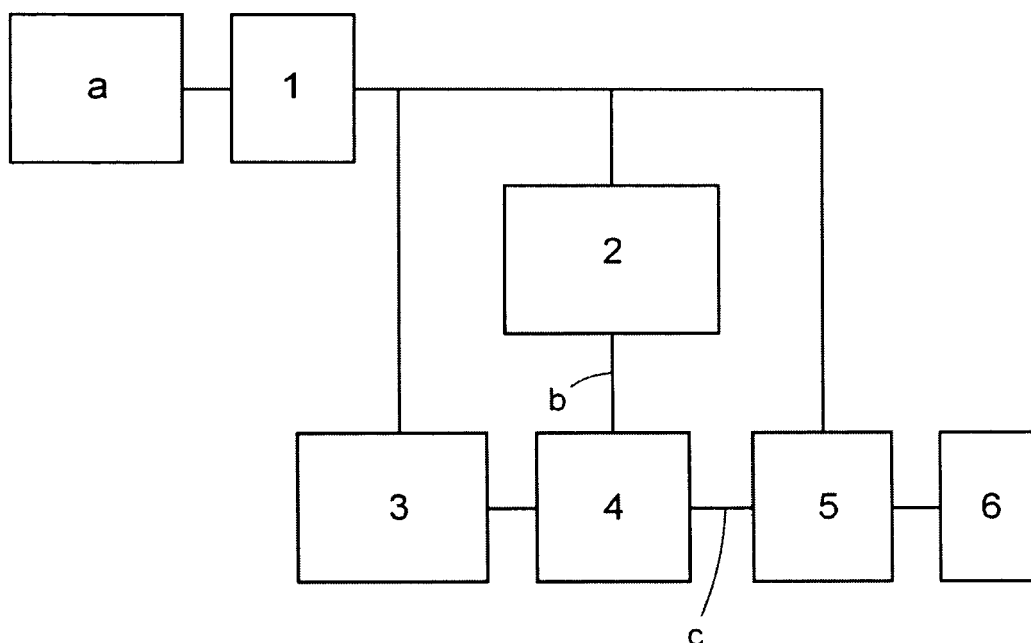


Fig. 1

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Description

Subject of the invention

[0001] The subject of the present invention is a feeding electronic circuit applicable to electric door openers permitting to activate a magnet for driving a cam or a blocking / unblocking element for the catch of a door opener.

[0002] This electronic circuit has characteristics aimed at permitting the magnet activated by the electronic circuit, to be capable to actuate any horizontal or vertical cam, or blocking / unblocking element of the door opener, having a preload of up to 30 Kp.

State of the art

[0003] To carry out opening of electric door openers these latter incorporate internally a driving electric device connected to an external connecting strip, said driving electric device consisting in an actuator or magnet that when activated it displaces the retention lever towards a non operating position in which it releases the blocking lever, permitting therefore the rotation of the swivelling catch and the opening of the door.

[0004] These door openers are designed to be fed a particular electric current, either, alternating or direct, with a given voltage, which means a drawback, both for the manufacturers who must have different models available and also for the installers, who must have for each repair or installation operation the suitable door opener to be fed with the electric current available in each case.

[0005] Utility model U201430862 of the same owner than the present invention an electric door opener is described which permits to solve the above mentioned feeding problems, comprising among other elements: an internal mechanism for blocking and unblocking the catch element as well as an electric device having an actuator or magnet to drive the retention lever towards an unblocking position; said door opener featuring a peculiarity consisting in that it comprises an electric circuit having: a connection strip receiving a feeding current, alternating or direct, with a voltage comprised between 6 and 28V, and a feeding outlet for the actuator or magnet feeding electric pulses during a predetermined opening period of time, and subsequently a direct voltage current.

Description of the invention

[0006] The feeding electronic circuit applicable to electric door openers, which is the subject of this invention, has features aimed at improving the control of the feeding of the magnet to activate a cam or blocking / unblocking mechanism for the door opener; the magnet being initially fed with de maximum energy according to the input feeding, within a range from 6 to 28V AC/ DC and subsequently in a low energy mode, so that the magnet is permanently activated until its disconnection from the main feeding.

[0007] According to the invention this feeding electronic circuit applicable to electric door openers comprises: a rectifying block connected through two polarless connectors to a main feeding source with a range of 6 to 28V AC / DC; a voltage governor connected to the rectifying block and providing an internal fixed and stable feeding to a microprocessing system determining the level of the main feeding by means of a conditioning stage, carrying out a timing operation to activate a power stage to feed initially a magnet with the maximum energy according to the main feeding 6 to 28V AC / DC, and subsequently a low energy mode using modulation of amplitude of pulses.

[0008] Given the action of said feeding electronic circuit, the magnet remains activated up to the disconnection of the principal feeding source and the microprocessing system is deactivated and subsequently the power stage ceases to activate the magnet, this latter returning to its initial rest state.

[0009] The magnet together with the above described feeding electronic circuit permits the electronic system of the door opener to be capable to activate any type of horizontal or vertical acting cam or blocking / unblocking element of the door opener with a preload up to 30Kp.

Description of the drawings

[0010] To complete the description and with the aim to facilitate the understanding of the features of the invention, a set of drawings is annexed to this description in which, in an illustrative but non limitative manner, the following has been shown:

- Figure 1 shows a block diagram of an example of embodiment of a feeding electronic circuit applicable to electric door openers, according to the invention.

Preferred embodiment of the invention

[0011] As is to be seen from the annexed block diagram, the electronic circuit which is the subject of the invention consists in the following building blocks or subsystems: rectifying block (1); voltage governor (2), conditioning stage (3), microprocessor system (4), power stage (5) and magnet (6).

[0012] The main feeding (a) in a range of 6 to 28V AC / DC is provided to the rectifying block (1) through 2 polarless connectors, within the amplitude range specified (minimum, maximum).

[0013] After feeding the circuit, the voltage governor (2) starts operating feeding a fixed and stable internal feeding (b) to the microprocessor system (4).

[0014] Immediately afterwards, the microprocessor system (4) starts its operation and determines the level of the main feeding (a) by means of the conditioning stage (3).

[0015] After this, a timing cycle is carried out to activate the power stage (5) with the maximum energy, according

to the main feeding (6 to 28V AC / DC), and subsequently a low energy mode is introduced by the use of pulse amplitude modulation (c).

[0016] While the main feeding is maintained, the magnet (6) will be activated indefinitely. If the main feeding (a) is disconnected, the microprocessor system (4) will be deactivated and subsequently the power stage (5) ceases to deactivate the magnet (6), this latter returning to its initial rest state. 5

[0017] Said magnet, together with the above described feeding electronic circuit, can activate any type of horizontal or vertical cam, or any other element for the blocking / unblocking of an electric door opener having a preload of up to 30 Kp. 10

[0018] After having sufficiently described the nature of the invention, as well as a preferred embodiment of the same, it is stated to all effects that the materials, shape, size and arrangement of the described elements can be modified, whenever the changes do not mean the alteration of the essential characteristics of the invention, which is claimed as follows. 15 20

Claims

1. Feeding electronic circuit applicable to electric door openers, **characterized in that** it comprises: a rectifying block (1) connected through two polarless connectors to a main feeding source (a) with a range of 6 to 28V AC / DC; a voltage governor (2) connected to the rectifying block (1) and providing an internal fixed and stable feeding (b) to a microprocessing system (4) determining the level of the main feeding (a) by means of a conditioning stage (3), carrying out a timing operation to activate a power stage (5) which feeds initially a magnet with the maximum energy according to the main feeding (6 to 28V AC / DC), and subsequently a low energy mode using modulation of amplitude of pulses (c), the magnet (6) remaining activated up to the disconnection of the main feeding (a) and the deactivation of the microprocessor (4) and consequently, the power stage (5) stops activating the magnet (6) which returns to its initial rest state. 25 30 35 40 45

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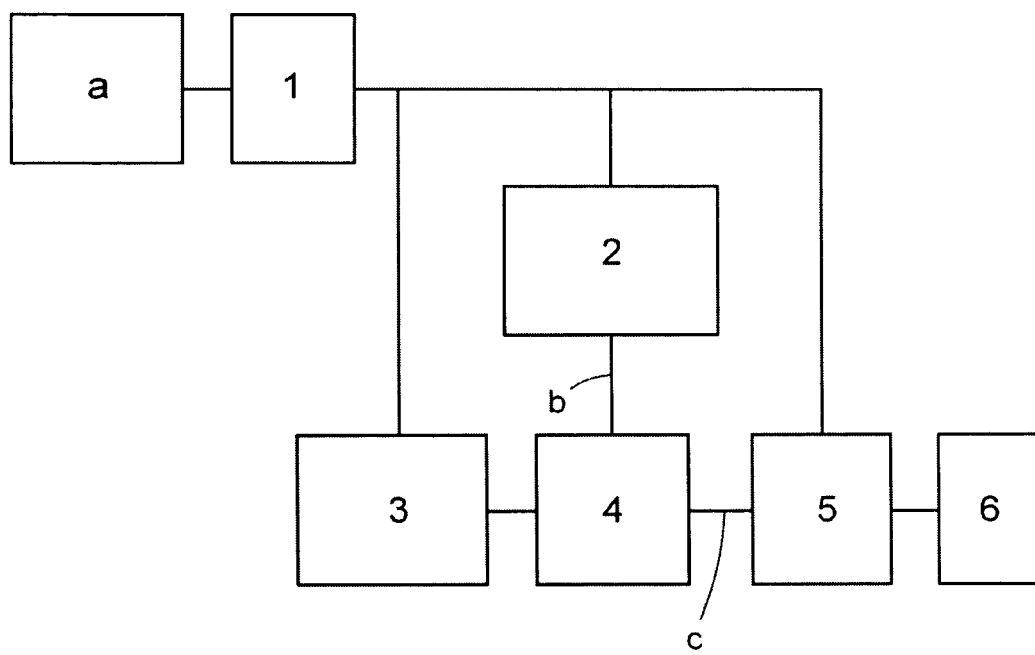


Fig. 1



EUROPEAN SEARCH REPORT

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EP 15 00 3654

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			TECHNICAL FIELDS SEARCHED (IPC)
			E05B H01H H01F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		21 April 2016	Ansel, Yannick
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82